UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AMAZON.COM SERVICES LLC,

Petitioner,

v.

SMART SPEAKER LLC,

Patent Owner.

Patent No. 11,190,590
Filing Date: May 30, 2018
Issue Date: November 30, 2021

Inventors: Yehuda Binder and Benjamin Maytal
Title: SYSTEM AND METHOD FOR SERVER BASED CONTROL

DECLARATION OF DR. MICHAEL SHAMOS IN SUPPORT OF PATENT OWNER'S RESPONSE

Case No. IPR2026-00148

I. INTRODUCTION

1. My name is Michael Shamos. I have been retained by counsel for Smart Speaker LLC ("Patent Owner") as a technical expert in connection with the proceeding identified above. I submit this Declaration in support of Patent Owner's Response ("POR") to the Petition ("Petition") for *inter partes* review of U.S. Patent No. 11,190,590 ("the '590 Patent"). Petitioner challenges Claims 1-36 and 38-63 (the "Challenged Claims"). Claim 37 is not challenged.

2. I make this Declaration based on my personal knowledge, education, professional experience, and my review of the materials identified in Section IV. If called to testify, I could and would testify competently to the matters set forth herein.

II. QUALIFICATIONS

3. A detailed description of my professional qualifications, including a listing of my specialties/expertise and professional activities and publications, is contained in my curriculum vitae, a copy of which is provided as Appendix A. Below is a short summary of my professional qualifications.

4. I received an A.B. (1968) from Princeton University in Physics; a M.A. (1970) from Vassar College in Physics; a M.S. (1972) from American University in Technology of Management, a field that covers quantitative tools used in managing organizations, such as statistics, operations research and cost-benefit analysis; a M.S.

(1973), and M.Phil. (1974) and a Ph.D. (1974) from Yale University in Computer Science; and a J.D. (1981) from Duquesne University.

5. I currently hold the title of Distinguished Career Professor in the School of Computer Science at Carnegie Mellon University in Pittsburgh, Pennsylvania. I am a member of two departments in that School, the Software and Societal Systems Department and the Language Technologies Institute. I was a founder and Co-Director of the Institute for eCommerce at Carnegie Mellon from 1998-2004 and from 2004-2018 was Director of the eBusiness Technology graduate program in the Carnegie Mellon University School of Computer Science. From 2018-2026, I was Director of the M.S. in Artificial Intelligence and Innovation degree program at Carnegie Mellon. I am now Associate Director of that program.

6. I have taught graduate courses at Carnegie Mellon in Electronic Commerce, including eCommerce Technology, Electronic Payment Systems, Electronic Voting, Internet of Things, Electronic Payment Systems and eCommerce Law and Regulation, as well as Analysis of Algorithms. Since 2007 I have taught an annual course in Law of Computer Technology (now Computer and AI Law). I currently also teach Artificial Intelligence and Future Markets.

7. I am the author and lecturer in a 24-hour video course on Internet protocols and have taught computer networking, wireless communication, and Internet architecture since 1999.

8. From 2001-2021, I was a Visiting Professor at the University of Hong Kong, where I taught an annual course in Electronic Payment Systems. This was one of only a handful of graduate courses taught on this subject in the world.

9. I was the Director of Carnegie Mellon's graduate degree program in eBusiness Technology from 1999-2018 and am now a faculty member in the Privacy Engineering degree program at Carnegie Mellon. My course on Computer and AI Law is required for all students in that program, the M.S. in Artificial Intelligence and Innovation program and in the Societal Computing Ph.D. program.

10. From 1979-1987, I was the founder and president of two computer software development companies in Pittsburgh, Pennsylvania, Unilogic, Ltd. and Lexeme Corporation.

11. I am an attorney admitted to practice in Pennsylvania and have been admitted to the Bar of the U.S. Patent and Trademark Office since 1981. I have been asked to render opinions in this Declaration as a technical expert. I have not been asked to offer any opinions on patent law in this proceeding.

12. I am a named co-inventor on the following six issued patents relating to electronic commerce: U.S. Patent Nos. 7,330,839, 7,421,278, 7,747,465, 8,195,197, 8,280,773, and 9,456,299.

13. I have previously served as an expert in over 410 cases concerning computer technology.

14. I am aware of contemporaneous litigation involving Petitioner and the Patent Owner in a case captioned *Smart Speaker LLC v. Amazon.com Services LLC,* Case No. 2:25-cv- 00707 (E.D. Tex.) (the "Litigation").

15. In this Declaration, all emphasis has been added unless otherwise noted.

III. COMPENSATION

16. I am being compensated at the rate of $600 per hour for my work in this matter, plus reimbursement of reasonable expenses. My compensation does not depend on the substance of my opinions or on the outcome of this proceeding or any related proceeding. I have no financial interest in Patent Owner or the challenged patent. It is conceivable that I may own mutual funds whose portfolios include stock in Petitioner. If this is the case, the value of such holding would not constitute a material part of my net worth.

IV. MATERIALS CONSIDERED

17. In forming the opinions set forth in this Declaration, I have reviewed and considered, among other things: the '590 Patent (EX1001) and its prosecution

history (EX1003); the Petition (Paper 2); the Declaration of Dr. Henry Houh (EX1002); Chan (EX1004); Seo (EX1005); Botts (EX1006); Scherz (EX1007); Middelhoek (EX1008); Goldsmith (EX1009); Rossing (EX1010); Benesty (EX1011); Fraden (EX1012); Doherty (EX1013); Ozturk (EX1014); Betts-LaCroix (EX1050); the other exhibits cited in the Petition; Patent Owner's Preliminary Response (Paper 8); and the other materials cited in this Declaration.

V. LEGAL STANDARDS

18. Although I am an attorney, I offer no legal opinions herein. Counsel has explained to me certain legal principles, summarized below, which I have applied in forming the opinions set forth in this Declaration.

19. I understand that, in an instituted *inter partes* review, the petitioner bears the burden of proving unpatentability by a preponderance of the evidence, and that the burden of persuasion remains on the petitioner throughout the proceeding and never shifts to the patent owner.

20. I understand that a patent claim is unpatentable as obvious under 35 U.S.C. § 103 only if the claimed subject matter, as a whole, would have been obvious at the time of the invention to a person of ordinary skill in the art ("POSITA"), in view of the scope and content of the prior art, the differences between the prior art

and the claims, the level of ordinary skill in the art, and any objective indicia of nonobviousness.

21. I understand that a conclusion of obviousness requires an articulated reason, supported by rational underpinning, why a POSITA would have combined items of prior art or modified the prior art in the manner asserted, with a reasonable expectation of success; that conclusory assertions are not sufficient; that knowledge of a problem or of a goal is not the same as a motivation to combine particular references in a particular way; and that it is improper to use the challenged claims as a roadmap for reconstructing the invention from the prior art—that is, to rely on hindsight.

22. I understand that a petition for *inter partes* review must specify where each element of the challenged claim is found in the prior art patents or printed publications relied upon in the stated ground, and that general knowledge, expert testimony, and references outside the stated ground may not be used to supply a claim limitation that is missing from the ground's references.

VI. LEVEL OF ORDINARY SKILL IN THE ART

23. Dr. Houh opines that a POSITA "would have a bachelor's degree in electrical engineering, computer engineering, or equivalent, and two years of experience working on remote device control and/or networked devices," and that

"[a]n advanced graduate degree may make up for the work experience indicated above." EX1002, ¶ 63.

24. For purposes of this Declaration, I have applied Dr. Houh's proposed characterization of the level of skill of a POSITA. I satisfy that characterization, and did so as of the '590 Patent's earliest claimed priority date. My opinions in this Declaration would not change under any reasonable alternative formulation of the level of ordinary skill.

VII. CLAIM CONSTRUCTION

25. I understand that the Petition contends that no claim term requires express construction. Pet. at 6; EX1002, ¶ 65. In my analysis, I have given all claim terms their plain and ordinary meaning as a POSITA would have understood them in light of the '590 Patent's intrinsic evidence. None of my opinions depends on any specialized claim construction.

VIII. THE '590 PATENT

26. The '590 Patent, titled "System and Method for Server Based Control," issued on November 30, 2021, from an application filed on May 30, 2018, and claims priority to an earlier chain of applications, the earliest of which was filed on January 9, 2012. I have been asked, for purposes of this Declaration, to assume that the priority date of the '590 Patent is January 9, 2012.

27. Claim 1 is the only independent claim of the ’590 Patent. Every one of Claims 2-63 depends, directly or indirectly, from Claim 1, and therefore incorporates all of its limitations.

28. Claim 1 recites “[a]n Alternating-Current (AC) powered appliance associated with food storage, handling, or preparation for use with a wireless network.” The appliance comprises “an AC connector for connecting the appliance to an AC power source”; “a current sensor coupled to the AC connector for measuring an AC current consumed by the appliance”; “a first sensor having an output that responds to a physical phenomenon”; “an antenna for communication over the wireless network”; “a wireless transceiver coupled to the antenna for transmitting digital data to, and for receiving digital data from, the wireless network”; and “a single enclosure housing the current sensor, the first sensor, the antenna, and the wireless transceiver.” ’590 Patent, Claim 1.

29. Three wherein clauses follow. First, “the first sensor is coupled to the wireless transceiver for transmitting digital data in response to the physical phenomenon to the wireless network.” Second, “the appliance is controlled or activated in response to digital data received from the wireless network.” Third, “the current sensor is coupled to the wireless transceiver for transmitting digital data in

response to the measured AC current to the wireless network." '590 Patent, Claim 1.

30. From an engineering standpoint, Claim 1 describes a specific and internally consistent architecture, and in my opinion three of its features are worth identifying at the outset.

31. The first is that the claimed transceiver both transmits "digital data to" and receives "digital data from" "the wireless network," and each of the three wherein clauses is tied to that same network: two distinct sensor outputs travel outward over it, and the digital data to which the appliance responds arrives inward over it. A POSITA reading Claim 1 would understand that the same wireless link must support both directions of that exchange. An architecture in which sensor data leaves a device by one link and control data arrives by a different link does not meet these limitations.

32. The second is that the claim recites two sensors with different characteristics, not two instances of the same type of sensor. The "current sensor" is defined by a specific measurement function—"measuring an AC current consumed by the appliance"—and is required by the third wherein clause to be the source of digital data transmitted "in response to the measured AC current." The "first sensor" is defined differently and more generally—it "ha[s] an output that responds to a

physical phenomenon"—and is required by the first wherein clause to be the source of separate digital data transmitted "in response to the physical phenomenon." In my opinion, a POSITA would understand these to be two distinct sensing elements with two distinct outputs, each of which independently reaches the wireless network.

33. The third is co-location. Element 1[F] requires "a single enclosure housing the current sensor, the first sensor, the antenna, and the wireless transceiver." In ordinary engineering usage, and as I would understand the word in this claim, to "house" a component is to contain it physically within a structure. The claim identifies four components by name and requires one enclosure to house all four. That is a structural requirement about where parts are, not a functional requirement about how they are connected. In my experience, the two are routinely different: components that are electrically or logically connected are frequently located in separate housings or in separate rooms.

A. The Prosecution History of the '590 Patent

34. I have reviewed the excerpts of the prosecution history in the record. EX1003. The application that issued as the '590 Patent was rejected, appealed to the Board, and then amended before allowance, and in my opinion that sequence bears directly on one of the arguments the Petition makes.

35. In *Ex parte Binder*, Appeal 2020-002710, the Board issued a decision that the Examiner's subsequent Notice of Allowability identifies as having been "rendered on 07/22/2021." EX1003, 34. Under 35 U.S.C. § 102 over Sharood, the Board affirmed the rejection of Claims 1-5, 7, 12-19, 54, and 58, and reversed as to Claims 6, 9, 10, 32-34, 36, and 55-57. EX1003, 251.

36. The claim the Board was considering was not the claim that issued. As the Board reproduced it, Claim 1 then recited "a single enclosure housing the current sensor, the antenna, and the wireless transceiver"—three components. EX1003, 185. It contained no "first sensor" element, no requirement that a first sensor be housed in the enclosure, and no wherein clause requiring a first sensor to transmit digital data to the wireless network in response to a physical phenomenon.

37. On August 12, 2021, the Applicant amended Claim 1 to add all three of those limitations: the element "a first sensor having an output that responds to a physical phenomenon"; the words "the first sensor" inside the single-enclosure clause; and the wherein clause "wherein the first sensor is coupled to the wireless transceiver for transmitting digital data in response to the physical phenomenon to the wireless network." EX1003, 167. The Examiner then allowed the claims. EX1003, 34.

38. Petitioner and Dr. Houh rely on a sentence from the Board's decision for the proposition that the claimed enclosure may be separate from the appliance. Dr. Houh quotes the Board as stating that "although open-ended, Claim 1 requires only that the single enclosure houses 'the current sensor, the antenna, and the wireless transceiver,'" and concludes that "[t]hese findings support the same reading here." EX1002, ¶ 133 (quoting EX1003, 193). In my opinion, that conclusion does not follow. The sentence Dr. Houh quotes is an enumeration of the components the enclosure was then required to house, and it lists three. Issued Claim 1 requires a fourth. The Board made no finding about the first sensor, about its co-location with the other three components, or about its transmission of data to a wireless network, because none of those limitations was before it.

39. I also note what the Board did hold about the sufficiency of a mapping assembled from different parts of a reference. The Board reversed the rejections of Claims 9, 10, and 32 because the Examiner had relied on a component drawn from a Sharood embodiment (a magnetic latching mechanism within a forced-air damper 900) different from the embodiment relied on for Claim 1 (retrofit plug 125), concluding that "[g]iven these disparate findings from different embodiments, Sharood does not disclose the recited elements arranged as claimed." EX1003, 197. The Board declined to treat two similar structures as interchangeable, observing that

"[a]lthough the damper 900 may be similar to the retrofit plug, and have all of the same features corresponding to the features of claims 1 and 7, that does not mean at least on this record, that this is necessarily the case." *Id.* In my opinion, the Petition asks the Board to do here what it declined to do then: to treat a functional block diagram, a third-party product manual, a list of claims, and a second figure from a different embodiment as though they described one integrated physical device.

IX. OVERVIEW OF THE CITED PRIOR ART

A. Chan (EX1004)

40. Chan U.S. Patent Pub. No. 2010/0238003 (EX1004) is the primary reference for Grounds 1-10 and a secondary reference in Grounds 11-15. Chan is directed to "creating the networking infrastructure for energy monitoring and control systems used for monitoring, controlling, and transmitting information via AC wiring or wirelessly, such as via the HomePlug™ or ZigBee™ standards." EX1004, [0004].

41. Chan's system 100 is organized around a gateway 101 that "bridge[s] low speed and high-speed powerline technologies and ZigBee wireless technology together." EX1004, [0046]. The gateway couples "to a plurality of client devices through AC wiring 107 or wirelessly 109." EX1004, [0045]. Chan's client devices include "appliance module 111, panel meter 113, serial bridge 115, network adapter 121, or a variety of sensors 123." EX1004, [0046]. The appliance module "can

connect to a variety of appliances and devices such as refrigerator, washer and dryer, range, stove, microwave, personal computer, television, or other appliance," and is "adapted to measure, store and or control energy usage of connected appliances or devices, bridge Zigbee wireless sensors and devices to the network, or receive and transmit information across network infrastructure." EX1004, [0047].

42. FIG. 4 is, in Chan's words, "a simplified block diagram of the appliance module 400." EX1004, [0070]. The components Chan enumerates in that paragraph are a CPU 401, a powerline chipset 403, a Zigbee wireless chipset 405, an RS232 serial interface 407, a temperature and humidity sensor 409, I/O ports 411, a reset circuit 413, GPIO ports 415, a crystal 417, a backup power module 419, a power measure module 421, a relay switch 423, two current transformers 425a and 425b, a standard AC socket 427, a live wire 429, a neutral wire 431, a ground wire 433, an analog-to-digital interface 435, a battery, a power supply 437, an EMI filter 439, and a 12V 500 mA DC output 441. EX1004, [0070].

43. As to communication, Chan describes two distinct paths in a single paragraph. Toward the gateway, the medium is the building's wiring: "Gateway 300 sends and receives powerline signals across the premises wiring system in order to communicate with appliance module 400. As appliance module is coupled to the premises wiring, it may send and receive powerline signals to gateway 300."

EX1004, [0073]. Away from the gateway, the medium is radio: "Furthermore, appliance module 400 may communicate to client devices wirelessly via RF signal past the premises wiring system." *Id.* Chan then states that "[t]he powerline data signal sent between appliance module 400 and gateway 300 may be further transmitted by appliance module 400 as a wireless RF signal," and that "other signal media may be used by appliance module 400 in communicating past the premises wiring system such as other wireless technologies, WiFi, ZigBee, Bluetooth, WPAN, RFID, UWB, infrared (IR), or other media." *Id.*

44. Chan states the resulting architecture expressly: "In bridging various wireless network media to powerline or other premises wiring networking technology, appliance module 400 functions to provide a network backbone across premises wiring and allows wireless connectivity to such network backbone. Appliance module 400 enhances the coverage and range of ZigBee or wireless network infrastructure by providing a bridge to the premises wiring network backbone." EX1004, [0074].

45. As to what the appliance module sends, Chan is brief: "Data measured by appliance module 400 as a preferred embodiment includes power usage information, such as instantaneous power, peak power, or average power. Appliance module 400 sends such data to gateway 300 via network infrastructure." EX1004,

[0075]. The same paragraph adds that the module "may also be used for determining or locating client devices responsible for 'vampire' current and how much such leaks cost." *Id.*

B. Seo (EX1005)

46. Seo Korean Patent Pub. No. 10-2010-0083686 (EX1005) is the primary reference for Grounds 11-15. Seo describes a refrigerator control device 400 whose stated purpose is to inform the user about power consumption. The device detects "a plurality of internal and external states of a refrigerator," calculates "predicted power consumption based on the detected states," generates "one or more messages corresponding to the internal and external states," and outputs the predicted power consumption and the messages. EX1005, Claim 1; *see id.*, [0012]. The messages take the form of advisory text presented on a screen—for example, "Please reduce the amount of items in the freezer compartment." EX1005, [0067].

47. Seo's state detection unit 430 comprises internal temperature detection units 431a and 431b, an external temperature detection unit 433, height detection units 435, and a frequency detection unit 437. EX1005, [0057]-[0062]. Seo places each of these where it must be to perform its function. Unit 431a detects "the temperature within the refrigerator compartment 200" and unit 431b detects "the temperature within the freezer compartment 300," and if a refrigerator has multiple

compartments, "multiple internal temperature detection units may be installed within each refrigerator compartment or freezer compartment." EX1005, [0057]. Unit 433 "detects the temperature outside the refrigerator, that is, the room temperature." EX1005, [0058]. The height detection units "may be installed in the refrigerator compartment 200 or the freezer compartment 300," and "when each compartment includes multiple shelves, a plurality of height detection units may likewise be installed in each shelf." EX1005, [0060]. The frequency detection unit 437 detects the driving frequency of the compressor. EX1005, Claim 3.

48. Seo's current sensor is not shown. Seo states that the power consumption detection unit 450 "may detect the current and voltage applied to the refrigerator main body 100 through a current detection unit (not shown) and a voltage detection unit (not shown)." EX1005, [0055]. Seo discloses nothing about where that current detection unit is located, what form it takes, or how its output is routed.

49. Seo's communication unit 440 "is connected between the output unit 470 and an external device," and "is connected to the external device by wired or wireless communication methods such as serial communication, the Internet, power line communication, or wireless LAN." EX1005, [0051]. What the unit receives from an external power device is "information such as the type of energy source and

the greenhouse gas index corresponding to the energy source." EX1005, [0049]. Seo describes no antenna and no transceiver.

50. Seo describes FIG. 4 as "a block diagram schematically illustrating the configuration of a refrigerator control device according to a second embodiment of the present invention." EX1005, [0133].

C. Botts (EX1006)

51. Botts U.S. Patent No. 8,461,861 (EX1006) is cited in Ground 2 against Claims 50-52. Botts describes "a household appliance having an internal energy usage monitor." EX1006, 1:6-9. An indicator, which is part of display 314, reports the result of the internal monitor's own comparison: the indicator "may be a green light (e.g., a green LED or symbol) when the energy usage of the appliance is within the predetermined energy efficient range," and "a red light (e.g., a red LED or symbol) when the energy usage of the appliance is outside of the predetermined energy efficient range." EX1006, 10:56-67.

D. Scherz (EX1007)

52. Scherz, *Practical Electronics for Inventors* (EX1007), is cited in Ground 3 against Claims 8-11, 54, and 57. Section 3.4 states that "[r]elays are electrically actuated switches," that "[t]he three basic kinds of relays include mechanical relays, reed relays, and solid-state relays," and that "[f]or a typical mechanical relay, a current sent through a coil magnet acts to pull a flexible, spring-

loaded conductive plate from one switch contact to another." EX1007, 307. Section 3.4.2 addresses inductive kickback: it explains that "[i]f the flow of current through a coil is suddenly interrupted, say, a switch is opened, the coil will respond by producing a sudden, very large voltage across its leads," that the resulting "menacing voltage spikes (as high as 1000 V) . . . can have some nasty effects on neighboring devices within the circuit," and that "[t]he trick to getting rid of spikes is to use what are called transient suppressors." EX1007, 310.

E. Middelhoek (EX1008)

53. Middelhoek, *Handbook of Sensors and Actuators: Measuring Current, Voltage and Power* (EX1008), is the only secondary reference applied in Ground 4, cited against Claims 12, 17, and 18. Chapter 1 surveys sensors and transducers; Chapter 4 surveys instruments for measuring power. Middelhoek's opening paragraph is historical, and then states the modern practice: "Galvanometers date from the discovery of the interaction between an electric current and a magnetic needle by Oersted in 1819. Galvanometers made accurate analogue current measurements possible. . . . For digital measurements the contrary is true. The analog-to-digital voltage converter (ADC) is the most commonly used analog-to-digital interface. Thus, most digital current measurements are done as voltage measurements." EX1008, 1.

54. Chapter 4 lists "[t]he standard methods for measuring power," of which there are five: "[m]easuring a non electric effect of power absorption"; "[m]easuring an electric effect of power absorption"; "[u]sing the exponential or square-law characteristics of semiconductors, and applying Ohm's law"; "[m]easuring current or voltage, knowing the impedance"; and "[m]easuring current and voltage separately, and multiplying the values." EX1008, 126. Chapter 4 also describes the electro dynamometer, which is formed when "one replaces the permanent magnet in a moving coil instrument (d'Arsonval) with coil(s), i.e. an electromagnet." EX1008, 148. Middelhoek states of that instrument: "It is a most commonly used wattmeter. It cannot respond to high frequency signals and is inaccurate at low power factors due to instrument or transformer phase shift. . . . The meter is a dc instrument." *Id.*

F. Goldsmith (EX1009)

55. Goldsmith, *Wireless Communications* (EX1009), is cited in Ground 5 against Claims 28 and 31 and in Ground 12 against Claims 20-22. Goldsmith is a graduate-level survey text on wireless communication systems. The Petition draws from it the existence of satellite systems, WiMAX, the IEEE 802.11 and 802.15 families, the unlicensed ISM bands, and third-generation cellular standards.

G. Rossing (EX1010)

56. Rossing, *Springer Handbook of Acoustics* (EX1010), is cited in Ground 6 against Claims 33, 48, 49, 55, and 56. The cited pages are drawn from § 18.4,

"Audio Components," which surveys microphones at § 18.4.1 and loudspeakers at § 18.4.3, and from § 22.1, "Dynamics of the Linear Single-Degree-of-Freedom (1-DOF) Oscillator," which derives the Laplace-transform solution for a damped mass-spring system. EX1010, 757-765, 903.

H. Benesty (EX1011)

57. Benesty, *Springer Handbook of Speech Processing* (EX1011), is cited in Ground 7 against Claim 34. The two cited pages are the opening of Chapter 50, "Microphone Arrays," which addresses beamforming for "[h]ands-free audio communication . . . in mobile communication systems as well as audio and video conferencing systems," EX1011, 1021, and a page of Chapter 51 surveying methods for speech source localization, EX1011, 1044.

I. Fraden (EX1012)

58. Fraden, *Handbook of Modern Sensors* (EX1012), is cited in Ground 8 against Claims 35, 36, 39, 40, 42, 43, and 47 and in Ground 13 against Claims 35 and 39. Fraden is a reference text cataloguing sensing principles and device types.

J. Doherty (EX1013)

59. Doherty, *Wireless Home Networking Simplified* (EX1013), is cited in Ground 9 and Ground 15 against Claims 60-63. Doherty is a Cisco Press consumer guide that walks a reader through setting up a home wireless network with commercially available equipment—installing a wireless network interface card

(Chapter 8), enabling security features such as MAC address locking (Chapter 9), troubleshooting a connection (Chapter 10), and configuring a Linksys video camera (Chapter 13). As to digital addressing, Doherty states: "IP addressing is a fundamental networking concept that is not covered in detail in this book," offers what it calls a "30-second description," and refers the reader to a different book. EX1013, 210.

K. Ozturk (EX1014)

60. Ozturk, *Forced Air Cooling of CPUs with Heat Sinks: A Numerical Study* (EX1014), is the only secondary reference in Ground 10, cited against Claim 59. Ozturk models "[a] common ATX form factor personal computer system" and numerically investigates forced convection air cooling of a CPU by a heat sink and a fan. EX1014, 650. The word "thermoelectric" does not appear anywhere in Ozturk.

L. Betts-LaCroix (EX1050)

61. Betts-LaCroix U.S. Patent Pub. No. 2010/0149163 (EX1050) is the only secondary reference in Ground 14, cited against Claim 58. It concerns image processing to increase the perceived brightness of OLED displays, and observes in its background that "OLED displays do not require a backlight to function and thus consume far less power than LCDs." EX1050, [0002].

X. OPINIONS REGARDING GROUNDS 1-10

62. Grounds 1-10 all rest on Chan. Ground 1 asserts Chan alone against Claims 1-7, 13-16, 19-27, 29, 30, 32, 38, 41, 44-46, and 53, and Grounds 2-10 each add a single secondary reference directed to particular dependent claims. In my opinion, the Petition's Chan-based mapping of independent Claim 1 fails for four independent reasons, each of which applies to every claim challenged in Grounds 1-10.

A. Chan's Appliance Module Communicates with the Gateway Over the Premises AC Wiring, Not Over a Wireless Network

63. Claim 1 requires an appliance "for use with a wireless network," comprising "a wireless transceiver coupled to the antenna for transmitting digital data to, and for receiving digital data from, the wireless network," and each of the three wherein clauses is tied to that same network. '590 Patent, Claim 1. In my opinion, Chan does not disclose an appliance module that exchanges data with the gateway over a wireless network at all.

64. It is useful to be precise about the two media Chan describes, because they are not interchangeable and a POSITA in 2012 would not have treated them as such. Powerline carrier communication—the family of techniques Chan invokes by naming HomePlug—works by impressing a high-frequency modulated carrier onto the same copper conductors that carry 50 or 60 Hz AC power. The signal is carried

by the conductors. It is a wired channel, with the wiring topology of the building as its network. A ZigBee radio, by contrast, is a low-power radio operating in an unlicensed band (2.4 GHz in most of the world) and radiating through the air. The two require different transceivers, different coupling structures, and different regulatory compliance, and they have entirely different propagation characteristics. A device can support both, and Chan's appliance module does—it has a "powerline chipset 403" and a separate "Zigbee wireless chipset 405." EX1004, [0070]. But supporting both is not the same as using either one interchangeably for a given link.

65. Chan assigns each medium to a specific link, and says so. The link to the gateway is the wiring: "Gateway 300 sends and receives powerline signals across the premises wiring system in order to communicate with appliance module 400. As appliance module is coupled to the premises wiring, it may send and receive powerline signals to gateway 300." EX1004, [0073]. The radio link is directed elsewhere: "appliance module 400 may communicate to client devices wirelessly via RF signal past the premises wiring system." *Id.* In my opinion, the phrase "past the premises wiring system" identifies the RF path as the one that reaches devices the wiring cannot reach.

66. The sentence on which the Petition principally relies confirms rather than undermines this reading. Chan states: "The powerline data signal sent between

appliance module 400 and gateway 300 may be further transmitted by appliance module 400 as a wireless RF signal." EX1004, [0073]. The signal "sent between appliance module 400 and gateway 300" is expressly a "powerline data signal." What the module then does—"further transmit[]" it as RF—is retransmission onward. That is the ordinary description of a bridge or repeater: it receives on one medium and re-emits on another. It is not a description of the module and the gateway communicating wirelessly with each other.

67. The list of alternative technologies is scoped the same way. Chan writes that "other signal media may be used by appliance module 400 in communicating past the premises wiring system such as other wireless technologies, WiFi, ZigBee, Bluetooth, WPAN, RFID, UWB, infrared (IR), or other media." EX1004, [0073]. Every one of those media is offered as an alternative for "communicating past the premises wiring system"—that is, for the outward-facing link. The Petition reproduces part of this sentence but omits the qualifying phrase that defines its scope. Pet. at 17-18.

68. Chan then states its architecture in terms that leave no ambiguity: "In bridging various wireless network media to powerline or other premises wiring networking technology, appliance module 400 functions to provide a network backbone across premises wiring and allows wireless connectivity to such network

backbone. Appliance module 400 enhances the coverage and range of ZigBee or wireless network infrastructure by providing a bridge to the premises wiring network backbone." EX1004, [0074]. In my opinion, a POSITA reading this paragraph would understand Chan's appliance module to be a powerline-to-wireless bridge in which the premises wiring is the backbone and the radio extends that backbone to devices not attached to it. That is the opposite of the architecture the Petition attributes to Chan.

69. The control path mapping fails for the same reason. The Petition maps Element 1[H]—"wherein the appliance is controlled or activated in response to digital data received from the wireless network"—to Chan's statement that "a low-bandwidth signal may carry command or control information from gateway 300 to appliance module 111 and turn the connected appliance on or off," and asserts that "[s]uch data signals are transmitted using 'wireless signal technology.'" Pet. at 36-37, 41 (quoting EX1004, [0057]). However, Chan's actual sentence is disjunctive: "Coupling by gateway 300 to client devices is accomplished with powerline or wireless signal technology." EX1004, [0057]. Chan resolves the disjunction in the very next paragraph: "The low-bandwidth signal may be generated by low-speed powerline chipset 319 and individually coupled to premises wiring at a certain location near gateway 300." EX1004, [0058]. The command and control information

Chan describes is generated by a powerline chipset and coupled to the premises wiring. In my opinion, that is not digital data received from a wireless network.

70. The outbound data path mapping fails as well. The only data Chan discloses the appliance module sending is "power usage information, such as instantaneous power, peak power, or average power," which the module "sends . . . to gateway 300 via network infrastructure." EX1004, [0075]. The infrastructure between the module and the gateway is the premises wiring. Chan therefore does not disclose either sensor transmitting digital data "to the wireless network," as Elements 1[G] and 1[I] require.

71. I have considered the Petition's alternative position that a wireless gateway-to-module link would have been "an obvious design choice to reduce cabling, simplify installation, and allow flexible placement of appliance modules." Pet. at 18. In my opinion, none of those three rationales has any application to Chan. There is no cabling to reduce: Chan's module is "plugged into an electrical outlet," EX1004, [0071], and communicates over the very conductors it is already plugged into. The premises have AC wiring, and there would be no way to reduce that using any disclosure in Chan. There is no installation to simplify for the same reason—the communication channel is established by the act of plugging the module in. And

placement is not constrained by the wiring, because every AC outlet in the building is reachable via the wiring.

72. More significantly, in my opinion the proposed modification hinders solving the problem addressed by Chan. Chan explains that "[p]revious attempts at connecting client devices to network controllers utilized wireless or powerline technologies that were not centrally controlled," and that "[i]nterference between wireless and powerline technologies commonly occurs across multiple deployments of separate networking technology." EX1004, [0056]. Chan's answer is a centrally coordinated gateway that bridges the two media. Replacing the powerline link between the gateway and the module with a wireless link would move traffic from a guided, dedicated medium onto a shared unlicensed band already carrying the module's outward-facing sensor traffic. A POSITA in 2012 designing to Chan's stated objective would not have regarded that as a design improvement, and neither the Petition nor Dr. Houh identifies anything in Chan suggesting otherwise.

B. Chan Discloses No Single Enclosure, and FIG. 4 Does Not Supply One

73. Element 1[F] requires "a single enclosure housing the current sensor, the first sensor, the antenna, and the wireless transceiver." '590 Patent, Claim 1. The Petition asserts that FIG. 4 "expressly show[s]" that the claimed elements are "housed within" the appliance module. Pet. at 30; EX1002, ¶ 128.

74. In my opinion, that is not what the simplified block diagram shows, and the distinction is basic to engineering practice rather than a matter of semantics. A block diagram partitions a system into functional units and shows the signal and power relationships among them. Its conventions carry no information about physical placement. The same diagram is equally consistent with an implementation on a single monolithic die, on one printed circuit board, on several boards connected by cable harnesses, or on units in physically separate housings. When an engineer wants to convey physical containment, the drawing used is a mechanical assembly drawing, an exploded view, or a packaging layout—not a functional block diagram. Chan supplies none of those. This is confirmed by a glance at Fig. 2, which shows multiple components that, because they are connected via the Internet, are not necessarily located in the same hemisphere, let alone the same housing.

75. The outer rectangle in Chan's FIG. 4 (in the same manner as Fig. 2) cannot be read as an enclosure boundary, because it contains elements that indisputably are not inside the module. The same paragraph and figure that show the CPU 401 and the chipsets also show the "standard AC socket 427," the "live wire 429," the "neutral wire 431," and the "ground wire 433." EX1004, [0070]. The premises wiring of a building is not housed inside a plug-in module. In my opinion, a figure that places the building's branch-circuit conductors in the same diagram as

the module's microcontroller is, on its face, a functional diagram rather than a depiction of what is inside a housing.

76. Chan does not even supply the missing structure in text. Chan says that "appliance module 400 may be embodied as a device which may be plugged into an electrical outlet," EX1004, [0071], and Dr. Houh reasons from this that "appliance module, as a device, would have a device housing enclosing its parts." EX1002, ¶ 129. In my opinion that inference does not reach the claim. Claim 1 does not require merely that the appliance module have a housing; it requires one enclosure that houses four specifically identified components. Establishing that a plug-in product has some housing says nothing about which of the twenty-odd blocks in FIG. 4 are inside it. Devices that plug into an outlet are routinely built with sensing elements outside the plug body—thermostats with remote temperature probes, energy monitors with split-core current transformers that clamp around a conductor elsewhere in the circuit, and appliance controllers with wired external sensors are all ordinary examples from the relevant period.

77. The Petition's remaining support is a user manual for a Jetlun Corporation product bearing part number RD75613 (EX1043), offered to show what the appliance module looks like. Pet. at 31; EX1002, ¶ 130. EX1043 is not a reference of Ground 1. Pet. at 9. Beyond that, Chan mentions the RD75613 once, in

a single sentence describing FIG. 1, and uses it only as an example of the appliance module 111. EX1004, [0047]. Chan never states that the RD75613 product contains the specific combination of components shown in FIG. 4—two current transformers, a power measuring module, a relay switch, a powerline chipset, a ZigBee chipset, a CPU, and a temperature and humidity sensor—within a single housing. In my opinion, a product photograph establishes the outward appearance of a product; it does not establish the internal composition of a different figure's block diagram.

C. Chan's Two Current Transformers Are Two Inputs to One Measurement Module, Not Two Distinct Sensors

78. The Petition's primary mapping assigns Chan's current transformer 425a to the "current sensor" of Element 1[B] and current transformer 425b to the "first sensor" of Element 1[C]. Pet. at 23-25; EX1002, ¶¶ 108-113. In my opinion that mapping does not satisfy either Element, for reasons that follow from how current transformers actually work.

79. A current transformer is a passive electromagnetic device. A primary conductor passes through or alongside a magnetically permeable core on which a secondary winding is wound. Alternating current in the primary establishes a time-varying magnetic flux in the core, and by Faraday's law of induction that flux induces a current in the secondary that is proportional to the primary current and

scaled by the turns ratio. That is the entirety of what the transformer does. It has no power supply, no processing element, and no digital output.

80. Obtaining a measurement from a current transformer requires a chain of additional functions that reside outside the transformer. The secondary current must be developed across a burden resistor to produce a proportional voltage; that voltage must be scaled and band-limited; it must be sampled by an analog-to-digital converter; and the resulting samples must be processed—typically to compute a root-mean-square current and, when combined with a synchronized voltage measurement, real power, apparent power, and power factor. In Chan, every one of those functions is performed by components other than the transformers: "[t]he power measure module 421 is connected to a power supply 437 and two (2) current transformers (CT) 425a and 425b that are connected to a standard AC socket 427," EX1004, [0070], and FIG. 4 shows the module reporting through an "analog to digital interface 435" to CPU 401, *id.* The transformers are the front-end sensing elements of one measurement subsystem; the measurement is performed by module 421 and the CPU.

81. The two transformers also occupy the same electrical and magnetic domain. Both are "connected to a standard AC socket 427." EX1004, [0070]. One is on the live conductor and the other on the neutral conductor of that same socket:

"One CT 425a measures current on the live wire 429 and the other CT 425b measures current leakage on the neutral wire 431." *Id.* Both respond to a single physical quantity—alternating current in a conductor. In my opinion, the difference between them is which conductor of one branch circuit each is installed on, not what phenomenon each detects.

82. The function Chan assigns to CT 425b confirms this. In a two-wire AC circuit, the current returning on the neutral conductor is nominally equal in magnitude and opposite in direction to the current flowing out on the live conductor. Any difference between the two indicates that current is escaping the intended loop—through a ground path, through insulation leakage, or through a person. Sensing that difference is the operating principle of residual-current devices and ground-fault circuit interrupters, and it is why a second transformer is placed on the neutral. What such an arrangement yields is a differential quantity derived from the same measurement subsystem, evaluated for a protective purpose. In my opinion it is not an independent sensor producing an independent output that responds to a different physical phenomenon.

83. The claim language makes the consequence concrete. Element 1[G] requires digital data transmitted to the wireless network "in response to the physical phenomenon," and Element 1[I] separately requires digital data transmitted to the

wireless network "in response to the measured AC current." '590 Patent, Claim 1. Two distinct transmitted outputs are required. Chan discloses one: "Data measured by appliance module 400 as a preferred embodiment includes power usage information, such as instantaneous power, peak power, or average power." EX1004, [0075]. Chan never discloses transmitting the leakage current sensed by CT 425b. Its only statement about leakage is that the module "may also be used for determining or locating client devices responsible for 'vampire' current and how much such leaks cost." *Id.* In my opinion, that sentence describes an analytical use to which measured power data may be put; it is not the disclosure of a second, separately transmitted sensor output.

84. I have also considered the Petition's alternative candidate for the "first sensor," namely, the "temperature and humidity sensor 409." Pet. at 25; EX1002, ¶¶ 114-116. Sensor 409 does respond to a different physical phenomenon than current. But in my opinion that mapping fails for two other reasons. First, Chan nowhere discloses transmitting the output of sensor 409 to any network, wireless or otherwise; the only transmitted data Chan identifies is power usage information. Second, for the reasons given above, Chan discloses no enclosure housing sensor 409 together with the current sensor, an antenna, and the transceiver. I note that the Petition itself, to establish that environmental data would be transmitted, reaches to

Seo (EX1005) and Botega (EX1045)—the primary reference of Ground 11 and a reference in no Ground at all. Pet. at 35.

85. The additional sensors on which the Petition relies come from different parts of Chan. The Petition cites Chan's claims 3-16 and FIG. 11's "temperature/fog/brightness/infrared sensor 1107" and "switch/relay/alarm sensor 1109." Pet. at 25, 50; EX1004, [0109], Claims 3-16. FIG. 11 is described by Chan as "a simplified software block diagram 1100 for the appliance module," EX1004, [0109], and the claims are claims. Neither tells a POSITA that any of those sensors is physically located inside the FIG. 4 module together with the transformers, an antenna, and the transceiver. I also note that Chan expressly contemplates sensors outside the module: FIG. 1 lists "a variety of sensors 123" as a client device separate from "appliance module 111," EX1004, [0046], and Chan describes the module as adapted to "bridge Zigbee wireless sensors and devices to the network," EX1004, [0047]—that is, to connect sensors that are not inside it.

D. The Prosecution History Does Not Support the Petition's Mapping

86. For the reasons set out in Section VIII above, the Board's statement that "Claim 1 requires only that the single enclosure houses 'the current sensor, the antenna, and the wireless transceiver'" was an enumeration of the three components then recited, but the claim that issued requires a fourth. EX1003, 185, 193.

Dr. Houh's reliance on that sentence as supporting "the same reading here," EX1002, ¶ 133, in my opinion overlooks the amendment that followed the Board's decision and that added the first sensor to the enclosure clause. EX1003, 167.

E. Every Claim Challenged in Grounds 1-10 Includes the Foregoing Limitations

87. Each of the four deficiencies described above is a deficiency in the Petition's showing for independent Claim 1. Every dependent claim challenged in Grounds 1-10 depends from Claim 1 and incorporates all of its limitations. Grounds 2-10 add Botts, Scherz, Middelhoek, Goldsmith, Rossing, Benesty, Fraden, Doherty, and Ozturk, respectively, and I have reviewed each of those Grounds. None of those secondary references is cited for, and in my opinion none remedies, Chan's failure to disclose an appliance that transmits to and receives from a wireless network, or has a single enclosure housing all four recited components. It is therefore my opinion that the Petition has not shown that any claim challenged in Grounds 1-10 would have been obvious.

XI. OPINIONS REGARDING GROUNDS 11-15

88. Grounds 11-15 rest on Seo as the primary reference, with Chan supplying additional control functionality and, in Grounds 12-15, one further secondary reference each. In my opinion, the Seo-Chan combination does not disclose two limitations of Claim 1: the single enclosure of Element 1[F], and the

requirement of Element 1[H] that "the appliance is controlled or activated in response to digital data received from the wireless network."

A. Seo's Current Detection Unit Is Not Shown Expressly, and its Sensors Are Distributed Through the Refrigerator

89. The Petition asserts that "FIG. 4 of Seo expressly shows that the control device 400 encloses the power consumption detection unit 450 (including 'current detection unit'), the various first sensors, and the communication unit 440 (including the wireless transceiver and antenna)." Pet. at 82; EX1002, ¶ 491. In my opinion, the reference does not support that assertion.

90. Seo states that the power consumption detection unit 450 "may detect the current and voltage applied to the refrigerator main body 100 through a current detection unit (not shown) and a voltage detection unit (not shown)." EX1005, [0055]. A component that the specification declines to show cannot be "expressly show[n]" by a figure to be enclosed anywhere specifically. Seo discloses nothing about the current detection unit's physical location, its form factor, whether it is a shunt resistor, a current transformer, or a Hall-effect device, or how its output is routed to the control unit. In my opinion those are exactly the disclosures a POSITA would need in order to say whether the element is inside a particular housing, and Seo supplies none of them.

91. The sensors the Petition maps to the "*first sensor*" are, on Seo's own description, located in the spaces they monitor rather than in a control housing. Unit 431a detects "the temperature within the refrigerator compartment 200," unit 431b detects "the temperature within the freezer compartment 300," and where a refrigerator has multiple compartments, "multiple internal temperature detection units may be installed within each refrigerator compartment or freezer compartment." EX1005, [0057]. Unit 433 "detects the temperature outside the refrigerator, that is, the room temperature." EX1005, [0058]. Height detection units "may be installed in the refrigerator compartment 200 or the freezer compartment 300," and "when each compartment includes multiple shelves, a plurality of height detection units may likewise be installed in each shelf." EX1005, [0060]. The frequency detection unit 437 detects the compressor's driving frequency. EX1005, Claim 3.

92. In my opinion these placements are not arbitrary or incidental; they are dictated by the physics of what each sensor measures. A sensor that reports the air temperature inside a freezer compartment must be exposed to that air, on the cold side of the cabinet insulation. A sensor that reports room temperature must be exposed to room air, on the warm side of that same insulation. Those two requirements are mutually exclusive of co-location. Height detection in Seo is

performed by "a pair of infrared sensors including a transmitter and a receiver, an ultrasonic sensor, or the like," EX1005, [0060], which requires an unobstructed optical or acoustic path across the shelf being monitored. Further, a sensor that reports the compressor's driving frequency must be coupled to the compressor circuit. None of these functions can be performed from inside a single box that also contains the communication unit.

93. FIG. 4 does not close the gap. Seo itself describes FIG. 4 as "a block diagram schematically illustrating the configuration of a refrigerator control device." EX1005, [0133]. As I explained in connection with Chan's FIG. 4, a schematic block diagram groups functional units and shows their signal relationships; it does not depict a physical housing. A figure cannot possibly show the location of a unit that the specification says is "not shown."

94. I have considered the Petition's alternative that "the refrigerator itself is also a single enclosure" housing all four claimed elements. Pet. at 83; EX1002, ¶ 492. In my opinion that reading is inconsistent with Seo. Claim 1 recites the single enclosure as one component of the claimed appliance, alongside the AC connector, the sensors, the antenna, and the transceiver. Reading the appliance's own outer shell as that component would mean that any appliance with a sensor and a radio somewhere inside it satisfies Element 1[F], which would render the limitation

surplusage. It also fails based on the actual disclosure of Seo because Seo's external temperature detection unit 433 measures room temperature and therefore cannot be inside the cabinet shell. EX1005, [0058].

B. Seo's Refrigerator Is Not Controlled or Activated in Response to Digital Data Received from a Wireless Network

95. Element 1[H] requires that "the appliance is controlled or activated in response to digital data received from the wireless network." EX1001, Claim 1. The Petition offers three theories. In my opinion each fails on Seo's text.

96. 1: The display theory: The Petition maps the claimed control to Seo's "output unit 470 [that] includes a screen display unit," reasoning that a display is an actuator and that what it displays depends on received data. Pet. at 87-89. What Seo's communication unit receives from an external power device is "information such as the type of energy source and the greenhouse gas index corresponding to the energy source." EX1005, [0049]. A greenhouse-gas index is a reference constant—a coefficient expressing emissions per unit of energy for a given source. Seo's control unit 410 then performs its own arithmetic with that coefficient: "the estimated carbon dioxide emissions can be calculated by multiplying the carbon dioxide index of the energy source by the predicted power consumption or the supplied power consumption." EX1005, [0065]. The output unit then displays the result of that internal calculation, together with messages that control unit 410 "generates . . .

corresponding to the internal and external states of the refrigerator detected by the state detection unit 430." EX1005, [0067].

97. In my opinion the distinction between those two situations is a real architectural distinction and not a matter of characterization. In one, a device receives a message that specifies an action and the device performs it; the received message is the operative cause of the actuation, and the device's own logic is a conduit. In the other, a device receives a parameter, uses that parameter as one input to a computation it performs itself, and then acts on the result of its own computation. Seo describes the second. What determines the number on Seo's display is Seo's own predicted-consumption calculation, driven by its own internal state measurements; the received index scales the result. Nothing in the external data specifies that anything be displayed, or when, or what.

98. 2: The energy-source switch theory: the Petition asserts that "the control device 400 receives energy source information wirelessly, uses that data to calculate expected greenhouse-gas emissions, and automatically switches to a different type of energy source accordingly," quoting the second sentence of Seo ¶ [0044]. Pet. at 89-90. The first sentence of that paragraph, which the Petition does not quote, reads: "In addition, a user or the like can select one of the energy sources through the input unit 490." EX1005, [0044]. The sentence the Petition does quote—

that "the control device may replace the energy source with one having a relatively lower greenhouse gas index when the estimated greenhouse gas emissions exceed, or are expected to exceed, a certain amount"—describes what happens when the user makes that selection.

99. Seo's FIG. 10 confirms the sequence. The flow proceeds from calculating estimated greenhouse gas emissions, to displaying them, to a decision block reading "Choose another energy source?", and reaches "Connect to other energy sources" only on the "Yes" branch. EX1005, FIG. 10. In my opinion, a flowchart with a user-choice decision block is the opposite of an automatic response, and there is nothing in this path that is responsive to digital data received from a network.

100. 3: The "control commands" theory: the Petition's third theory rests on Seo's statement that the communication unit, "as necessary, receives various information or control commands." EX1005, [0051]. Dr. Houh opines that a POSITA "would have understood (and found it obvious) that these received 'control commands' would be used by the control unit 410 to control the refrigerator." EX1002, ¶ 507. In my opinion Seo does not support that opinion. The same sentence situates the communication unit "between the output unit 470 and an external device," and Seo's description of what the unit handles is a list of information to be

reported and displayed. Seo never identifies a command, a command format, a recipient component, an actuator, or any resulting operation. In my experience, a functioning device-control path requires all of those things to be specified, and a passing reference to "control commands" with no further disclosure does not tell a POSITA how any of them would work.

101. Chan does not supply what Seo lacks. For the reasons in Section X above, the command and control information Chan describes is generated by a low-speed powerline chipset and coupled to the premises wiring. EX1004, [0057]-[0058]. And the reason the Petition offers for combining the two—that the combination "provides more ways to control or activate Seo's refrigerator" and would "expand Seo's remote-control functionalities," Pet. at 73-74—in my opinion states a desired result rather than a reason grounded in either reference.

C. Ground 11's Antenna and Wireless Transceiver Come from Outside the Ground

102. Seo discloses a "communication unit 440" and says that it "is connected to the external device by wired or wireless communication methods such as serial communication, the Internet, power line communication, or wireless LAN." EX1005, [0051]. Three of those four alternatives are wired. Seo describes no antenna and no transceiver, and gives no radio parameters of any kind. For Elements 1[D] and 1[E], the Petition therefore relies on Adelstein (EX1018, 369), Gorday (EX1022,

3:17-20, 3:38-40), and Dunko (EX1023, [0013]-[0015]). Pet. at 80-81. None is a reference of Ground 11. Pet. at 9.

D. Every Claim Challenged in Grounds 11-15 Includes These Limitations

103. Ground 11 challenges Claims 1, 23-24, 26-27, 38, 41, 53, and 59, each of which incorporates all of Claim 1's limitations, and Grounds 12-15 add Goldsmith, Fraden, Betts-LaCroix, and Doherty, respectively. None of those secondary references is cited for, and in my opinion none remedies, the combination's failure to disclose the single enclosure or the claimed control relationship. It is therefore my opinion that the Petition has not shown that any claim challenged in Grounds 11-15 would have been obvious.

XII. OPINIONS REGARDING GROUND 2

104. Ground 2 challenges Claims 50-52 over Chan and Botts. Claim 50 requires a light source "in the single enclosure" that is "coupled to the wireless transceiver for illumination or indication in response to digital data received from the wireless network." EX1001, Claim 50.

105. Botts's indicator does not operate that way. In Botts, the light reports the outcome of a comparison the appliance performs internally: the indicator "may be a green light (e.g., a green LED or symbol) when the energy usage of the appliance is within the predetermined energy efficient range," and "a red light (e.g.,

a red LED or symbol) when the energy usage of the appliance is outside of the predetermined energy efficient range." EX1006, 10:56-67. The input to the comparison is the appliance's own internal energy usage monitor. EX1006, 1:6-9.

106. The Petition supplies the missing relationship purely by assertion, stating that the light "would also be coupled to Chan's wireless transceiver, such that it emits light based on digital data received from the wireless network, such as control settings or efficiency thresholds transmitted by the gateway." Pet. at 52; EX1002, ¶¶ 271-273. In my opinion, the two examples the Petition offers illustrate the problem rather than the solution. A threshold is a configuration parameter: it sets the boundary against which the appliance's own measurement is later compared. Once a threshold is stored, the light's state is determined by the measured energy usage, not by the arrival of the threshold. Whether the LED is green or red at any moment is a function of the internal measurement. In my opinion that is not illumination "in response to digital data received from the wireless network," and neither Chan nor Botts discloses transmitting a threshold or a control setting to an indicator in any event.

107. Claims 51 and 52 depend from Claim 50 and add, respectively, coupling to the current sensor and specific light-emitting-diode species. Neither

addresses the Claim 50 deficiency. It is my opinion that the Petition has not shown that Claims 50-52 would have been obvious.

XIII. OPINIONS REGARDING GROUND 3

108. Ground 3 challenges Claims 8-11, 54, and 57 over Chan and Scherz. In my opinion two of the mappings describe structures that are not in Scherz at all.

A. Claim 54's Conversion Mechanism Does Not Appear in Scherz

109. Claim 54 requires that the actuator "consists of, or comprises, a motion actuator that causes linear or rotary motion," and that the appliance "further compris[e] a conversion mechanism for respectfully converting to rotary or linear motion based on a screw, a wheel and axle, or a cam." EX1001, Claim 54. The Petition asserts that "[a]s shown in Scherz, the relay switch converts linear motion (e.g., of the spring) to rotary motion (e.g., of the moving contact arm) based on the cam." Pet. at 55-56; EX1002, ¶ 295.

110. Scherz shows nothing of the kind. Scherz's description of a mechanical relay is one sentence: "For a typical mechanical relay, a current sent through a coil magnet acts to pull a flexible, spring-loaded conductive plate from one switch contact to another." EX1007, 307. The words "cam," "screw," and "wheel and axle" do not appear in the cited pages of Scherz, and Scherz's only use of the word "rotary"

is an unrelated reference to a rotary selector switch used to choose among resistors. *Id.*

111. In my opinion the mapping is also mechanically incorrect. A cam is a specific machine element: a member with a profiled working surface that, as it rotates, imparts a prescribed reciprocating or oscillating motion to a follower held against that surface. A cam mechanism therefore requires a rotating profiled member, a follower, and a means of maintaining contact. The armature of an electromechanical relay has none of these. When the coil is energized, magnetic attraction moves a single flexible or pivoted member through a very short excursion—typically well under a millimeter of contact travel—until the contacts close; the return spring restores it when the coil is de-energized. There is one input motion and one output motion, and they are the same motion. There is no profiled surface, no follower, and no conversion between linear and rotary motion. In my opinion, neither the Petition nor Dr. Houh identifies where the asserted cam is disclosed because Scherz does not disclose one.

B. The Inductive Transient Scherz Teaches How to Suppress Is Not an Electrical Signal Generator

112. Claim 57 requires that the actuator "consists of, or comprises, an electrical signal generator." EX1001, Claim 57. The Petition asserts that "the relay

switch 423 can produce a 'sudden, very large voltage' (i.e., 'electrical signal') responsive to interrupted current flow." Pet. at 56; EX1002, ¶¶ 298-299.

113. The quoted phrase describes a failure mode, and Scherz's discussion of it is a discussion of how to eliminate it. The full passage reads: "If the flow of current through a coil is suddenly interrupted, say, a switch is opened, the coil will respond by producing a sudden, very large voltage across its leads, causing a large surge of current through it." EX1007, 310. Scherz then explains the consequence—"menacing voltage spikes (as high as 1000 V) . . . can have some nasty effects on neighboring devices within the circuit," and are "also damaging to the relay's switch contacts"—and devotes the remainder of the section to the remedy: "[t]he trick to getting rid of spikes is to use what are called transient suppressors." *Id.*

114. In my opinion, a POSITA would not describe this transient as a signal generator, and the reason is a matter of basic circuit design rather than terminology. An inductor stores energy in its magnetic field, and that energy is proportional to the square of the current through it. When a switch interrupts the current abruptly, the inductor opposes the change and the voltage across it rises to whatever value is required to maintain current flow into the now-open circuit—the familiar consequence of the relation $v = L \cdot di/dt$ with a very large di/dt. The resulting spike is uncontrolled in amplitude, uncontrolled in timing, and carries no information. It is

the reason engineers place a flyback diode across a dc relay coil, or an RC snubber, metal-oxide varistor, or transient-voltage-suppression diode across an ac coil. A signal generator, by contrast, is a component whose purpose is to produce an electrical output of specified waveform, amplitude, and frequency. The '590 Patent uses the term in that ordinary way, describing an actuator "for providing an electrical signal (such as a voltage or current)" that "may be an analog or digital signal generator." EX1001, 41:32-36. In my opinion, a parasitic transient that the cited reference instructs the reader to suppress is the opposite of a generator provided in order to produce a signal.

C. Claims 8-11 Rest on a Catalogue of Relay Types with No Reason to Select Any of Them Specifically

115. For Claims 8-11, the Petition offers Scherz's catalogue—that relay designs include "mechanical relays, reed relays, and solid-state relays," that mechanical relays come "in many of the standard manual switch arrangements (e.g., SPST, SPDT, DPDT, etc.)," that they "come with a latching feature that gives them a kind of memory," and that solid-state relays "include . . . thyristors (SCRs, triacs, diacs, etc.)"—and concludes that "[i]t would thus have been obvious to try them when implementing Chan's relay switch 423." Pet. at 54-55. In my opinion this identifies no engineering reason to select any particular configuration. The choices among these relay types are driven by concrete requirements—load current and

voltage, whether the load is resistive or inductive, required switching speed and endurance, isolation requirements, coil power budget, acoustic noise, and cost—and Chan states no requirement that would point to one over another. The Petition's list tracks the claims rather than the reference.

XIV. OPINIONS REGARDING GROUND 4

116. Ground 4 challenges Claims 12, 17, and 18 over Chan and Middelhoek. Middelhoek is the only reference offered for the added limitations.

117. Claim 12 requires that "the current sensor comprises an ampermeter, galvanometer, or a hot-wire ampermeter." EX1001, Claim 12. The Petition's showing is that "Middelhoek discloses that '[g]alvanometers made accurate analogue current measures possible.'" Pet. at 57. I note first that the sentence reads "Galvanometers made accurate analogue current *measurements* possible." EX1008, 1. More importantly, it is the second half of a historical observation—"Galvanometers date from the discovery of the interaction between an electric current and a magnetic needle by Oersted in 1819," *id.*—and the sentences that immediately follow state the modern practice: "For digital measurements the contrary is true. The analog-to-digital voltage converter (ADC) is the most commonly used analog-to-digital interface. Thus, most digital current measurements are done as voltage measurements." *Id.*

118. In my opinion, read as a whole, the page the Petition cites teaches a POSITA to do exactly what Chan already does, not to modify Chan. A galvanometer in the sense Middelhoek is describing is a d'Arsonval-type indicating instrument: a coil suspended in a permanent magnetic field, carrying the measured current, deflecting a pointer against a restoring spring in proportion to that current. Its output is a mechanical pointer position to be read by a human eye. Chan's appliance module has no human-readable meter face and no operator; it develops a voltage from a current transformer, digitizes it through the "analog to digital interface 435," and processes the samples in CPU 401. EX1004, [0070]. That is the architecture Middelhoek identifies as the modern one. Replacing Chan's current transformer with a moving-coil pointer instrument would remove the digital measurement chain that the rest of Chan's module depends on. The Petition's stated rationale—that the combination would "achieve accurate AC current measurements," Pet. at 57—does not explain why a POSITA would take that step.

119. Claim 17 requires that "the wattmeter comprises a bolometer, or . . . the wattmeter accumulates or averages readings." '590 Patent, Claim 17. The Petition offers the electro dynamometer, supported by a proposition assembled from two disparate pages of Middelhoek: "'[E]lectro dynamometers [are] another type of averaging wattmeter,' which 'is a most commonly used wattmeter.'" Pet. at 57-58

(quoting EX1008, 154, 148). The first fragment is taken from a sentence whose subject and point are different: "In comparison with e.g. electro dynamometers, another type of averaging wattmeter, thermal multipliers have a large error (short term instability, low output voltage)." EX1008, 154. Middelhoek there is describing the shortcomings of thermal multipliers.

120. The second fragment omits critical sentences. Middelhoek's passage reads: "It is a most commonly used wattmeter. It cannot respond to high frequency signals and is inaccurate at low power factors due to instrument or transformer phase shift. The just cited [233] eliminates the phase problem by rectifying the signals. The meter is a dc instrument." EX1008, 148. An electro dynamometer is a mechanical instrument, obtained by "replac[ing] the permanent magnet in a moving coil instrument (d'Arsonval) with coil(s), i.e. an electromagnet," *id.*, in which the deflecting torque arises from the interaction of a current-carrying fixed coil and a current-carrying moving coil, and the pointer indicates the time-average of their product. In my opinion, a POSITA would not install such an instrument in Chan's plug-in module: it is a mechanical movement with a pointer and scale in a device that has neither, and Middelhoek identifies it as a dc instrument that "cannot respond to high frequency signals" and that is inaccurate at low power factors. Neither the Petition nor Dr. Houh addresses the omitted sentences.

121. Claim 18 requires that "the wattmeter comprises the current sensor, or . . . the wattmeter is based on multiplying a measured voltage and the current measured by the current sensor." '590 Patent, Claim 18. The Petition quotes Middelhoek's statement that "[s]tandard methods for measuring power" include "measuring current and voltage separately, and multiplying the values." Pet. at 58. Middelhoek lists five standard methods and multiplication is the last of them. EX1008, 126. But the method the Petition selects requires an input Chan does not have. Chan discloses two current transformers and no voltage measurement anywhere in the appliance module. EX1004, [0070]. Multiplying current by voltage requires a voltage sensing path—typically a resistive divider referenced to the same ground as the current channel, with attention to isolation and to phase alignment between the two channels—and Chan discloses none of this.

122. Finally, Claims 17 and 18 depend from Claim 15, which requires a wattmeter "in the single enclosure" "connected to the AC connector." The Petition maps that wattmeter to Chan's power measure module 421. Pet. at 45. In my opinion, Petitioner cannot consistently treat module 421 as the claimed wattmeter, while also treating its two current transformer inputs as the separate "current sensor" and "first sensor" of Claim 1. It is my opinion that the Petition has not shown that Claims 12, 17, or 18 would have been obvious.

XV. OPINIONS REGARDING GROUNDS 5 AND 12

123. Ground 5 challenges Claims 28 and 31 over Chan and Goldsmith; Ground 12 challenges Claims 20-22 over Seo, Chan, and Goldsmith. Each of these claims specifies what "the wireless network" of Claim 1 must be: a satellite network with a satellite antenna and satellite modem (Claim 28); a cellular network of the recited third- or fourth-generation types (Claim 31); and a wireless personal area network with a WPAN antenna and WPAN modem, according to Bluetooth or IEEE 802.15.1-2005 (Claim 21) or Zigbee, IEEE 802.15.4-2003, or Z-Wave (Claim 22).

124. Goldsmith is a survey text, and in my opinion it establishes only that these protocols existed and had the general characteristics it describes. Claim 1 requires more of "the wireless network" than that its protocol existed: it is the network over which the claimed transceiver transmits both sensors' digital data outward and receives the digital data to which the appliance responds. For the reasons in Section X, the reference on which the network mapping rests routes the appliance module's data over the premises wiring.

125. Claim 28 illustrates the gap most clearly. A satellite transceiver is not simply another radio. Even the smallest satellite transceivers of the relevant period required an outdoor-mounted directional antenna with a clear line of sight to the satellite, mechanical alignment in azimuth and elevation, and transmit power and

low-noise-amplifier performance far beyond what a ZigBee radio requires. Nothing in Chan, Seo, or Goldsmith suggests placing such a transceiver inside a plug-in AC module or a refrigerator control panel, and the Petition's only bridge is Chan's catch-all reference to "other media." Pet. at 59 (quoting EX1004, [0073]). In my opinion the "obvious to try" rationale the Petition offers—that "there were a finite number of wireless networking technologies available at the time," Pet. at 58-59—identifies no design need in either primary reference and simply tracks the lists in the claims.

XVI. OPINIONS REGARDING GROUND 6

126. Ground 6 challenges Claims 33, 48, 49, 55, and 56 over Chan and Rossing. The mapping begins from a premise Chan does not supply: the Petition asserts that "Chan's microphones are first sensors," citing Chan's claim 10. Pet. at 61. Chan's FIG. 4 module contains no microphone. In fact, the only usage of "microphone" in Chan is in its claim 11: "The system of claim 1 wherein the appliance module comprising one or more microphones." The Petition does not explain how a POSITA would integrate one into the FIG. 4 module or how its output would reach a wireless network.

127. Claim 33 requires a piezoelectric first sensor that "includes single crystal material or a piezoelectric ceramics and uses a transverse, longitudinal, or

shear effect mode of the piezoelectric effect." '590 Patent, Claim 33. Rossing supplies the material and nothing of the mode.

128. I also note that Rossing points a POSITA away from the claimed limitation. Immediately after describing the crystal microphone, Rossing observes that "[t]he low compliance of the piezoelectric element typically limits the performance of such a microphone, especially the extent of its frequency response." EX1010, 758. Rossing then identifies a different configuration as the one an artisan would reach for: electret condenser microphones "are used almost universally in cell phones, as well as other applications," "are probably the most popular type in current use," and are "practical for multi-microphone arrays." EX1010, 759.

129. Claim 49 is conjunctive. It requires that "the electroacoustic sensor is an omnidirectional, unidirectional, or bidirectional microphone that is based on the sensing an incident sound-based motion of a diaphragm or a ribbon, and the microphone consists of, or comprises, a condenser, an electret, a dynamic, a ribbon, a carbon, or a piezoelectric" microphone. '590 Patent, Claim 49. For the first requirement the Petition states: "That is, microphones are omnidirectional, unidirectional, or bidirectional. (EX1010, 759 . . . *see also* EX1020, 118-119.)" Pet. at 62.

130. Rossing's page 759 does not say that. Under the heading "Microphone Pickup Pattern," Rossing explains that a microphone "responds to the sound at essentially just one point, so its output represents a spatial sample of the total sonic event," and that while "most microphones exhibit some directional bias, whether or not intended," "it is probably not possible to specify a single universally preferred pickup pattern." EX1010, 759. The words omnidirectional, unidirectional, and bidirectional do not appear on that page. The only support the Petition offers for the three-way classification is Sinclair (EX1020, 118-119), which is not a reference of Ground 6.

131. In my opinion the classification the Petition attributes to Rossing is also a design classification rather than an inherent property, which is why it cannot be assumed. A microphone's polar pattern is a consequence of how the transducer is coupled to the sound field. A sealed-back capsule responds to pressure, which is a scalar, and is therefore nominally omnidirectional. Introducing a controlled rear acoustic port so that the diaphragm responds to the pressure difference across it produces a pressure-gradient transducer, which is nominally bidirectional. Combining pressure and pressure-gradient responses in chosen proportion, by acoustic design of the rear porting and internal damping, produces the family of unidirectional patterns—cardioid, supercardioid, hypercardioid. Achieving any

particular pattern requires deliberate acoustic design of the capsule. Rossing's statement that microphones exhibit "some directional bias, whether or not intended" is a statement about unavoidable deviation from the ideal, not a statement that microphones are built in three selectable patterns.

132. Claims 55 and 56 depend from Claim 53 and add a sounder and an electromagnetic coil. The Petition's premise is Chan's claim 11 recitation that the "appliance module compris[es] one or more audio devices," from which it reasons that "like Chan's other actuators, the sounder would be coupled to the wireless transceiver to operate (e.g., to output an alarm in response to received data)." Pet. at 62. Chan discloses no such coupling and no such alarm.

133. Claim 55 requires "a sounder for converting an electrical energy to omnidirectional, unidirectional or bidirectional pattern emitted, audible or inaudible, sound waves." '590 Patent, Claim 55. The Petition's support is a sentence spliced from two separated passages of Rossing: "Sound radiates from a loudspeaker in all directions . . . and . . . almost unavoidably omni-directional at low frequencies." Pet. at 62 (quoting EX1010, 765). Read in place, Rossing is describing a design problem rather than a capability. Rossing explains that a loudspeaker's output varies "depending on angle and frequency"; that "[i]t is rare for a speaker to have truly constant directionality across its entire pass-band"; that most speakers are "at least

somewhat directional at mid and high frequencies"; and that "because of the long wavelengths involved," a speaker is "almost unavoidably omnidirectional at low frequencies." EX1010, 765. Rossing adds that "a loudspeaker system and its associated radiation pattern is a fiendishly complicated device that does not readily lend itself to characterization by traditional audio metrics or specifications," and that "the exact optimal specification has not been established." *Id.*

134. In my opinion, Rossing is describing the well-understood frequency dependence of the radiation pattern from a finite source. A driver radiates nearly uniformly when its dimensions are small compared with the wavelength, and becomes progressively more directional as the wavelength shrinks relative to the radiating area. Low-frequency omnidirectionality is therefore a consequence of physics that the designer cannot avoid, which is precisely why Rossing calls it "almost unavoidabl[e]." A sounder "for converting an electrical energy to" a specified radiation pattern implies a purposive design that produces that pattern. An unavoidable artifact at one end of the spectrum is not such a thing.

135. It is my opinion that the Petition has not shown that Claims 33, 48, 49, 55, or 56 would have been obvious.

XVII. OPINIONS REGARDING GROUND 7

136. Ground 7 challenges Claim 34 over Chan and Benesty. Claim 34 requires "multiple sensors arranged as a directional sensor array operative to estimate the number, magnitude, frequency, Direction-Of-Arrival (DOA), distance, or speed of the physical phenomenon impinging the sensor array." '590 Patent, Claim 34.

137. The Petition's showing is a single quoted fragment: "[a] microphone array beamformer … [can] lead to an estimate of the direction of an active speech source." Pet. at 64 (quoting EX1011, 1044). Benesty's sentence reads: "Therefore, steering a microphone array beamformer and scanning across a room for the highest-energy output leads to an estimate of the direction of an active speech source." EX1011, 1044. The ellipsis in the Petition removes the two operative steps.

138. In my opinion the removed words are the entire mechanism, and their removal changes what the reference discloses. An array of microphones is a geometric arrangement of transducers. By itself, it produces nothing but a set of signals. A beamformer is a signal-processing operation applied to those signals: in its simplest delay-and-sum form, each channel is delayed by the propagation time corresponding to an assumed arrival direction and the channels are summed, so that energy arriving from that direction adds coherently, while energy from other

directions partially cancels. Steering means changing those delays to point the beam. Scanning means sweeping the steering direction across a range of candidate angles and recording the output power at each. Only when the scan is complete does the direction of maximum output constitute an estimate of arrival direction. The estimate is produced by the algorithm and the scan, not by the array.

139. Benesty makes the same point structurally by describing an alternative family of methods, in which relative time differences of arrival are computed for microphone pairs and the source location is then estimated from those time differences using knowledge of the microphone positions. EX1011, 1044. Benesty states that localizing a source, as opposed to estimating a direction, requires still more: "Using two arrays and by intersecting the two corresponding direction estimates, the source location is determined." *Id.* Claim 34 requires an array "operative to estimate" the recited parameters. In my opinion the Petition does not identify which estimation function the combined appliance would perform, what array geometry it would use, or where either reference discloses an appliance module performing it.

140. The same page of Benesty also undercuts any reasonable expectation of success. Benesty reports that the high-resolution direction-of-arrival algorithms "were found to be incompetent for speech source localization, particularly in

reverberant acoustic environments." *Id.* Beam scanning "has some intrinsic drawbacks": because speech is broadband, "ideally a broadband beamformer whose beam pattern would be the same across the entire speech spectrum needs to be developed, which is a technically challenging problem"; most beamforming algorithms assume a far-field source, so "[w]hen the speech source is close to the microphone array, performance degradation can be expected"; and if the source is in the far field, "the localization resolution may not be satisfactory as the source direction is only selected from a set of discrete beam scanning angles." *Id.*

141. These caveats correspond to real design constraints that I would expect a POSITA to weigh. The angular resolution obtainable from an array is governed by its aperture relative to the wavelength, so a small array has poor resolution at low frequencies; conversely, spacing elements too far apart relative to the wavelength produces spatial aliasing and grating lobes that create ambiguous direction estimates. Reverberation adds coherent reflections that a delay-and-sum beamformer cannot distinguish from the direct path. Meeting the claimed capability in a physically small, low-cost module is a design problem, not a predictable substitution.

142. The motivation the Petition offers—that a POSITA "would have been motivated to apply Benesty's microphone arrays when implementing Chan to allow audio capture with higher clarity and spatial accuracy," Pet. at 63—tracks the benefit

Benesty identifies for conference telephony, which is improved signal pickup. EX1011, 1021. In my opinion improving how well an array picks up a talker is a different objective from building an array that estimates the number, magnitude, frequency, direction of arrival, distance, or speed of an impinging phenomenon, and Chan states no need for either. It is my opinion that the Petition has not shown that Claim 34 would have been obvious.

XVIII. OPINIONS REGARDING GROUNDS 8 AND 13

143. Ground 8 challenges Claims 35, 36, 39, 40, 42, 43, and 47 over Chan and Fraden; Ground 13 challenges Claims 35 and 39 over Seo, Chan, and Fraden. Fraden is a catalogue of sensing principles, and in my opinion the Petition uses it as one: for each claim it locates the recited sensor type somewhere in Fraden and concludes that "[i]t would thus have been obvious to try" it "when implementing Chan's various sensors." Pet. at 66.

144. Each of these claims specifies what "the first sensor" of Claim 1 must be. The "first sensor" is the component that Element 1[F] requires to be housed in the single enclosure and that Element 1[G] requires to transmit digital data to the wireless network in response to a physical phenomenon. Establishing that a sensor type existed does not establish an appliance configured with it in the claimed

relationships, and for the reasons in Section X, those underlying relationships are not disclosed.

145. Claim 40 illustrates the difficulty. It requires a radiation sensor responsive to "radioactivity, nuclear radiation, alpha particles, beta particles, or gamma rays," and "based on gas ionization." '590 Patent, Claim 40. Chan discloses no radiation sensor of any kind. The Petition's showing is that "[r]adiation sensors that operate in the recited manner were well-known" and that "[i]t would thus have been obvious to incorporate it into Chan and/or try it when implementing Chan's various sensors to enhance Chan's functionalities." Pet. at 66. A gas-ionization radiation detector is a specialized instrument—an ionization chamber, proportional counter, or Geiger-Müller tube, requiring a sealed fill gas, an electrode structure, and a high-voltage bias supply, typically hundreds of volts. In my opinion nothing in Chan's energy-monitoring module calls for one, and "enhance Chan's functionalities" is not an engineering reason to add one. Claims 42 and 43 depend from Claim 41 and Claim 47 from Claim 46; each inherits its parent's deficiencies, and the Petition's showing for each follows the same catalogue-plus-obvious-to-try pattern.

146. It is my opinion that the Petition has not shown that any claim challenged in Grounds 8 or 13 would have been obvious.

XIX. OPINIONS REGARDING GROUND 10

147. Ground 10 challenges Claim 59 over Chan and Ozturk. Claim 59 depends from Claim 53 and requires that "the actuator consists of, or comprises, a thermoelectric actuator and is a heater or a cooler, operative for affecting the temperature of a solid, a liquid, or a gas object, and is coupled to the object by conduction, convection, force convention, thermal radiation, or by the transfer of energy by phase changes." '590 Patent, Claim 59.

148. Ozturk discloses no thermoelectric actuator. Ozturk models "[a] common ATX form factor personal computer system" and studies forced convection air cooling of a CPU using a heat sink and a fan. EX1014, 650. The word "thermoelectric" does not appear in the reference.

149. In my opinion, a heat sink and a fan are not a thermoelectric actuator, and the distinction is one of operating principle rather than nomenclature. A heat sink is a passive body of high thermal conductivity with extended surface area; it consumes no electrical energy and moves heat by conduction into a fin structure and then by convection into the surrounding air. A fan is a fluid mover; it consumes electrical energy to drive an impeller, and its effect on heat transfer is indirect, by increasing the convective heat transfer coefficient at the fin surfaces. Neither element converts electrical energy into a temperature difference. Together they can

only move heat down an existing gradient—from a hot component toward cooler ambient air—and can never bring the component below ambient temperature.

150. A thermoelectric actuator operates on a different principle. The '590 Patent describes it as "a heating or cooling heat pump," which may be "an electric heater, converting electrical energy into heat, using resistance, or a dielectric heater," "a solid-state active heat pump device based on the Peltier effect," or "an air cooler, using a compressor-based refrigeration cycle of a heat pump." '590 Patent, 41:23-32. Each of those does what a fan and heat sink cannot: a resistive heater dissipates electrical energy directly as heat in the object; a Peltier device drives heat across a semiconductor junction against the thermal gradient when current is passed through it, so the cold side can be driven below ambient; and a compressor-based cycle pumps heat by compressing and expanding a working fluid. In my opinion, a POSITA would not regard a passive fin structure and an air mover as falling within any of these.

151. Claim 59 also inherits Claim 53's requirement that the actuator be "coupled to the wireless transceiver for being activated or controlled in response to digital data received from the wireless network." The Petition's showing is a chain of inferences: "the fan and heatsink would be coupled to the wireless transceiver for controlled in response to digital data received from the wireless network, since the

CPU operates based on such data and the cooling assembly responds to the resulting increase in processor activity and heat generation." Pet. at 69-70; EX1002, ¶ 458. By the Petition's own description, the fan responds to temperature. A thermally controlled fan is governed by a temperature sensor and a control loop; its speed is a function of measured die or ambient temperature, regardless of what the processor happens to be computing. In my opinion the fact that a processor's workload may ultimately originate in network traffic does not make its cooling fan an actuator activated or controlled in response to digital data received from a wireless network.

152. It is my opinion that the Petition has not shown that Claim 59 would have been obvious.

XX. OPINIONS REGARDING GROUND 14

153. Ground 14 challenges Claim 58 over Seo, Chan, and Betts-LaCroix. Claim 58 depends from Claim 53 and requires that "the actuator consists of, or comprises, a chemical or an electrochemical actuator, and is operative for producing, changing, or affecting a matter structure, properties, composition, process, or reactions." '590 Patent, Claim 58.

154. The Petition's theory is that Seo's screen display would be implemented as an organic light-emitting diode panel, and that an OLED is an electrochemical actuator. Pet. at 97. Betts-LaCroix is cited for one proposition only:

that "OLED displays do not require a backlight to function and thus consume far less power than LCDs." EX1050, [0002]. An OLED is electroluminescent, not electrochemical, however, and no cited source says it is. The Petition relies on four passages, the closest of which nonetheless falls well short. For example, 11:55-57 says: "[a]dding mobile ions to an OLED creates a light-emitting electrochemical cell or LEC, which has a slightly different mode of operation." To make an OLED electrochemical, however, requires the addition of mobile ions, and the result is a different device—an LEC (sometimes LEEC, "light emitting electrochemical cell."). None of the cited prior art, however, supports the proposition that an OLED is electrochemical. The patent itself draws a distinction at 39:10-26, stating that the "actuator may be a light source" and goes on to include OLEDs. It then turns and says, "[t]he actuator may be a chemical or electrochemical actuator, and may be operative for producing changing, or affecting a matter structure, properties, composition, process, or reactions, such as producing, changing, or affecting an oxidation/reduction or an electrolysis reaction." *Id*. Thus OLED are distinguished in the patent from electrochemical actuators. Thus, LECs use oxidation/reduction, whereas OLED do not.

155. Claim 58 also depends from Claim 53, which requires an actuator "in the single enclosure" "coupled to the wireless transceiver for being activated or

controlled in response to digital data received from the wireless network." For the reasons in Section XI, Seo's display is not controlled or activated in response to digital data received from a wireless network; it presents the results of calculations that Seo's control unit performs itself. It is my opinion that the Petition has not shown that Claim 58 would have been obvious.

XXI. CONCLUSION

156. For the reasons set forth above, it is my opinion that Petitioner's evidence does not establish that any of Claims 1-36 or 38-63 of the '590 Patent would have been obvious over the combinations asserted in any of Grounds 1-15.

157. I reserve the right to supplement or amend my opinions in response to any new arguments, evidence, or testimony offered by Petitioner or its declarants, any orders of the Board, or as otherwise permitted.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on Augst 5, 2026, at Pittsburgh, Pennsylvania.

By:
Dr. Michael Shamos

APPENDIX A

Resume of Michael Ian Shamos

Current to July 15, 2026

Education

A.B. (1968) Princeton University (Physics). Thesis: "Gravitational Radiation Reaction." Advisor: John A. Wheeler.

M.A. (1970) Vassar College (Physics). Thesis: "An Absorber Theory of Acoustical Radiation." Advisor: Morton A. Tavel.

M.S. (1972) American University (Technology of Management).

M.S. (1973) Yale University (Computer Science).

M.Phil. (1974) Yale University (Computer Science).

Ph.D. (1978) Yale University (Computer Science). Thesis: "Computational Geometry". Thesis committee: David Dobkin, Martin H. Schultz, Stanley C. Eisenstat.

J.D. (1981) Duquesne University, *cum laude*.

Foreign Languages

French, Russian (good reading and technical translation skills, fair conversational ability).

Academic Experience

Distinguished Career Professor, Language Technologies Institute and Software and Social Systems Department, School of Computer Science, Carnegie Mellon University (2001-)
Principal Systems Scientist (1998-2001)
Principal Lecturer (2002-2003). Teaching Professor (2003-)
Faculty, Tepper School of Business, Carnegie Mellon University (1999-2004).
Co-Director, Carnegie Mellon Institute for eCommerce (1998-2004)
Vice-Chair, University Research Council (2000-2002)
Director, eBusiness Technology degree program, Carnegie Mellon (2003-2018)
Director, M.S. in Artificial Intelligence and Innovation, Carnegie Mellon (2018-2026)
Associate Director, M.S. in Artificial Intelligence and Innovation, Carnegie Mellon (2018-2026)
Affiliated Faculty, CMU Center for Informed Democracy and Social-cybersecurity (2021-)
Core faculty, Privacy Engineering degree program (2013-)
Director, Universal Library, Carnegie Mellon University (1998-)
Visiting Professor, Faculty of Engineering, The University of Hong Kong (2001-2021)
Adjunct Faculty, Carnegie Mellon University, Department of Computer Science (1981-1998)

Assistant Professor, Carnegie Mellon University, Departments of Computer Science and Mathematics (1975-81), Dept. of Statistics (1978-81).

Courses taught (Carnegie Mellon):
Algorithm Design and Analysis 15-451 (Comp. Sci.)
Intellectual Capital and its Protection 45-886 (MBA)
Ecommerce Technology 20-751 (MSEC program)
Electronic Payment Systems 20-753 (MSEC program), 96-774 (MSIT program)
Ecommerce Law and Regulation 46-840 (MSEC program)
Electronic Voting 17-803
Ubiquitous Computing, 96-761 (MSIT Program)
Electronic Payment Systems (MSIT Program)
Law of Computer Technology, 17-762/17-662/17-562 (2007-)
Artificial Intelligence and Future Markets, 11-561 (2018-)

Honors and Awards

Fellow, Society of the Sigma Xi (1974-83).

IBM Fellowship, Yale University (1974–75).

SIAM National Lecturer (1977–78).

Distinguished Lecturer (computer science), University of Rochester (1978); McGill University (1979).

Duquesne University Law Review (1980–81).

Black & White Scotch Achiever's Award (first annual, 1991, for contributions to bagpipe musicography).

Industry Service Award of the Billiard and Bowling Institute of America, 1996 (for contributions to billiard history).

Billiard Worldcup Association official referee (2001-)

Editorships

Editor-in-Chief, Journal of Privacy Technology (2003- 2006).

Member of Editorial Board, *Electronic Commerce Research Journal* (2000-).

Member of Editorial Board, *Pittsburgh Journal of Technology Law and Policy* (1999-2003).

Dr. Shamos has reviewed scientific papers for *Communications of the ACM*, *Mathematical Reviews*, *IEEE Computer*, *IEEE Transactions on Computers*, *Information Processing Letters*, *Journal of the ACM* and the *Journal of Computational Physics*.

Contributing Editor, *Billiards Digest* magazine (1990-).

Patents

Co-inventor with K. Srinivasan, U.S. Patent 7,330,839, "Method and System for Dynamic Pricing," issued February 12, 2008.

Co-inventor with K. Srinivasan, U.S. Patent 7,421,278, "Method and Apparatus for Time-Aware and Location-Aware Marketing," issued September 2, 2008.

Co-inventor with K. Srinivasan, U.S. Patent 7,747,465, "Determining the Effectiveness of Internet Advertising," issued June 29, 2010.

Co-inventor with K. Srinivasan, U.S. Patent 8,195,197, "Method and Apparatus for Time-Aware and Location-Aware Marketing," issued June 5, 2012.

Co-inventor with K. Srinivasan, U.S. Patent 8,280,773, "Method and Apparatus for Internet Customer Retention," issued October 2, 2012.

Co-inventor with K. Srinivasan, U.S. Patent 9,456,299, "Method and Apparatus for Time-Aware and Location-Aware Marketing," issued September 27, 2016.

Legal Experience

Special Counsel, Reed Smith LLP (2000-2003), electronic commerce law.

Shareholder, The Webb Law Firm (1996-2000), intellectual property law. Associate (1990-95).

Private practice of law (1987-90), intellectual property

Associate, law firm of Buchanan, Ingersoll, P. C. (1985-87)(now Buchanan Ingersoll & Rooney, PC), Emerging Companies Department.

General Counsel, Carnegie Group, Inc. (1983-85), artificial intelligence company.

Private practice of law (1981-83), computer law.

Bar Admissions

Supreme Court of Pennsylvania (1981–).

United States District Court for the Western District of Pennsylvania (1981–).

United States Patent and Trademark Office (1981–).

United States Tax Court (1982–).

United States Court of Appeals for the Armed Forces (1982–).

United States Court of Appeals for the Third Circuit (1982–).

United States Supreme Court (1985–).

United States Court of Appeals for the Federal Circuit (1985–).

Expert Witness

Dr. Shamos has served as an expert witness in multiple computer software and electronic voting cases. He has participated in the cases listed below. "D" indicates deposition testimony; "R" indicates report, declaration or affidavit; "T" indicates trial testimony.

Total: 414 cases, including 329 patent, 52 electronic payment, 22 electronic voting, 23 trade secret, 14 copyright, 1 criminal.
Affidavits, reports or declarations submitted in 299 cases.
Deposed in 168 cases.
Testified at trial or hearing in 54 cases (22 jury trials).
Participated in 7 ITC investigations, 131 IPRs, 22 CBMs, 11 PGRs, and 10 reexams.

1. *C.W. Communications, Inc. v. International Research Service, Inc.*, Civil Action No. 84-890, (W.D. Pa. 1984), aff'd. Case No. 88-3331 (3d Cir., Oct. 31, 1988). Served as an expert for plaintiff publisher as to the fame of its "Computerworld" trademark. Result: permanent injunction entered against defendant. Judge McCune's Memorandum and Order states. "We accept the conclusion drawn by Dr. Shamos." Firm: Webb, Burden Robinson & Webb (now the Webb Law Firm). (D,T)

2. *E.F. Hutton, Inc. v. Gipson* (W.D. Pa. 1985). Served as an expert for defendant-counterclaimant physician as to fraud in the inducement by a computer hardware supplier. Plaintiff had provided capital financing for the purchase. Result: defendant was awarded compensatory damages + $250,000 punitive damages. (D,T)

3. *In re Comprehensive Business Systems*, 119 B.R. 573 (S.D. Ohio 1990). Served as an expert for a secured creditor in a bankruptcy case in which the creditor sought to obtain software still in development for which it had advanced over $2 million in funding. Dr. Shamos opined as to the value of the incomplete software. Result: the creditor was able to purchase the software from the Trustee for $67,500. The Court referred in its opinion to "the testimony of the eminent and impressive Dr. Shamos." (D,R,T)

4. *Levinson Steel Co. v. American Software, Inc. et al.*, Civil Action No. 96-282, W.D. Pa. (1996). Served as an expert for plaintiff in a case involving bad faith estimates of computer processing capacity resulting in delivery of an inadequate system. Result: settlement in favor of plaintiff in an undisclosed amount. Contact: Reed Smith LLP, 225 Fifth Ave., Pittsburgh, PA 15222. (D,R)

5. *ASE Limited v. INCO Alloys International, Inc.*, Civil Action No. 98-1266, (W.D. Pa. 1998). Served as an expert for defendant concerning breach of computer services contract by declaratory judgment plaintiff. Result: determination that defendant was free to seek services from a different vendor. Firm: Reed Smith LLP, 225 Sixth Ave., Pittsburgh, PA 15222. Attorney: Anthony Basinski, Esq. (D,T)

6. *Twentieth Century Fox Film Corp. v. iCraveTV*, 53 U.S.P.Q. 2d 1831 (W.D. Pa. 2000). Served as an expert for Plaintiffs concerning Internet technology used to stream video from U.S. TV stations through web sites in Canada. Result: TRO and preliminary injunction issued against defendants prohibiting continued infringement in the U.S. Firm: Reed Smith LLP. Attorney: Gregory Jordan, Esq. (T)

7. Invited testimony before the British House of Lords, Subcommittee B of the European Union Committee, April 20, 2000. Subject: European regulation of eCommerce. View testimony.

8. *Universal Studios, Inc. v. Reimerdes*, 111 F. Supp. 2d 294 (S.D.N.Y. 2000), aff'd. 273 F.3d 429 (2d Cir. 2001). Served as an expert for plaintiff movie studios concerning accused software for decrypting DVDs in the first case interpreting the Digital Millennium Copyright Act. Result: permanent injunction issued in favor of plaintiffs on August 17, 2000. Contact: William Hart, Esq., Proskauer Rose LLP. View testimony. View opinion. View appellate opinion. (D,T)

9. *MercExchange, L.L.C. v. eBay, Inc. et al.*, Case No. 2:01-CV-736 (E.D. Va. 2001). Served as an expert for defendant eBay in an infringement case concerning U.S. Patent 6,202,051 for Internet auctions. Following Dr. Shamos' reports, Defendants obtained a summary judgment of noninfringement of the subject patent. On the other patents, the case went to the U.S. Supreme Court, which ruled that injunctions are not automatic in patent cases. Contact: Tim Teter, Esq., Cooley LLP. (D,R)

10. *PowerQuest Corp. v. Quarterdeck Corp. et al.*, Case No. 2:97-CV-0783 (D. Utah 1997). Served as an expert for plaintiff PowerQuest in an infringement case concerning U. S. Patents 5,675,769 and 5,706,472 for a method of resizing hard disk partitions. Dr. Shamos testified at the Markman hearing. Case settled when one of the defendants acquired plaintiff. Attorney: Gregg I. Anderson, Esq., formerly at Merchant & Gould, now an Administrative Patent Judge at the Patent Trial and Appeal Board. (R,T)

11. *Sightsound.Com Inc. v. N2K Inc. et al.*, C.A. 98-118 (W.D. Pa. 1998). Served as an expert for defendants, including a subsidiary of Bertelsmann AG, concerning validity of U.S. Patents 5,191,573 and 5,966,440 for distribution of digital audio via telecommunications lines. Case

settled. Firm: Parcher, Hayes & Snyder, (no longer in existence). Contact: Steven M. Hayes, Esq., Simmons Hanley Conroy, LLC, 112 Madison Ave., New York, NY 10016. (D,R)

12. *Freemarkets, Inc. v. B2eMarkets, Inc.*, C.A. 02-162-SLR (D. Del. 2002). Served as an expert witness for plaintiff concerning infringement of U.S. patents 6,216,114 and 6,223,167, concerning methods of conducting electronic auctions. Case settled two weeks after expert attended a demonstration of the accused product. Contact: D. Michael Underhill, Esq., Boies, Schiller & Flexner, LLP, Washington, DC.

13. *Lifecast.com, Inc. v. ClubCorp, Inc.*, AAA Case No. 71Y1170076301 (Dallas, TX). Served as an expert witness for respondent in a case alleging copyright infringement of Internet websites. Testified at arbitration. Result: Complainant's claims denied; award for respondent on counterclaims and for attorney's fees. Contact: Bill Whitehill, Esq., Gardere Wynne Sewell LLP, 1601 Elm St., Dallas, TX 75201. (T)

14. *IP Innovation LLC v. Thomson Learning, Inc. et al.*, Case H-02-2031 (S.D. Tex. 2002). Served as an expert for defendant The Princeton Review, Inc. concerning alleged infringement of U.S. Patent 4,877,404 relating to online delivery of educational courses. Summary judgment of non-infringement obtained for defendant after favorable Markman proceeding. Contact: Peter Vogel, Esq., Gardere Wynne Sewell LLP, 1601 Elm St., Dallas, TX 75201. (R)

15. *Starpay.com LLC et al. v. Visa International Service Association et al.*, Case 3-03-CV-976-L (N.D. Tex. 2003). Served as an expert for defendant Visa concerning alleged infringement of U.S. Patent 5,903,878 relating to online authentication of credit card customers. Dr. Shamos provided the court with a Markman tutorial in 2004 and a non-infringement and invalidity declaration in 2008. Case settled in February 2008. Contact: Stanley Young, Esq., Covington & Burling LLP, 333 Twin Dolphin Drive, Suite 700, Redwood Shores, CA 94065. (D,R,T)

16. *Safeclick LLC v. Visa International Service Association et al.*, Case C-03-5865 (N.D. Cal. 2003). Served as an expert for defendant Visa concerning alleged infringement of U.S. Patent 5,793,028 relating to online authentication of credit card customers. Summary judgment of noninfringement granted for Visa based on expert reports, affirmed after appeal to the Federal Circuit. Contact: Stanley Young, Esq., Covington & Burling LLP, 333 Twin Dolphin Drive, Suite 700, Redwood Shores, CA 94065. (D,R)

17. *Wells Fargo Bank Minnesota, NA et al. v. UBS Warburg Real Estate Securities, Inc.*, Case 02-2849 (192d Judicial District, Dallas Cty., Tex, 2002) and *LaSalle Bank, NA et al. v. UBS Warburg Real Estate Securities, Inc.*, Case 02-2899-G (134th Judicial District, Dallas Cty., Tex, 2002). Served as an expert for defendant UBS Warburg in an electronic discovery matter involving a case of first impression regarding Texas Discovery Rule 196.4 allocating costs of discovery of electronic records. Firm: Gardere Wynne Sewell LLP, 1601 Elm St., Dallas, TX 75201. Contact: Dawn Estes, Esq., Taber, Estes Okon Thorne & Carr PLLC, 3811 Turtle Creek Blvd., Suite 2000, Dallas, TX 75219. (D, R)

18. *American Association of People with Disabilities et al. v. Shelley et al.*, Case No. CV04-1526 FMC (PJWx) (C. D. Calif., 2004). Served as an expert for plaintiff AAPD, which has brought a claim against the California Secretary of State that requiring DRE voting machines to be equipped with audit trails violates the rights of disabled persons. Plaintiffs' application for TRO and preliminary injunction denied. Firm: Howrey LLP, (no longer in existence). Attorney John E. McDermott is now a Magistrate Judge in the Central District of California. (R)

19. *Paul Ware v. Target Corp.*, CA 4:03-CV-0243-HLM (N.D. Ga., 2003). Served as an expert for defendant Target Corp., a large retailer, in a case involving U.S. patent 4,707,592, claiming a method of conducting credit card sales. Case settled during Markman preparations. Contact: Thomas P. Burke, Esq., Ropes & Gray LLP, 1211 Ave. of the Americas, New York, NY 10036.

20. *Viad Corp., v. C. Alan Cordial et al.*, No. 03-1408 (W.D. Pa., filed 2003). Served as an expert for defendants in an action alleging misappropriation of trade secrets relating to software for automating certain aspects of the exhibit booth and trade show industries. Status: case settled immediately before trial, after plaintiff's unsuccessful Daubert challenge of Dr. Shamos. Contact: Barbara Scheib, Esq., Cohen & Grigsby, P.C., 11 Stanwix Street, Pittsburgh, PA 15222. (D,R,T)

21. *Schade et al. v. Maryland State Bd. of Elections et al.*, Case No. C0497297 (Cir. Ct. Anne Arundel Cty. Md., 2004). Served as an expert for defendants in a case challenging the decision of the Board of Elections not to decertify Diebold AccuVote system. Result: Plaintiff's motion for preliminary injunction denied, upheld on appeal. Judge Manck's opinion cites Dr. Shamos' testimony as follows: "the court finds Dr. Shamos, Defendants' expert, to be the true voice of reason and the most credible expert in this matter." The denial of preliminary injunction was upheld by the Maryland Court of Appeals, which commented extensively on Dr. Shamos' testimony in its opinion. Contact: Michael Berman, Esq., (formerly Maryland Deputy Attorney General), Rifkin, Weiner, Livingston, Levitan & Silver, LLC. (R,T)

22. *Wexler et al. v. Lepore et al.*, Case No. 04-80216 (CIV-COHN) (S.D. Fla. 2004) . Served as an expert for defendants, various Florida election supervisors against claim by U.S. Congressman Robert Wexler that use of DRE voting machines without paper audit trails violates the equal protection clause of the U.S. Constitution. Dr. Shamos testified on Oct. 19, 2004. The trial judge rendered judgment in favor of defendants on Oct. 25. Contact: Jason Vail, Esq., then Assistant Attorney General, Department of Legal Affairs, The Capitol, Tallahassee, FL, now at Allen Norton & Blue, PA. Opinion. (T)

23. *Siemens Information and Communication Networks, Inc. v. Inter-Commercial Business Systems, Inc.*, Civil Action 3-03CV2171-L (N.D. Tex. 2004). Served as an expert for defendant against claim of copyright infringement based on reverse-engineered firmware resident in telephone switching systems. Status: case settled shortly after the submission of Dr. Shamos's rebuttal report on non-infringement. Contact: Bill Whitehill, Esq., Gardere Wynne Sewell LLP, 1601 Elm St., Dallas, TX 75201. (R)

24. *Soverain Software LLC v. Amazon.com, Inc.*, C.A. No. 6:04-CV-14 (E.D. Tex. 2004). Served as an expert for plaintiff regarding asserted patents 5,708,780, 5,715,314 and 5,909,492,

relating to the shopping cart paradigm of electronic commerce. Status: settled in Sept. 2005 with Amazon paying $40 million to Soverain and taking a license under the patents in suit. Contact: Ognian Shentov, Esq., Jones Day, 222 E. 41st St., New York, NY 10017. (D,R)

25. *CollegeNET, Inc. v. The Princeton Review, Inc.*, Case '051205KI (D. Ore. 2005). Served as an expert for defendant The Princeton Review, Inc. concerning alleged infringement of U.S. Patent 6,460,042 relating to online delivery of educational courses. Case settled in December 2007. Contact: Peter Vogel, Esq., Gardere Wynne Sewell LLP, 1601 Elm St., Dallas, TX 75201. (R)

26. *CombineNet, Inc. v. VerticalNet. Inc.*, GD 05-018911 (Ct. Common Pleas, Allegheny Cty., PA). Served as an expert for plaintiff in an action for trade secret misappropriation relating to a system for conducting electronic auctions. Plaintiff won in arbitration. Contact: Mark Knedeisen, Esq., K&L Gates LLP, 210 Sixth Avenue, Pittsburgh, PA 15222-2613. (T)

27. *RealSource, Inc. v. Best Buy Co., Inc. et al.*, No. A04-CA-771-LY (W.D. Tex.). Served as an expert for defendant Lowe's Companies, Inc., against a claim of infringement of U.S. patent 5,732,136 relating to validation of point-of-sale debit card transactions. Provided a tutorial to the Court during Markman proceedings concerning debit card technology. Defendants won summary judgment of non-infringement, affirmed by the Federal Circuit. Defendants Lowe's settled and was not involved in the appeal. Contact: Michael S. Connor, Esq., Alston & Bird LLP, Bank of America Plaza, 101 South Tryon St, Suite 4000, Charlotte, NC 28280-4000. (R,T)

28. *DE Technologies, Inc. v. Dell, Inc. et al.*, No. 7:04-CV-00628 (W.D. Va.). Served as an expert for plaintiff DE Technologies, Inc., asserting a claim of infringement of U.S. patents 6,460,020 and 6,845,364, relating to a system for implementing international sales transactions. Case settled after and adverse summary judgment. However, the Court used Dr. Shamos' testimony in its opinion. Contact: David Marder, Esq., Robins Kaplan Miller & Ciresi LLP, 800 Boylston Street, 25th Floor, Boston, MA 02199. (D,R,T)

29. *Eaton Power Quality Corp. v. J.T. Packard & Associates*, No. 05 C 3545 (N.D. Ill. 2005). Served as expert for plaintiff in a claim of software copyright infringement involving a system for configuring industrial uninterruptible power supplies. Case settled in early 2007. Firm: Dewey & LeBoeuf. Contact: Keith P. Schoeneberger, Esq., Pasulka & Associates PC. (D,R)

30. *Taylor et al. v. Onorato et al.*, CA 06-481 (W.D. Pa 2006). Served as an expert for Commonwealth of Pennsylvania defendants in an action seeking to enjoin the use of electronic voting machines in Allegheny County, PA. Dr. Shamos testified at length in a preliminary injunction hearing held April 25-27, 2006 before Judge Lancaster. The injunction was denied on April 28. Suit was subsequently dropped by plaintiffs. Contact: Mark Aronchick, Esq., Hangley Aronchick Segal Pudlin & Schiller, One Logan Square, 18th & Cherry Streets, 27th Floor, Philadelphia, PA 19103. (T)

31. *FedEx Ground Package System, Inc. v. Applications International Corp.*, CA No. 03-1512 (W.D. Pa.). Served as an expert for defendant counterclaiming for copyright infringement and

trade secret misappropriation relating to software for maintaining occupational health and safety records. Dr. Shamos's testimony was excluded because he was unable to perform a side-by-side comparison of the original and accused works. Case has settled. Contact: Ronald Hicks, Esq., Meyer, Unkovic & Scott LLP, 1300 Oliver Bldg., Pittsburgh, PA 15222. (D,R)

32. *NetMoneyIN, Inc. v. Verisign, Inc. et al.*, Cv-01-441-TUC-RCC (D. Ariz.). Served as an expert for defendants Bank of America Merchant Services, Inc. and Wells Fargo Bank, N.A., who are accused of infringing claim 23 of U.S. patent 5,822,737, relating to an electronic payment system. Wells Fargo and Bank of America have settled. Contact: K&L Gates LLP, State Street Financial Center, One Lincoln Street, Boston, Massachusetts 02111-2950. (D,R)

33. *Contois Music Technology, LLC v. Apple Computer, Inc.*, 2:05-CV-163 (D. Vermont, filed Feb. 13, 2006). Served as an expert for plaintiff in an action alleging that the Apple iTunes software infringed U.S. patent 5,864,868, relating to a method for selecting music from an electronic catalog. Case settled after a favorable Markman order. Contact: John Rabena, Esq., Sughrue Mion PLLC, 2100 Pennsylvania Avenue, NW, Suite 800, Washington, DC 20037-3213.

34. *Banfield et al. v. Cortés*, 442 MD 2006 (PA Cmwlth. Ct.). Served as an expert for defendant Secretary of the Commonwealth of Pennsylvania in an action to compel the decertification of all electronic voting machines in Pennsylvania. In February 2008 Defendant successfully repelled an emergency motion for preliminary injunction. In August 2012, the Court denied Petitioners' motion for summary judgment, citing Dr. Shamos's expert report extensively. In October 2013, the Commonwealth Court granted summary judgment for the Secretary. The Pennsylvania Supreme Court affirmed on February 18, 2015. Contact: Steven E. Bizar, Esq., Buchanan Ingersoll & Rooney PC, Two Liberty Place, 50 S. 16th St., Philadelphia, PA 19102-2555. (D,R)

35. *Remote Inventory Systems, Inc. v. WESCO Distribution, Inc.*, AAA Case No. 55 171 00493 05 (Pittsburgh, PA). Served as an expert for respondent in a case alleging misappropriation of trade secrets in a computerized inventory system. Contact: Kirsten Rydstrom, Esq., Reed Smith LLP, 225 Fifth Ave., Pittsburgh, PA 15222. (D,R)

36. *SyncSort, Inc. v. Innovative Routines International, Inc.*, Civil Action No. 04-3623 (WHW) (D. New Jersey). Served as an expert witness for defendant in an action alleging misappropriation of trade secrets embodied in plaintiff's Unix sorting software. Dr. Shamos testified at a bench trial in January 2011. Case settled after an appeal to the Third Circuit was filed. Contact: David R. Fine, Esq., K&L Gates LLP, 17 N. Second Street, 18th Floor, Harrisburg, PA 17101-1507. (D,R,T)

37. *Digital Impact, Inc. v. Bigfoot Interactive, Inc.*, Civil Action C05 00636 (CW) (N.D. Cal.). Served as an expert witness for defendant in an action alleging infringement of U.S. Patent 6,449,634, relating to determining which file formats can be processed by an email client. Result: defendant obtained summary judgment of non-infringement, upheld by the Federal Circuit. Contact: Arthur Dresner, Esq., Duane Morris LLP, 1540 Broadway, New York, NY 10036. (D,R)

38. *Prism Technologies LLC v. Verisign, Inc. et al.*, CA 05-214-JJF (D. Del.). Served as an expert for plaintiff in an action alleging infringement of U.S. Patent 6,516,416, relating to use of a hardware key for authentication over networks. Defendants prevailed on summary judgment of non-infringement, which was upheld on appeal. Firm: Robins Kaplan Miller & Ciresi LLP. Contact: Dirk D. Thomas. Esq., McKool Smith, 1999 K Street, N.W., Suite 600, Washington, DC 20006. (R)

39. *AdvanceMe, Inc. v. RapidPay LLC et al.*, Civil Action 6:05-cv-424 LED (E.D. Tex., Tyler Division). Served as an expert witness for plaintiff in an action alleging infringement of U.S. Patent 6,941,281, relating to an automated payment system for dividing credit card proceeds between a merchant and another party. Testified at a bench trial in July 2007 before Judge Davis, who held the patent infringed but invalid for obviousness. Firm: Paul, Hastings LLP, Five Palo Alto Sq., Palo Alto, CA 94306. Contact: Ronald S. Lemieux, Esq., Singularity LLP, 275 Shoreline Drive, Redwood Shores, CA 94065. (D,R,T)

40. *IBM Corp. v. Amazon.com, Inc.*, CA 9:06-CV-242-RHC (E.D. Tex., Lufkin Div.) and *IBM Corp. v. Amazon.com, Inc.*, CA 6:06-CV-452-LED (E.D. Tex., Marshall Div.). Served as an expert for IBM in related actions alleging infringement of U.S. Patents 5,319,542, 5,442,771, 5,446,891, 5,796,967 and 7,072,849, all concerning methods of conducting electronic transactions, and a counterclaim for infringement of U.S. Patent 5,826,258, concerning a method for querying semistructured data. Case settled early in discovery when the parties cross-licensed each other's patents. Contact: Mark J. Ziegelbein, Esq., Dentons US LLP, 2000 McKinney Ave., Suite 1900, Dallas, TX 75201-1858.

41. *The MathWorks, Inc. v. COMSOL AB et al.*, CA 6:06-CV-334 (E.D. Tex., Tyler Division). Served as an expert for plaintiff The MathWorks, providers of the mathematical software system MATLAB, in an action alleging copyright infringement and infringement of U.S. Patents 7,051,338 and 7,181,745 concerning methods for invoking object methods from external environments. After trial, the case settled with defendant admitting infringement, paying $12,000,000 in damages and waiving appeal rights. Contact: Krista Schwartz, Esq., Jones Day, 77 W. Wacker Dr., Chicago, IL 60601-1692.

42. *Avante Int'l. Technology Corp. v. Diebold Election Systems et al.*, Case 4:06-CV-0978 TCM (E.D. Mo., Eastern Division). Served as an expert for defendants Sequoia Voting Systems and Premier Election Systems in an action alleging infringement of U.S. Patents 6,892,944, 7,036,730 and 7,077,313 concerning electronic voting technology. Dr. Shamos testified at a 5-day trial in February 2009. Result: The jury found Plaintiff's asserted claims invalid as anticipated and obvious. Contact: Peter T. Ewald, Esq., Oliff & Berridge, PLC, 277 South Washington Street, Suite 500, Alexandria, VA 22314. (D,R,T)

43. *Netcraft Corp. v. eBay, Inc. and PayPal, Inc.*, Case 3:07-cv:00254-bbc (W.D. Wisc. 2007). Served as an expert for defendants in an action alleging infringement of U.S. Patents 6,351,739 and 6,976,008 concerning methods of billing for ecommerce transactions over the Internet. Defendants were granted summary judgment of non-infringement on Dec, 10, 2007, upheld on appeal. Firm: Irell & Manella LLP, 180 Avenue of the Stars, Los Angeles, CA

90067. Contact: Kenneth Weatherwax, Esq., Goldberg, Lowenstein & Weatherwax LLP, 1925 Century Park East, Suite 2120, Los Angeles, CA 90067.

44. *ACLU of Ohio et al. v. Brunner et al.*, Case 1:09 CV 0145 (N.D. Ohio 2008). Served as an expert witness in an action alleging that the use of central count optical scan voting should not be permitted in Cuyahoga County, as had been ordered by the county board of elections. A preliminary injunction was denied in February 2008. The case became moot and was dismissed in May 2008 when the Ohio Legislature granted by statute the relief requested by plaintiff, prohibiting the use of central count opscan in Cuyahoga County. Contact: Meredith Bell-Platts, Esq., ACLU Voting Rights Project, 2600 Marquis One Tower, Atlanta, GA 30303. (R)

45. *Ariba, Inc. v. Emptoris, Inc.*, Civil Action 9:07-CV-90-RHC (E.D. Tex. 2007). Served as an expert for Ariba in an action alleging infringement of U.S. Patents 6,216,114 and 6,499,018, relating to the conduct of electronic auctions. Dr. Shamos testified in a jury trial on infringement and validity. Result: verdict finding all asserted claims valid and willfully infringed. Contact: Robert Fram, Esq., Covington & Burling LLP, One Front St., San Francisco, CA 94111. (D,R,T)

46. *EpicRealm Licensing, LP v. Autoflex Leasing Inc. et al.*, CA 5:07-CV-125 (E.D. Tex. 2005). Served as an expert for defendant Herbalife International of America, Inc. in an action alleging infringement of U.S. patents 5,894,554 and 6,415,335, relating to a system for managing generation of dynamic Internet web pages. All original defendants settled. See also the Oracle case below. Contact: Ognian Shentov, Esq., Jones Day, 222 E. 41st St., New York, NY 10017. Also served as an expert for defendant FriendFinder in a separate trial in this action. After a jury trial before Judge Folsom, the patents were found valid and infringed, but the jury awarded only $1.1M, the smallest amount testified to by defendant's damages expert. Contact: Michael J. Sacksteder, Esq., Fenwick & West LLP, 555 California St., San Francisco, CA 94104. (D,R,T)

47. *Oracle Corporation v. EpicRealm Licensing, LP*, CA 2-06-414 (D. Del. 2006), later *Oracle Corporation v. Parallel Networks, LLC*. Served as an expert for Oracle in a declaratory judgment alleging invalidity of U.S. patents 5,894,554 and 6,415,335, relating to a system for managing generation of dynamic Internet web pages. The patents are the same as those in the EpicRealm case, above. Oracle obtained summary judgment of non-infringement, reversed on appeal to the Federal Circuit. Case settled in May 2011 on the eve of trial. Firm: Kilpatrick Townsend & Stockton, LLP, 379 Lytton Ave., Palo Alto. CA 94301. Contact: Theodore T. Herhold, Singularity LLP, 275 Shoreline Drive, Redwood Shores, CA 94065. (D,R)

48. *Saulic v. Symantec Corporation et al.*, Case No. SA CV 07-610 AHS (C.D. Cal., Santa Ana Division, 2007). Served as an expert for defendant Symantec in a removal action alleging violation of California Civil Code §1747.8, relating to the collection of personal identification information in connection with credit card transactions. Case settled. Original firm: Heller Ehrman. Contact: Chad R. Fuller, Esq., Troutman Sanders LLP, 11682 El Camino Real, Suite 400, San Diego, CA 92121. (R)

49. *Gusciora et al. v. McGreevey et al.* (now *Gusciora v. Christie*), Docket No. MER-L-2691-04 (N.J. Super., Mercer County). Served as an expert for defendants, including the Governor and Attorney General of New Jersey, in a case alleging that the state's AVC Advantage voting machines are unconstitutionally insecure. A bench trial was held from January-May, 2009 before Judge Linda Feinberg. The Court's opinion adopts Dr. Shamos' testimony and comments on it extensively. Affirmed on appeal in October 2013. Contact: Leslie Gore, Esq., Asst. Atty. Gen'l., 25 Market Street, P.O. Box 112, Trenton, NJ 08625. (D,R,T)

50. *R.R. Donnelley & Sons Company v. Quark, Inc. et al.*, C.A. No. 06-00032-JJF (D. Del.). Served as an expert for plaintiff R.R. Donnelley in a case alleging infringement of U.S. Patents 6,205,452, 6,327,599, 6,844,940 and 6,952,801, relating to book assembly, imposition of graphics and control of electronic presses. Case has settled. Contact: Stuart W. Yothers, Esq., Ropes & Gray LLP, 1251 Avenue of the Americas, New York, NY 10020.

51. *MOAEC, Inc. v. Pandora Media, Inc. et al.*, Case No. 07-cv-654-bbc (W.D. Wisc.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patents 5,969,283, 6,232,539, 6,953,886 and 7,205,471, relating to systems for organizing and retrieving digital music. Two defendants obtained summary judgment of noninfringement; the remaining defendant settled. Contact: Joshua Krumholz, Esq., Holland & Knight, LLP, 10 St. James Avenue, 11th Floor, Boston, MA 02116. (D,R)

52. *Web.com, Inc. v. The Go Daddy Group, Inc.*, Case No. CV07-01552-PHX-MHM (D. Ariz.). Served as an expert for defendant in a case alleging infringement of U.S. Patents 6,654,804, 6,789,103, 6,842,769 and 6,868,444, relating to methods for managing configuration of web servers and provision of Internet services. Case has settled. Firm: Wilson Sonsini Goodrich & Rosati, 650 Page Mill Road, Palo Alto, CA 94304. Contact: Richard G. Frenkel, Esq., Latham & Watkins LLP, 140 Scott Drive, Menlo Park, CA 94025.

53. *Hummel et al. v. Dynacraft BSC, Inc. et al.*, Case No. CV 052214 (Cal. Super. Marin Cty.). Served as an expert for defendants in an action alleging breach of contract for web hosting services. Dr. Shamos provided four hours of trial testimony. Result: verdict for the defense. Contact: Joe B. Harrison, Esq., Gardere Wynne Sewell LLP, 1601 Elm St., Suite 3000, Dallas, TX 75201. (T)

54. *Tegg Corp. v. Beckstrom Electric Co. et al.*, Civil Action No. 2:08-CV-00435-NBF (W.D. Pa.). Served as an expert for defendants in a case alleging infringement of copyright in computer software for administering field maintenance of electrical equipment. Case has settled. Original firm: Reed Smith LLP. Contact: Richard D. Kelley, Esq., Bean Kinney & Korman, 2300 Wilson Blvd., Suite 700, Arlington, VA 22220.

55. *Cordance Corporation v. Amazon.com, Inc.*, Civil Action No. 06-491-MPT (D. Del.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patents 5,862,325, 6,088,717 and 6,757,710, relating to an infrastructure for conducting online transactions. In August 2009 a jury found the '717 patent valid but not infringed and the '710 patent infringed but invalid. The finding of invalidity of the '710 patent was vacated by the Court on judgment as a matter of law. The Federal Circuit reversed and reinstated the jury's finding. Contact: Robert

M. Abrahamsen, Esq., Wolf, Greenfield & Sacks, P.C., 600 Atlantic Avenue, Boston, MA 02210. (D,R, T)

56. *Anthurium Solutions, Inc. v. MedQuist, Inc. et al.*, Case No. 2:07-vcv-484 (DF/CE) (E.D. Tex.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patent 7,031,998, relating to a distributed workflow system. Case settled ten days after responsive expert reports were served. Contact: Joshua Krumholz, Esq., Holland & Knight, LLP, 10 St. James Avenue, 11th Floor, Boston, MA 02116. (R)

57. *Performance Pricing, Inc. v. Google, Inc. et al.*, Case No. 2:07-cv-432(LED) (E.D. Tex.). Served as an expert for defendant Yahoo! in a case alleging infringement of U.S. Patent 6,978,253, relating to determining prices for items sold online. Case has settled as to defendant Yahoo!. Contact: Michael A. Jacobs. Esq., Morrison & Foerster LLP, 425 Market Street, San Francisco, CA 94105. Also served as an expert for remaining defendants Google and AOL. In March 2010 the Court granted defendants' motion for summary judgment of noninfringement, affirmed by the Federal Circuit. Contact: David A. Perlson. Esq., Quinn Emanuel Urquhart & Sullivan, LLP, 50 California Street, San Francisco, CA 94111. (D,R)

58. *Nationwide Power Solutions, Inc. et al., v. Eaton Electrical Inc.*, Case No. CV-8:07-0883-JVS (C.D. Cal.). Served as an expert for defendant/counterclaimant Eaton in a case alleging antitrust violations by Eaton arising out of proprietary servicing software in its uninterruptible power supplies. Case has settled. Contact: James L. Day, Esq., Latham & Watkins LLP, 505 Montgomery Street, Suite 2000 San Francisco, CA 94111.

59. *CBS Interactive, Inc. v. Etilize, Inc.*, Case No. C -6-05378 (MHP) (N.D. Cal.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patents 6,714,933 and 7,082,426, relating to web crawling technology to aggregate product information. Defendant consented to an injunction against further infringement and the case settled. Firm: Winston & Strawn, LLP, 101 California Street, San Francisco, CA 94111. Contact: Glenn E. Westreich, Esq., Hayes and Boone, LLP, 2033 Gateway Place, San Jose, CA 95110.

60. *Geographic Services, Inc. v. Anthony Collelo*, Case 2008-9961 (Fairfax Cty., Va.). Served as an expert for plaintiff in a case alleging misappropriation of trade secrets involving determining and proofing geographic names as applied to maps and satellite imagery. Case was dismissed by Judge Ney on technical legal grounds at the close of Plaintiff's case. The Virginia Supreme Court reversed and remanded the case for further proceedings. Case has settled. Contact: Mark W. Wasserman, Esq., Reed Smith LLP, 3110 Fairview Park Drive, Suite 1400, Falls Church, VA 22042. (D,R,T)

61. *ODS Technologies, LP v. Magna Entertainment Corp., et al.*, CV 07-03265 DDP (D. Del.). Served as an expert for defendants in a case alleging infringement of U.S. Patents 5,830,068, 6,004,211, 6,089,981, 6,554,709 and 7,229,354, relating to off-track wagering systems and methods for restricting wagering based on location. Dr. Shamos submitted a declaration in support of summary judgment. Case settled before expert reports were

due. Contact: Virginia DeMarchi, Esq., Fenwick & West, LLP, 801 California Street, Mountain View, CA 94041. (R)

62. *Gannett Satellite Information Network, Inc. v. Office Media Network, Inc.*, C.A. No. 08-96-GMS (D.Del.). Served as an expert for defendant in a case alleging infringement of U.S. Patents 6,288,688, 6,622,826, 6,981,576 and 7,270,219, relating to display of advertising information on screens in elevators. Case settled shortly after Dr. Shamos's deposition. Contact: Steven R. Trybus, Esq., Jenner & Block LLP, 353 N. Clark St., Chicago, IL 60654. (D,R)

63. *Avante Int'l. Technology Corp. v. Premier Election Solutions et al.*, Case 4:06-CV-091367-ERW (E.D. Mo., Eastern Division). Served as an expert for defendants Sequoia Voting Systems and Premier Election Systems in an action alleging infringement of U.S. Patents 7,422,150, and 7,431,209 concerning electronic voting technology. Case settled in December 2009. Contact: Peter T. Ewald, Esq., Oliff & Berridge, PLC, 277 South Washington Street, Suite 500, Alexandria, VA 22314. (R)

64. *Accenture Global Services GmbH et al. v. Guidewire Software, Inc.*, Civ. No. 07-826-SLR (D. Del.). Served as an expert for Accenture in a case alleging misappropriation of trade secrets and infringement of U.S. Patents 7,013,284 and 7,017,111, relating to automated insurance claim handling. The District Court found the asserted system claims invalid under 35 U.S.C. § 101, affirmed by the Federal Circuit at 2011-1486. Case settled in Oct. 2011. Original firm: Morrison & Foerster, LLP. Contact: L. Scott Oliver, Esq., K&L Gates LLP, 630 Hansen Way, Palo Alto, CA 94304. (D,R)

65. *Alexsam, Inc. v. Evolution Benefits, Inc. et al.*, Case No. 2:07cv288-TJW (E.D. Tex.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patent 6,000,608, relating to multifunction epayment cards. Case settled four weeks after Dr. Shamos's deposition. Original firm: Wolf, Greenfield & Sacks, P.C. Contact: James Foster, Esq., Hayes Messina Gilman Hayes LLC, 200 State St., 6th Floor, Boson, MA 02109. (D,R)

66. *Motivation Innovations, LLC v. DSW Inc. et al.*, C.A. No. 08-334-SLR (D. Del.). Served as an expert for defendant DSW, Inc. in a case alleging infringement of U.S. Patent 5,612,527, relating to a system for redeeming discount offers at point of sale. Case has settled. Contact: Drew Blatt, Ph.D., Esq., Wood, Heron & Evans LLP, 2700 Carew Tower 441 Vine Street Cincinnati, Ohio 45202.

67. *Discovery Communications, Inc. v. Amazon.com, Inc.*, C.A. No. 09-178-ER (D. Del.). Served as an expert for plaintiff Discovery Communications in a case alleging infringement of plaintiff's U.S. Patents 5,986,690, 6,557,173, 7,298,851, 7,299,501, 7,336,788 and 7,401,286, relating to electronic book viewers and electronic book selection and delivery systems, and defendant-counterclaimant's U.S. Patents 6,029,141 and 7,337,133, relating to Internet-based customer referral systems. Case has settled. Contact: Brent P. Lorimer, Esq., Workman | Nydegger, 1000 Eagle Gate Tower, 60 East South Temple Salt Lake City, UT 84111.

68. *Amazon.com v. Discovery Communications, Inc.*, No. 2:09-cv-0681-RSL (W.D. Wash.). Served as an expert for defendant Discovery Communications in a case alleging

infringement of U.S. Patents 6,006,225 and 6,169,986, relating to refinement of online search queries, and U.S. Patents 6,266,649 and 6,317,722., relating to generation of online recommendations. Case has settled. Contact: Brent P. Lorimer, Esq., Workman | Nydegger, 1000 Eagle Gate Tower, 60 East South Temple Salt Lake City, UT 84111.

69. *IMX, Inc. v. E-Loan, Inc. and Banco Popular North America, Inc.*, No. 09-cv-20965 (S.D. Fla.). Served as an expert for defendants in a case alleging infringement of U.S. Patent 5,995,947, relating to an interactive loan processing and mortgage trading system. Case was stayed pending reexamination. On appeal after reexamination, all but four of the asserted claims were cancelled. In CBM2015-00012, all asserted claims were found unpatentable under §101. Case has settled. Contact: Samuel A. Lewis, Esq., Feldman Gale, PA, One Biscayne Tower, 30th Floor, 2 South Biscayne Blvd., Miami, FL 33131. (D,R)

70. *Soverain Software LLC v. CDW Corp. et al.*, C.A. No. 6:07-CV-511 (E.D. Tex.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patents 5,715,314, 5,909,492, and 7,272,639, relating to methods of conducting electronic commerce. All defendants settled except Newegg, Inc. Dr. Shamos testified on validity at a jury trial in April 2010. Result: all claims valid; the '314 and '492 claims infringed, with a running royalty assessed against Newegg. After trial, the Court found the '639 patent infringed as a matter of law. In January 2013 the Federal Circuit found the asserted claims obvious as a matter of law, The Supreme Court declined review. Contact: Ognian Shentov, Esq., Jones Day, 222 E. 41st St., New York, NY 10017. (D,R,T)

71. *Netcraft Corp. v. AT&T Mobility LLC et al.*, C.A. No. 07-651-GMS (D. Del.). Served as an expert for defendants in a case alleging infringement of U.S. Patents 5,794,221, 6,351,738 and 6,411,940, relating to electronic commerce billing methods. Case settled two months after Dr. Shamos's deposition. Contact: H. Jonathan Redway, Esq., Dickinson Wright PLLC, 1875 Eye St., Washington, DC 20006. (D,R)

72. *ValueClick, Inc. v. Tacoda, Inc., AOL, LLC and Platform-A, Inc.*, Case No. 2:08-cv-04619 DSF (JCx) (C.D. Cal.). Served as an expert for defendants in a case alleging infringement of U.S. Patents 5,848,396 and 5,991,735, relating to software and methods for creating psychographic profiles of network users. Case settled in May 2010. Original firm: Orrick, Herrington & Sutliffe, LLP. Contact: Paul R. Gupta, Esq., DLA Piper, 1251 Avenue of the Americas, New York, NY 10020.

73. *SP Technologies, Inc. v. Garmin Limited et al.*, Civil Action No. 08-CV-3248 (N.D. Ill.). Served as an expert for defendant TomTom, Inc. in a case alleging infringement of U.S. Patent 6,784,873, relating to graphical keyboards on touchscreens. Defendants prevailed on summary judgment of invalidity. Contact: Brian Pandya, Esq., Wiley Rein LLP, 1776 K Street NW, Washington DC 20006. (D,R)

74. *ePlus, Inc. v. Lawson Software, Inc.*, Civil Action No. 3:09-cv-620 (E.D. Va.). Served as an expert for defendant in a case alleging infringement of U.S. Patents 6,023,683, 6,055,516 and 6,505,172, relating to electronic procurement systems. Dr. Shamos testified at a jury trial in Richmond in January 2011. Result: No infringement as to most accused configurations;

infringement as to others. Past damages were precluded by the Court. On appeal. the Federal Circuit found the system claims invalid as indefinite. Contact: Daniel McDonald, Esq., Merchant & Gould PC, 3200 IDS Center, 80 South Eighth Street, Minneapolis, MN, 55402. (D,R,T)

75. *Bed Bath & Beyond, Inc. v. Sears Brands*, LLC, Civil Action 08 CV 5839-SDW-MCA (D. N.J.). Served as an expert for plaintiff in a declaratory judgment action regarding alleged infringement of U.S. Patent 5,970,474, relating to retail gift registry systems. Case has settled. Contact: William Mentlik, Esq., Lerner David Littenberg, Krumholz & Mentlik LLP, 600 South Avenue West, Westfield, NJ 07090. (D,R)

76. *Transauction, LLC v. eBay, Inc.*, Case No. 3:09-cv-3705-SJ (N.D. Cal.). Served as an expert for defendant in a case alleging infringement of U.S. Patent 7,343,339, relating to guarantees in online auctions. Case settled after expert reports were submitted. Firm: Irell & Manella LLP, 1800 Avenue of the Stars, Suite 900, Los Angeles, CA 90067. Contact: Peter E. Gratzinger, Esq., Munger, Tolles & Olson LLP, 355 South Grand Avenue, Los Angeles, CA 90071. (R)

77. *SDG Corporation v. Patrizzi & Co. Auctioneers SA et al.*, ICDR Case No. 50 117 T 00313 09 (Int'l. Centre for Dispute Resolution). Served as an expert for claimant in an arbitration alleging breach of contract to produce software for operating online auctions. Dr. Shamos testified at arbitration in October 2010. Award for SDG on all claims and denial of all of Patrizzi's counterclaims. Contact: Bruce Fox, Esq., Obermayer Rebmann Maxwell & Hippel LLP, One Mellon Center, Suite 5240, Pittsburgh, PA 15219. (D,R,T)

78. *Walker Digital, LLC v. Capital One Services, LLC et al.*, Civil Action 1:10cv212 (JFA) (E.D. Va.). Served as an expert for defendants in a case alleging infringement of U.S. Patents 5,970,478 and 6,374,230, relating to customizing and pricing credit card accounts. Defendants prevailed on summary judgment of non-infringement supported by a declaration from Dr. Shamos. Affirmed by the Federal Circuit on July 28, 2011. Contact: Charles S. Barquist, Esq., Morrison & Foerster LLP, 555 West Fifth Street, Suite 3500, Los Angeles, CA 90013. (R)

79. *Voter Verified, Inc. v. Premier Election Solutions, Inc. et al.*, Case No. 6:09-cv-1968-19KRS (M.D. Fla.). Served as an expert for defendants, manufacturers of voting equipment, in a case alleging infringement of U.S. Patents 6,769,613 and RE40,449, relating to paper trail verification of ballots. The Court denied a Daubert motion to exclude testimony by Dr. Shamos. Summary judgment of non-infringement granted July 28, 2011, affirmed by the Federal Circuit on November 5, 2012. All claims of the '449 patent were found non-statutory by the Federal Circuit in 2018. Contact: Robert M. Evans, Jr., Esq., Stinson LLP, 7700 Forsyth Blvd. Suite 1100, St. Louis, MO 63105. (R)

80. *Elder et al. v. National Conference of Bar Examiners*, No. C 11-00199 SI (N.D. Cal.). Served as an expert for disabled plaintiffs in a case seeking an injunction to permit them to take the bar examination in electronic format. Preliminary injunction granted Feb. 16, 2011. Plaintiff took the bar exam, passed and was awarded $224,000 in attorney's fees. Contact: Daniel F.

Goldstein, Esq., Brown, Goldstein & Levy, LLP, 120 E. Baltimore St., Suite 1700, Baltimore, MD 21202. (R)

81. *Ameranth, Inc. v. Menusoft Systems Corp., et al.*, Civil Action 2-07-CV-271 TJW/CE (E.D. Tex.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patents 6,384,850, 6,871,325 and 6,982,733, relating to synchronous updating of restaurant menus on wireless devices. After trial, the jury found the patents not infringed. Case settled while an appeal to the Federal Circuit was pending. Contact: John W. Osborne, Esq., Osborne Law LLC, 33 Habitat Lane, Cortlandt Manor, NY 10567. (D,R,T)

82. *BuyFigure.com, Inc. v. Autotrader.com et al.*, Case No. 06391 (Ct. of Common Pleas of Philadelphia County, PA, 2010). Served as an expert for defendants in a case alleging misappropriation of trade secrets concerning a method of selling automobiles over the Internet. Summary judgment was granted in Defendants' favor in August 2012. Contact: Howard D. Scher, Esq., Buchanan Ingersoll & Rooney, P.C., Two Liberty Place, 50 S. 16th Street, Philadelphia, PA 19102. (R)

83. *Soverain Software LLC v. J.C. Penney Corp., Inc. et al.*, C.A. No. 6:09-CV-274 (E.D. Tex.). Served as an expert for plaintiff on validity issues in a case alleging infringement of U.S. Patents 5,715,314, 5,909,492, and 7,272,639, relating to methods of conducting electronic commerce. The '639 patent was dropped before trial and all defendants settled except Avon Products and Victoria's Secret. After trial, the jury found all claims valid and infringed, and awarded damages of $9.2 million against Victoria's Secret and $8.7 million against Avon. Contact: Robert B. Wilson, Esq., Quinn Emanuel Urquhart & Sullivan, LLP, 51 Madison Avenue, 22nd Floor, New York, NY 10010. (D,R,T)

84. *AOL, LLC, et al. v. Yahoo! Inc. et al.*, No. 09 Civ. 3774 (WHP) (S.D.N.Y). Served as an expert for declaratory judgment plaintiff AOL in a case alleging infringement of U.S. Patents 6,078,866, 6,269,361, 6,546,386, 6,907,566, 7,043,483, 7,107,264, 7,373,599, and 7,702,541, relating to online advertising placement and targeted e-commerce. Case settled in Feb. 2011. Original firm: Orrick, Herrington & Sutliffe LLP. Contact: William B. Tabler II, Esq., Flextronics, 6201 America Center Drive, San Jose, CA 95002.

85. *Accenture Global Services GmbH et al. v. Guidewire Software, Inc.*, Civ. No. 09-848-SLR (D. Del.). Served as an expert for Accenture in a case alleging infringement of U.S. Patent 7,617,240, relating to automated insurance claim handling. Case settled in Oct. 2011. Original firm: Morrison & Foerster, LLP. Contact: L. Scott Oliver, Esq., K&L Gates LLP, 630 Hansen Way, Palo Alto, CA 94304. (D,R)

86. *Amdocs (Israel) Limited v. Openet Telecom, Inc. et al.*, Case 1:10-cv-00910-LMB-TRJ (D. Del.). Served as an expert for Defendant Openet in a case alleging infringement of U.S. Patents 6,836,797 and 7,631,065, relating to aggregated billing for network services. Summary judgment of non-infringement granted in favor of Defendants in Sept. 2012. The Court's opinion cites Dr. Shamos' testimony. Judgment reversed on appeal in 2014, but on remand, all claims were invalidated as claiming non-statutory subject matter. After a second appeal, the

§101 ruling was reversed. Case settled during trial in 2018. Contact: Kevin Anderson, Esq., Duane Morris LLP, 505 9th Street, N.W., Suite 1000, Washington, DC 20004-2166 (D,R)

87. *Cross-Atlantic Capital Partners, Inc. v. Facebook, Inc. et al.*, Case 07-CV-2768 JP (E.D. Pa.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patent 6,519,629, relating to establishment of online communities. Asserted claims were cancelled upon reexamination. Case has been dismissed. Original firm: McShea/Tecce PC. Contact: Frederick Tecce, Esq., Panitch Schwarze Belisario & Nadel LLP, One Commerce Square, 2005 Market Street, Suite 2200, Philadelphia, PA 19103. (R)

88. *Chavez et al. v. Bennett et al.*, CV 2006-007000 (Ariz. Super., Maricopa Cty.). Served as an expert for defendant Secretary of State of Arizona and county defendants in a case alleging that the electronic voting systems used in Arizona violated the rights of voters. Case was voluntarily dismissed by plaintiffs in May 2011. Contact: Laurence G. Tinsley, Jr., Esq, Senior General Counsel, Maricopa County Office of General Litigation Services, 301 W. Jefferson St., Phoenix, AZ 85003.

89. *Bonnette v. District of Columbia Court of Appeals and National Conference of Bar Examiners*, No. 11-cv-01053-CKK (D. D.C.). Served as an expert for a disabled plaintiff in a case seeking a preliminary injunction permitting her to take the bar examination in electronic format. Injunction granted. Case subsequently settled with Plaintiff receiving $141,000 in attorneys' fees and costs. Contact: Daniel F. Goldstein, Esq., Brown, Goldstein & Levy, LLP, 120 E. Baltimore St., Suite 1700, Baltimore, MD 21202.

90. *Jones v. National Conference of Bar Examiners et al.*, No. 5:11-cv-00174-cr (D. Vermont). Served as an expert for a disabled plaintiff in a case seeking an injunction permitting to take the bar examination using assistive technology. The preliminary injunction was granted. Plaintiff was awarded $275,000 in attorneys' fees and costs. Contact: Daniel F. Goldstein, Esq., Brown, Goldstein & Levy, LLP, 120 E. Baltimore St., Suite 1700, Baltimore, MD 21202. (R)

91. *AlmondNet, Inc. v. Microsoft Corporation*, Case 10-CV-298 (W.D. Wisc.). Served as an expert for plaintiff and counterclaim defendant AlmondNet in a case alleging infringement of U.S. Patents 6,973,436, 7,072,853, 7,454,364 and 7,822,637 by Microsoft, relating to bidding for Internet ad placement, and infringement of U.S. Patent 6,632,248 by AlmondNet, relating to customization of network documents via a unique user identifier. Microsoft obtained summary judgment of non-infringement. Contact: Meredith Zinanni, Esq., Kirkland & Ellis LLP, 300 N. LaSalle, Chicago, IL 60604.

92. *Kelora Systems, LLC. v. Target Corporation et al.*, Case 10-CV-683 (W.D. Wisc.). Served as an expert for defendant Mason Companies, Inc. in a case alleging infringement of U.S. Patent 6,275,821, relating to guided parametric searching in online catalogs. Case settled as to this defendant in July 2011. The Court granted summary judgment of invalidity and non-infringement as to the other defendants, affirmed by the Federal Circuit. Contact: Shane A. Brunner, Esq., Merchant & Gould, 10 East Doty St., Suite 600, Madison, WI 53703.

93. *TNS Media Research, LLC et al. v. TRA Global, Inc.*, Case 1:2011-CV-4039 (SAS) (S.D. N.Y.). Served as an expert for declaratory judgment plaintiffs in case alleging infringement of U.S. Patent 7,729,940, relating to anonymous matching of program viewing data from television set-top boxes with purchase data from other sources. Patentee's motion for preliminary injunction was denied on Sept. 23, 2011. Plaintiffs' motion for summary judgment of non-infringement was granted on October 3, 2013. Reversed and remanded by the Federal Circuit. Contact: Michael Albert, Esq., Wolf, Greenfield & Sacks, P.C., 600 Atlantic Avenue, Boston, MA 02210. (R)

94. *Accenture Global Services GmbH et al. v. Guidewire Software, Inc.*, Case 3:11-03563-JSW (N.D. Cal.); *Guidewire Software, Inc. v. Accenture PLC et al.*, Case 4:11-cv-04686-LB (N.D. Cal.). Served as an expert for Accenture in related cases alleging infringement by Guidewire of U.S. Patents 6,574,636, 7,409,355 and 7,979,382, relating to systems for insurance claim handling and alleging infringement by Accenture of U.S. Patents 5,630,069, 5,734,837, 6,058,413 and 6,073,109, relating to workflow management systems. Cases settled in Oct. 2011. Contact: Colleen Garlington, Esq., Kirkland & Ellis LLP, 300 N. LaSalle St., Chicago, IL 60604.

95. *XPRT Ventures, LLC v. eBay, Inc. et al.*, C.A. 1:2010-cv-595 (SLR) (D. Del.). Served as an expert for Defendants eBay and PayPal in a case alleging infringement of U.S. Patents 7,483,856, 7,512,563, 7,567,937, 7,599,881, 7,610,244, 7,627,528, relating to methods of paying for items purchased through electronic auctions. Case has settled. Contact: Adrian Percer, Esq., Weil, Gotshal & Manges, LLP, 201 Redwood Shores Parkway, Redwood Shores, CA 94065. (D,R)

96. *Rich Media Club, LLC et al. v. Nikolai Mentchoukov et al.*, Civil No. 2:11-cv-01202-SA (D. Utah). Served as an expert for Plaintiffs in a case alleging breach of an employment contract, unfair competition concerning systems for placing advertisements on web pages and infringement of U.S. Patent 7,313,590, relating to communication between client and server computers without requiring a browser. Contact: Jared Richards, Esq., Bennett Tueller Johnson & Deere, LLC, 3165 East Millrock Drive, Suite 500, Salt Lake City, Utah 84121. (R)

97. *Franklin Inventions LLC v. Election Systems & Software, Inc.*, Case No: 2:09-cv-377 (E.D. Tex.). Served as an expert for Defendants in a case alleging infringement of U.S. Patents 6,968,999, 7,243,846 and 7,575,164, relating to voter-verifiable voting systems. Case settled after a declaration concerning invalidity was submitted by Dr. Shamos. Contact: Robert M. Evans, Jr., Esq., Lewis Rice LLC, 600 Washington Avenue, Suite 2500, St. Louis, MO 63101. (R)

98. *Illinois Computer Research, LLC v. HarperCollins Publishers, LLC, et al.*, Case No.: 10-cv-9124 (S.D.N.Y). Served as an expert for Defendants in a case alleging infringement of U.S. Patent 7,111,252, relating to limiting access to electronic books. Case settled after Markman. Contact: Brian S. Rosenbloom. Esq., Rothwell, Figg, Ernst & Manbeck, P.C., 607 14th Street, N.W., Suite 800, Washington, DC 20005. (R)

99. *Realtime Data, LLC d/b/a IXO v. Morgan Stanley et al.*, Case No.: 11 Civ. 6696 (RJH), *Realtime Data, LLC d/b/a IXO v. CME Group Inc. et al.*, Case No.: 11 Civ. 6701 (RJH), *Realtime Data, LLC d/b/a IXO v. Thompson Reuters, et al.*, Case No.: 1:2011-cv-06704 (RJH) (S.D.N.Y). Served as an expert for Plaintiff in three consolidated cases alleging infringement of U.S. Patents 7,417,568, 7,714,747, and 7,777,651, relating to compression and decompression of financial data streams. Summary judgment granted for defendants, upheld by the Federal Circuit. Contact: Dirk D. Thomas. Esq., McKool Smith, 1999 K Street, N.W., Suite 600, Washington, DC 20006. (D,R,T)

100. *Mulhern Belting, Inc. v. Tele-Data Solutions, Inc.*, Civil Action L-2258-10 (Sup. Ct. Bergen Cty. NJ). Served as an expert for defendant Vertical Communications, Inc. in a case alleging breach of contract and fraud in connection with the installation of an integrated voice-over-IP (VoIP) telecommunications system. Case has settled. Contact: John J. Abromitis, Esq., Courter, Kobert & Cohen P.C., 1001 Route 517, Hackettstown, NJ 07840. (R)

101. *Decision Support, LLC v. Election Systems & Software, Inc.*, Case No: 3:10cv90 (W.D. N.C.). Served as an expert for Defendants in a case alleging infringement of U.S. Patent 7,497,377, relating to electronic voter registration and pollbook systems. Case has settled. Contact: Robert M. Evans, Jr., Esq., Lewis Rice LLC, 600 Washington Avenue, Suite 2500, St. Louis, MO 63101. (R)

102. *Rovi Corporation et al. v. Amazon.com, Inc. et al.*, Case No. 11-cv-00003-RGA (D. Del.). Served as an expert for Plaintiffs in a case alleging infringement of U.S. Patents 5,988,078, 6,275,268, 6,769,128, 7,493,643 and 7,603,690, relating to customized on-screen television guides. The parties stipulated to entry of judgment of noninfringement. Contact: Ragesh L. Tangri, Esq., Durie Tangri LLP, 217 Leidesdorff Street, San Francisco, CA 94111.

103. *Certain Products Containing Interactive Program Guide and Parental Control Technology*, USITC Inv. No. 337-TA-820. Served as an expert for Complainants Rovi Corporation et al. and against Vizio, Inc. et al. in an International Trade Commission proceeding involving alleged infringement of U.S. Patents 6,701,523, 7,047,547, 7,493,643 and RE41,993, relating to v-chips and electronic TV program guides. Case has settled. Contact: Hong S. Lin, Esq., Paul Hastings LLP, 1117 S. California Avenue, Palo Alto, CA 94304. (R)

104. *Rovi Corporation et al. v. Roku, Inc.*, Case No. 12-cv-2185 EJD (N.D. Cal.). Served as an expert for Plaintiffs in a case alleging infringement of U.S. Patent 6,898,762, relating to a client/server electronic television program guide. Voluntarily dismissed by plaintiff without prejudice. Contact: Hong S. Lin, Esq., Paul Hastings LLP, 1117 S. California Avenue, Palo Alto, CA 94304.

105. *Rovi Corporation et al. v. LG Electronics, Inc. et al.*, Case No. 12-cv-00545-SLR (D. Del.). Served as an expert for Plaintiffs in a case alleging infringement of U.S. Patents 6,898,762, 7,065,709, 7,225,455, 7,493,643 and 8,112,776, relating to electronic television program guides. Case has settled. Contact: Hong S. Lin, Esq., Paul Hastings LLP, 1117 S. California Avenue, Palo Alto, CA 94304.

106. *Rovi Corporation et al. v. Vizio, Inc.*, Case No. 12-cv-00546-SLR (D. Del.). Served as an expert for Plaintiffs in a case alleging infringement of U.S. Patents 6,898,762, 7,065,709, 7,103,906 and 8,112,776, relating to electronic television program guides. Case has settled. Contact: Hong S. Lin, Esq., Paul Hastings LLP, 1117 S. California Avenue, Palo Alto, CA 94304.

107. *Rovi Corporation et al. v. Mitsubishi Electric Corp. et al.*, Case No. 12-cv-00547-SLR (D. Del.). Served as an expert for Plaintiffs in a case alleging infringement of U.S. Patents 6,701,523, 7,225,455 and 7,493,643, relating to electronic television program guides. Case has settled. Contact: Hong S. Lin, Esq., Paul Hastings LLP, 1117 S. California Avenue, Palo Alto, CA 94304.

108. *Netflix, Inc. v. Rovi Corporation et al.*, Case No. 11-cv-06591-PJH (N.D. Cal.). Served as an expert for Defendants in a declaratory judgment case seeking a declaration of non-infringement of U.S. Patents 6,305,016, 6,898,762, 7,100,185, 7,103,906 and 7,945,929, relating to electronic television program guides. Summary judgment was granted declaring all asserted claims invalid under 35 U.S.C. §101, affirmed by the Federal Circuit. Contact: Hong S. Lin, Esq., Paul Hastings LLP, 1117 S. California Avenue, Palo Alto, CA 94304. (R)

109. *Certain Products Containing Interactive Program Guide and Parental Control Technology*, USITC Inv. No. 337-TA-845. Served as an expert for Complainants Rovi Corporation et al. and against Netflix, Inc. et al. in an International Trade Commission proceeding involving alleged infringement of U.S. Patents 6,701,523, 6,898,762, 7,065,709, 7,103,906, 7,225,455, 7,493,643 and 8,112,776, relating to v-chips and electronic TV program guides. On Initial Determination, all claims Dr. Shamos testified about were found valid. The import requirement was found not satisfied and no infringement was found. Contact: Hong S. Lin, Esq., Paul Hastings LLP, 1117 S. California Avenue, Palo Alto, CA 94304. (D,R,T)

110. *Yardi Systems, Inc. v. Realpage, Inc. et al.*, Case No. 2:11-cv-0090-ODW-JEM (C.D. Cal.). Served as an expert for Defendants in an action alleging misappropriation of trade secrets, unfair competition, violation of the Computer Fraud and Abuse Act, the Comprehensive Computer Data Access and Fraud Act (Cal. Penal Code §502) and the Digital Millennium Copyright Act, arising out of provision of cloud-based property management systems. Case has settled. Contact: Susan van Keulen, Esq., O'Melveny & Myers LLP, 2765 Sand Hill Road, Menlo Park, CA 94025.

111. *Long Range Systems, LLC v. HME Wireless, Inc.*, Civil Action 3:12-cv-03659-P (N.D. Tex.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patent 6,712,278, relating to a wireless system for locating a customer's table in a restaurant. Case was dismissed by plaintiff. Contact: David Cabello, Esq., Wong, Cabello, Lutsch, Rutherford & Brucculeri, LLP, 20333 SH 249, Suite 600, Houston, Texas 77070. (R)

112. *EdiSync Systems, LLC v. Centra Software, Inc. et al.*, Civil Action 03-cv-01587-WYD-MEH (D. Colo.). Served as an expert for Defendant Saba Software Inc. in a case alleging infringement of U.S. Patent 5,799,320, relating to multi-author document editing systems. Case has

settled. Contact: Robert M. Abrahamsen, Esq., Wolf, Greenfield & Sacks, P.C., 600 Atlantic Avenue, Boston, MA 02210. (D,R)

113. *TecSec, Inc. v. IBM et al.*, Case No. 1:10-cv-115-LMB/TCB (E.D. Va.). Served as an expert for Defendant SAS Institute, Inc. in a case alleging infringement of U.S. Patents 5,369,702, 5,680,452, 5,717,755 and 5,898,781, relating to the Distributed Cryptographic Object Method, allowing embedding of encrypted objects within other objects. The Court entered judgment of non-infringement after Markman. Affirmed by the Federal Circuit at 2011-1303. Contact: Thomas R. Goots, Esq., Jones Day, North Point, 901 Lakeside Avenue, Cleveland, Ohio 44114-1190.

114. *Integrated Technological Systems, Inc. v. Green Dot Corporation*, Civ. Action No. 2:11-cv-01626-GMN-(GWF) (D. Nev.). Served as an expert for Defendant in a case alleging infringement of U.S. Patent 7,912,786, relating to an electronic payment system for transferring money between debit card accounts. Case has settled. Contact: Benjamin J. Sodey, Esq., Bryan Cave LLP, One Metropolitan Square (211 North Broadway), Suite 3600, St. Louis, MO 63102-2750.

115. *Hausen et al. v. PS Illinois Trust*, Case No. 11-cv-06888 (N.D. Ill.). Served as an expert for Plaintiff in a case concerning the reasonableness of credit card and email notification practices employed by a public storage facility prior to selling customers' stored goods. Case has settled. Contact: Jeffrey S. Becker, Esq., Swanson, Martin & Bell, LLP, 330 N. Wabash, Suite 3300, Chicago, IL 60611. (D,R)

116. *Linksmart Wireless Technology, LLC v. T-Mobile, USA, Inc. et al.*, Case 2:08-cv-264-DF-CE (E.D. Texas). Served as an expert for Defendant Choice Hotels International, Inc. in a case alleging infringement of U.S. Patent 6,779,118, relating to rule-based redirection of Internet service requests based on a user ID. Case has settled. Contact: Gregory R. Lyons, Esq., Wiley Rein LLP, 1776 K Street NW, Washington DC 20006.

117. *SAP America, Inc. v. Purple Leaf, LLC et al.*, Case No. 4:11-cv-04601-PJH (N.D. Cal.). Served as an expert for declaratory judgment plaintiff SAP in a case alleging infringement of U.S. Patents 7,603,311 and 8,027,913, relating to methods for conducting payment transactions over the Internet. Case has settled. Original firm: Simpson Thatcher & Bartlett LLP. Contact: Brian McCloskey, Esq., Greenberg Traurig, LLP, MetLife Building, 200 Park Ave., New York, NY 10166.

118. *Ameranth, Inc. v. PAR Technology Corp., et al.*, Civil Action 2-10-CV-294 JRG-RSP (E.D. Tex.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patents 6,384,850 and 6,871,325, relating to synchronous updating of hospitality applications and data on wireless devices. Case settled after expert reports were served. Contact: John W. Osborne, Esq., Osborne Law LLC, 33 Habitat Lane, Cortlandt Manor, NY 10567. (R)

119. *Digital-Vending Services International, LLC, v. The University of Phoenix, Inc. et al.*, Civil Action 2:09-cv-555-AWA-TEM (E.D. Va.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patents 6,170,014, 6,282,573 and 6,606,664, relating to content delivery

methods particularly applicable to online courseware. Summary judgment of non-infringement granted October 4, 2013. Contact: Andrew G. DiNovo, Esq., DiNovo Price Ellwanger & Hardy LLP, 7000 N. MoPac Expressway, Suite 350, Austin, TX 78731. (D,R)

120. *Analytical Mechanics Associates, Inc. v. Rhythm Engineering, LLC et al.*, Case No. 4:12-cv-00008 (E.D. Va.). Served as an expert for defendants in a case alleging breach of a contract relating to development of an image processing system to detect vehicles at intersections and control traffic signals. Case was resolved by binding arbitration. Contact: John K. Power, Esq., Husch Blackwell LLP, 4801 Main Street, Suite 1000, Kansas City, MO 64112. (D,R,T)

121. *Protegrity Corporation v. Voltage Security, Inc.*, Case No. 3:10-CV-755 (RNC) (D. Conn.). Served as an expert for defendant in a case alleging infringement of U.S. Patents 6,321,201, 6,963,980 and 7,325,129, relating to methods of encrypting databases. Case settled during trial. Contact: Edward G. Poplawski, Esq., Wilson Sonsini Goodrich & Rosati Professional Corporation, 650 Page Mill Road, Palo Alto, CA 94304-1050. (D,R,T)

122. *Progressive Casualty Insurance Company v. Allstate Insurance Company et al.*, Case No. 1:11-cv-00082-BYP (N.D.Ohio). Served as an expert for defendant Allstate in a case alleging infringement of U.S. Patent 6,064,970, relating to determining the cost of automobile insurance by monitoring the location and activity of a vehicle, and U.S. Patent 7,124,088, relating to online modification and quoting of insurance policies. Case has settled as to Allstate. Contact: James Medek, Esq., Kirkland & Ellis LLP, 300 North LaSalle Chicago, IL 60654.

123. *Symantec Corporation v. Acronis, Inc. et al.*, Case No. 3:11-cv-05310 EMC (N.D. Cal.). Served as an expert for plaintiff and infringement counterclaim defendant Symantec in a case alleging infringement of U.S. Patents 6,615,365, 7,047,380, 7,246,211 and 7,266,655, relating to online disk backup, imaging and recovery systems, U.S. Patent 7,093,086, relating to backup of virtual machines, U.S. Patent 7,322,010, relating to graphic views of computer configurations and U.S. Patent 7,565,517, relating to retargeting hardware configuration images to new hardware. Case has settled. Contact: Jennifer Kash, Esq., Quinn Emanuel Urquhart & Sullivan LLP, 50 California Street, 22nd Floor, San Francisco, California 94111. (D,R)

124. *Secure Axcess, LLC v. Bank of America Corp. et al.*, Civil Action No. 6:10-cv-670-LED (E.D. Tex.). Served as an expert for defendants Zions First National Bank and Amegy Bank N.A. in a case alleging infringement of U.S. Patent 7,631,191, relating to authenticating web pages. Case has settled as to those defendants. Contact: Brian Pandya, Esq., Wiley Rein LLP, 1776 K Street NW, Washington DC 20006.

125. *The MoneySuite Company v. Insurance Answer Center, LLC et al.*, Case No. SACV 11-1847-AG (C.D. Cal.). Served as an expert for defendants, including The Allstate Corporation, in a case alleging infringement of U.S. Patent 6,684,189, relating to online quoting of insurance policy rates. Case has settled. Contact: Garret A. Leach, Esq., Kirkland & Ellis LLP, 300 N. LaSalle, Chicago. IL 60654. (D,R)

126. *e-LYNXX Corporation v. Innerworkings, Inc. et al.*, CA 1:10-cv-02535-CCC (M.D. Pa.). Served as an expert for defendants, including R.R. Donnelley & Sons Company, in a case

alleging infringement of U.S. Patents 7,451,106 and 7,788,143, relating to electronic procurement of customized goods and services. The Court granted summary judgment of non-infringement in July 2013. Contact: James R. Nuttall, Esq., Steptoe & Johnson, LLP, 115 South LaSalle Street, Suite 3100, Chicago, IL 60603. (R)

127. *Vasudevan Software, Inc. v. Microstrategy, Inc.*, Case No. 3:11-cv-06637-RS-PSG (N.D. Cal.). Served as an expert for defendant in a case alleging infringement of U.S. Patents 6,877,006, 7,167,864, 7,720,861 and 8,082,268, relating to methods of online analytical processing (OLAP). The patents were found invalid on summary judgment. On appeal, the Federal Circuit upheld the Court's claim constructions and judgment of non-infringement. Declaratory judgment counterclaims voluntarily dismissed. Contact: Kevin A. Smith, Esq., Quinn Emanuel Urquhart & Sullivan, LLP, 50 California Street, San Francisco, CA 94111. (R)

128. *Digonex Technologies, Inc. v. Qcue, Inc.*, Case No. 1:12-cv-00801-SS (W.D. Texas). Served as an expert for plaintiff in a case alleging infringement of U.S Patents 8,095,424 and 8,112,303, relating to computerized methods for dynamic pricing. In a Markman order, the Court found the claims indefinite. Contact: David D. Schumann, Fenwick & West LLP, 555 California Street, 12th Floor, San Francisco, CA 94104. (D,R,T)

129. *Peter Mayer Publishers, Inc. v. Daria Shilovskaya et al.*, Case No. 12-CV-8867-PG (S.D. N.Y.). Served as an expert for declaratory judgment defendants in a case of first impression to determine whether a reliance party under 17 U.S.C. §104A(d)(3)(B) may issue an ebook version of a work to which copyright has been restored. The Court ruled that ebooks are not transformative and hence not derivative works. Contact: Timothy O'Donnell, Esq., 40 Exchange Place, 19th Fl., New York, NY 10005. (R)

130. *SIPCO, LLC v. Control4 Corporation et al.*, CA 1:11-cv-00612-JEC (N.D. Georgia). Served as an expert for defendants Schneider Electric Buildings Americas, Inc. and Schneider Electric USA, Inc. in a case alleging infringement of U.S. Patents 7,103,511, 7,468,661 and 7,697,492, relating to systems for monitoring remote sensors and controlling remote devices. Case has settled. Contact: Benjamin Bradford, Esq., Jenner & Block LLP, 353 N. Clark St., Chicago, IL 60654-3456.

131. *Unified Messaging Solutions LLC v. Google, Inc. et al.*, Case 1:12-cv-06286 (N.D. Ill.). Served as an expert for defendant eBay, Inc. in a case alleging infringement of U.S. Patents 6,857,074, 7,836,141, 7,895,306, 7,895,313, and 7,934,148, relating to message storage and delivery systems. Case has settled as to defendant eBay, Inc. Contact: Yar R. Chaikovsky, Esq., McDermott Will & Emery LLP, 275 Middlefield Road, Suite 100, Menlo Park, CA 94025.

132. *Credit Card Fraud Control Corporation v. PayPal, Inc.*, Case No. 9:12-CV-81143 (S.D. Fla.). Served as an expert for defendant PayPal in a case alleging infringement of U.S. Patent 8,229,844, relating to reduction of fraud in online transactions. Plaintiff dismissed the case with prejudice based on prior art located by PayPal. Contact: Adrian Percer, Esq., Weil, Gotshal & Manges, LLP, 201 Redwood Shores Parkway, Redwood Shores, CA 94065.

133. *Comscore, Inc. v. Integral Ad Science, Inc.*, Civil Action 2:12-cv-00351-HCM-DEM (E.D. Va.). Served as an expert for defendant Integral in a case alleging infringement of U.S. Patents 6,108,637, 6,115,680, 6,327,619, 6,418,470, 7,386,473, 7,613,635, 7,716,326 and 7,756,974, relating to determining whether a portion of a displayed page is visible to a user. Case has settled as to defendant Integral. Contact: Robert M. Abrahamsen, Esq., Wolf, Greenfield & Sacks, P.C., 600 Atlantic Avenue, Boston, MA 02210.

134. *Ariba, Inc. v. Coupa Software, Inc.*, Case No. 3:12-cv-01484 JST (N.D. Cal.). Served as an expert for plaintiff Ariba in a case alleging infringement of U.S. Patent 7,117,165, relating to electronic methods for approving requisitions and generating purchase orders. Case has settled. Contact: Amy Van Zant, Esq., Covington & Burling LLP, 333 Twin Dolphin Drive, Redwood Shores, CA 94605-1418. (D,R)

135. *Lowe v. National Board for Respiratory Care, Inc. et al.*, Docket 1:12-cv-00345-DBH (D. Maine). Served as an expert for disabled plaintiff in a case seeking an injunction permitting to take a professional qualification examination using assistive computer technology. Case settled shortly after Dr. Shamos's declaration in support of preliminary injunction was filed. Contact: Kristin Aiello, Esq., Managing Attorney, Disability Rights Center, 24 Stone St., Augusta, ME 04338. (R)

136. *Checkfree Corporation et al. v. Metavante Corporation et al.*, Case No. 3:12-cv-15-J-34JBT (M.D. Fla.) Served as an expert for defendant Metavante in a case alleging infringement of U.S. Patents 7,383,223, 7,792,749, 7,853,524 and 7,996,311, relating to transferring funds in electronic payment networks. Defendants have counterclaimed, alleging infringement of U.S. Patents. 7,370,014, 7,734,543 and 7,958,049, relating to electronic invoice presentment. All claims of all four patents asserted by Plaintiff have been found invalid by the Patent Office. Case was stayed pending appeal, followed by voluntary dismissal by Plaintiff. Contact: Jeffrey A. Berkowitz, Esq., Finnegan, Henderson, Farabow, Garrett & Dunner, L.L.P., Two Freedom Square, 11955 Freedom Drive, Reston, VA 20190-5675. (D,R)

137. *PPS Data, LLC v. Passport Health Communications, Inc.*, Case No. 2:12-cv-00438-DN (C.D. Utah). Served as an expert for defendant Passport in a case alleging infringement of U.S. Patents 6,341,265 and 7,194,416, relating to preparing and correcting health insurance claim forms. Case settled shortly after Dr. Shamos's claim construction report was served. Contact: Edward J. Pardon, Esq., Merchant & Gould, 10 East Doty Street, Suite 600, Madison, WI 53703. (R)

138. *Lodsys, LLC v. Combay, Inc. et al.*, Civil Action 2:11-cv-272 (E.D. Texas). Served as an expert for defendant Symantec Corporation in a case alleging infringement of U.S. Patents 7,222,078 and 7,620,565, relating to gathering feedback from products through a user interface. Case settled two weeks after Dr. Shamos's deposition. Contact: David D. Schumann, Fenwick & West LLP, 555 California Street, 12th Floor, San Francisco, CA 94104. (D,R)

139. *Long Range Systems, LLC v. HME Wireless, Inc.*, Civil Action 3:12-cv-04162M (N.D. Tex.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patents 6,542,751 and 7,062,281, relating to methods of paging customers at a restaurant. Case was dismissed by

plaintiff after a tentative Markman ruling. Contact: David Cabello, Esq., Wong, Cabello, Lutsch, Rutherford & Brucculeri, LLP, 20333 SH 249, Suite 600, Houston, Texas 77070. (R)

140. *Symantec Corporation v. Veeam Software Corporation*, Case No. 3:12-cv-0700-SI (N.D. Cal.). Served as an expert for plaintiff Symantec in a case alleging infringement of U.S. Patents 6,931,558, relating to methods for restoring network devices after failure, 7,024,527, relating to methods of backing up disk while applications are active, 7,093,086, relating to methods for backing up virtual machines, 7,254,682, relating to snapshot disk backup, 7,480,822, relating to restoring running states of computing systems, 7,831,861, relating to restoring application data and 8,117,168, relating to virtual disk backups. Case is stayed pending PTAB review. All asserted claims have been found unpatentable. On appeal to the Federal Circuit, the PTAB's claim construction and obviousness determinations were upheld, case remanded to allow amendment of claims. Case subsequently settled. Contact: Jennifer Kash, Esq., Quinn Emanuel Urquhart & Sullivan LLP, 50 California Street, 22nd Floor, San Francisco, California 94111. (R)

141. *EMG Technology, LLC v. Green Mountain Coffee Roasters and Keurig, Inc.*, Case No. 6:13-cv-144 (E.D. Texas) (Lead case: 6:13-cv-134). Served as an expert for Defendants in a case alleging infringement of U.S. Patent 7,441,196, relating to a method of navigating a Web page linked to a sister web site. Case has settled. Contact: Michael A. Albert, Esq., Wolf, Greenfield & Sacks, P.C., 600 Atlantic Avenue, Boston, MA 02210.

142. *eDirect Publishing, Inc. v. Live Career, Ltd., et al.*, Case No. 12-CV-1123-JAH-JMA (S.D. Cal.). Served as an expert for plaintiff eDirect in a case alleging infringement of U.S. Patents 6.363,376 and 6,757,674, relating to automatic submission of information to career websites. Case has settled. Contact: Ryan Baker, Esq., Baker Marquart LLP, 10990 Wilshire Blvd., Los Angeles, CA 90024. (D,R)

143. *Motivation Innovations, LLC v. Ulta Salon Cosmetics and Fragrance, Inc. et al.*, C.A. No. 11-615-SLR-MPT (D. Del.). Served as an expert for defendant Ulta in a case alleging infringement of U.S. Patent 5,612,527, relating to a system for redeeming discount offers at point of sale. The Court granted summary judgment of noninfringement. Contact: Julie Heaney, Esq., Morris, Nichols, Arsht & Tunnell, LLP, 1201 North Market Street, Wilmington, DE 19899-1347. (D,R)

144. *Computer Software Protection, LLC v. Autodesk, Inc.*, C.A. No. 12-452-SLR (D. Del.). Served as an expert for Defendant Autodesk in a case alleging infringement of U.S. Patent 6,460,140, relating to unlocking the use of software remotely using validation number, a registration key and a license key. Case has settled. Contact: Cheryl T. Burgess, Esq., Knobbe, Martens, Olson & Bear, L.L.P., 2040 Main Street, 14th Floor Irvine, CA 92614. (R)

145. *Voltage Security, Inc.* v. *Protegrity Corporation*, CBM2014-0024, Patent Trial and Appeal Board. Served as an expert for petitioner in a covered business method petition seeking review of U.S. Patent 8,402,281, relating to methods of encrypting databases. Matter has settled. Contact: Matthew Argenti, Esq., Wilson Sonsini Goodrich & Rosati Professional Corporation, 650 Page Mill Road, Palo Alto, CA 94304-1050. (R)

146. *United Video Properties, Inc. et al. v. Haier Group Corp. et al.*, C.A. No. 11-1140-KAJ (D.Del.). Served as an expert for Plaintiffs in a case alleging infringement of U.S. Patents 6,701,523 and 7,047,547, relating to television parental control technology. Case has settled. Contact: Hong S. Lin, Esq., Paul Hastings LLP, 1117 S. California Avenue, Palo Alto, CA 94304. (D,R)

147. *Droplets, Inc. v. E*TRADE Financial Corporation et al.*, Case No.: 1:12-CV-02326-CM (S.D.N.Y.). Served as an expert for defendants in an action alleging infringement of U.S. Patents 6,687,745 and 7,502,838, and 8,402,115, relating to delivering interactive links for presenting applications on a client computer. Defendants prevailed on a summary judgment of non-infringement on the '745 Patent. All claims of the '115 and '838 Patents were found invalid after IPRs, affirmed by the Federal Circuit in 2016-2504 and 2016-2602. Contact: Michael Levin, Esq., Wilson Sonsini Goodrich & Rosati Professional Corporation, 650 Page Mill Road, Palo Alto, CA 94304-1050. (D,R,T)

148. *Symantec Corporation v. Acronis, Inc. et al.*, Case No. 3:11-cv-05331 JST (N.D. Cal.). Served as an expert for plaintiff and infringement counterclaim defendant Symantec in a case alleging infringement by Symantec of U.S. Patents 7,366,859 and 7,831,789, relating to incremental disk backup, and infringement by Acronis of U.S. Patent 7,024,527, and 7,996,708, relating to disk backup and restore, U.S. Patent 7,454,592, and U.S. Patent 7,941,459, relating to single instance disk storage, and U.S. Patent 7,680,957, relating to modifiable representations of computer configurations. Case has settled. Contact: Jennifer Kash, Esq., Quinn Emanuel Urquhart & Sullivan LLP, 50 California Street, 22nd Floor, San Francisco, California 94111. (D,R)

149. *Jazz Pharmaceuticals, Inc. v. Roxane Laboratories, Inc.*, CA 2:10-cv-06108-ES-MCA (D. N.J.). Served as an expert for defendant in a case alleging infringement of U.S. Patents 7,668,730, 7,765,106, 7,765,107, 7,797,171 and 7,895,059, relating to methods of controlling the distribution of sensitive drugs. Case has settled. Contact: Alan B. Clement, Esq., Locke Lord LLP, Brookfield Place, 200 Vesey Street, 20th Floor, New York, NY 10281-2101. (R)

150. *TuitionFund, LLC v. SunTrust Banks, Inc. et al.*, CA 3:11-cv-00069 (M.D. Tenn.). Served as an expert for defendants Cardlytics, Inc., Regions Financial Corp., and Regions Bank in a case alleging infringement of U.S. Patents 7,499,872, 7,653,572 and 7,899,704, relating to methods for awarding rebates for credit and debit card purchases. Case settled. Contact: Michael S. Connor, Esq., Alston & Bird LLP, Bank of America Plaza, 101 South Tryon Street, Suite 4000, Charlotte, NC 28280-4000. (D,R)

151. *Pollin Patent Licensing, LLC et al. v. AT&T Corporation et al.*, Case No. 1:11-cv-07855 (N.D. Ill.). Served as an expert for defendants in a case alleging infringement of U.S. Patent 7,117,171, relating to verifying financial institution identification in electronic payment systems. Case has settled. Contact: James L. Howard, Esq., Kilpatrick Townsend & Stockton LLP, 1001 West Fourth Street Winston-Salem, NC, 27101.

152. *PPS Data, LLC v. Bluepoint Solutions, Inc.*, Case 2:13-cv-01351 (D. Nev.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patents 7,181,430, 7,216,106,

7,440,924, 7,624,071 and 8,126,809, relating to methods for processing check images in electronic payment systems. Case has settled. Contact: Anthony H. Son, Esq., Maddox Edwards, PLLC, 1900 K Street NW, Suite 725, Washington, DC 20006. (Original firm: Wiley Rein).

153. *e-LYNXX Corporation v. Ariba, Inc.*, CA 1:12-cv-01771-CCC (M.D. Pa.). Served as an expert for defendant Ariba, in a case alleging infringement of U.S. Patents 7,451,106, 7,788,143 and 8,209,227, relating to electronic procurement of customized goods and services. Case has settled. Contact: Amy Van Zant, Esq., Covington & Burling LLP, 333 Twin Dolphin Drive, Redwood Shores, CA 94605-1418.

154. *EMG Technology, LLC v. AutoZone, Inc.*, C.A. 6:13-cv-134 (E.D. Tex.) (Lead case: 6:12-cv-543). Served as an expert for defendant AutoZone in a case alleging infringement of U.S. Patent 7,441,196, relating to transcoding web sites into mobile sites. Defendant obtained summary judgment of non-infringement. Contact: Terry L. Clark, Esq., Bass, Berry & Sims PLC, 1201 Pennsylvania Ave. N.W., Washington, D.C. 20004. (R)

155. *In re: Oil Spill by the Oil Rig "Deepwater Horizon" in the Gulf of Mexico, on April 20, 2010*, MDL No. 2179 (E.D. La.). Served as an expert for litigants BP Exploration & Production Inc. et al. on an issue relating to identification of an anonymous person through Internet searching. Contact: Mark. J. Nomellini, Esq., Kirkland & Ellis LLP, 300 N. LaSalle, Chicago, IL 60654. (R)

156. *EC Data Systems, Inc., v. J2 Global, Inc. et al.*, CV 12-07544 (C.D. Cal.). Served as an expert for declaratory judgment plaintiff EC Data Systems in a case alleging infringement of U.S. Patents 6,208,638 and 6,350,066, 6,597,688 and 7,020,132, relating to electronic distribution of faxes through email. Case has settled. Contact: Matthew Spohn, Esq. Norton Rose Fulbright LLP., Tabor Center, 1200 17th Street, Suite 1000, Denver, Colorado 80202.

157. *MoneyCat, Ltd. v. PayPal, Inc.*, CA 1:13-cv-01358-RGA (D. Del.), now 3:14-cv-02490-PSG (N.D. Cal.). Served as an expert for defendant PayPal in a case alleging infringement of U.S. Patents 7,590,602, 8,195,578 and 8,051,011, relating to issuance and transfer of electronic currency. On CBM review, the PTAB found all asserted claims of all three patents invalid, affirmed by the Federal Circuit. Case was subsequently dismissed. Contact: Adrian Percer, Esq., Weil, Gotshal & Manges, LLP, 201 Redwood Shores Parkway, Redwood Shores, CA 94065. (D,R)

158. *GSI Commerce Solutions, Inc.* v. *Clear With Computers, Inc.*, Patent Trial and Appeal Board Case CBM2013-00055. Served as an expert for petitioner, an eBay company, in a covered business method review of U.S. Patent 8,266,015, relating to methods of presenting lists of product customization options. Review was instituted but the CBM was terminated by settlement. Contact: Scott McKeown, Esq., Ropes & Gray, L.L.P., 2099 Pennsylvania Avenue, Washington, DC 20006-6807. (D,R)

159. *Fidelity National Information Services, Inc. v. Cashedge, Inc. and Checkfree Corporation*, Patent Trial and Appeal Board Cases CBM2013-00028, 30, 31 and 32. Served as

an expert for petitioner in covered business method reviews of U.S. Patents 7,383,223, 7,792,749, 7,853,524 and 7,996,311, relating to transferring funds in electronic payment networks. Reviews have been instituted. All claims of the four patents were invalidated by the PTAB in December 2014. Appeal was taken to the Federal Circuit but terminated by agreement. Contact: Jeffrey A. Berkowitz, Esq., Finnegan, Henderson, Farabow, Garrett & Dunner, L.L.P., Two Freedom Square, 11955 Freedom Drive, Reston, VA 20190-5675. (D,R)

160. *Boku, Inc. v. Xilidev, Inc.*, Patent Trial and Appeal Board Cases CBM2014-00140 and CBM2014-00148. Served as an expert for petitioner in two covered business method reviews of U.S. Patent 7,273,168, relating to authorizing payments via handheld devices. Result: claims 1-18 and 20-23 found invalid. Claim 19 cancelled. Contact: Frank Pietrantonio, Esq., Cooley LLP, One Freedom Square, 11951 Freedom Drive, Reston, VA 20190. (R)

161. *Protegrity Corporation v. Phoenix Payment Systems, Inc. d/b/a Electronic Payment Exchange*, Case No. 3:13-CV-1386-VKB (D. Conn.). Served as an expert for defendant in a case alleging infringement of U.S. Patents 6,321,201 and 8,402,281, relating to methods of encrypting databases. Case has settled. Contact: David J. Wolfsohn, Esq., Duane Morris LLP, 20 South 17th Street, Philadelphia, PA 19103. (R)

162. *Ameranth, Inc. v. Genesis Gaming Solutions, Inc. et al.*, Case No. SACV 8:11-0189-AG (C.D. Cal.). Served as an expert for Ameranth in a case alleging infringement of U.S. Patents 7,431,650, 7,878,909 and 8,393,969, relating to systems for managing casino operations, particularly in poker rooms. Case has settled. Contact: John W. Osborne, Esq., Osborne Law LLC, 33 Habitat Lane, Cortlandt Manor, NY 10567. (D,R)

163. *Telebuyer, LLC v. Amazon.com, Inc.*, Case No. 2:13-cv-01677-BJR (W.D. Wash.). Served as an expert for Telebuyer in a case alleging infringement by Amazon.com of U.S. Patents 6,323,894, 7,835,508, 7,835,509, 7,839,984, 8,059,796, 8,098,272, and 8,315,364, relating to systems for interfacing buyers and sellers via communication networks. Summary judgment was entered declaring all asserted claims invalid under 35 U.S. §101. Contact: Brian Berliner, Esq., O'Melveny & Myers LLP, 400 South Hope Street, Los Angeles, CA 90071. (D,R)

164. *GlobeRanger Corporation v. Software AG, et al.*, Civil Action No. 3:11-CV-403-B (N.D. Texas). Served as an expert for GlobeRanger in a case alleging misappropriation of trade secrets and civil conspiracy involving radio-frequency identification (RFID) software and business processes. Result: jury verdict of $15 million in favor of GlobeRanger, upheld on appeal to the Fifth Circuit. Contact: Ophelia Camiña, Esq., Susman Godfrey, L.L.P., 901 Main St., Suite 5100, Dallas, TX 75202-3775. (D,R,T)

165. *In re: ProvideRx of Grapevine, LLC and CERx Pharmacy Partners, LP v. Provider Meds, LP, et al.*, Adv. Proc. No. 13-03015-BJH (Bankr. N.D. Tex). Served as an expert for creditor CERx in a Chapter 7 bankruptcy case involving security interests in software for remote dispensing pharmacies and whether certain licenses constitute encumbrances under Texas law. Case has settled. Contact: Bill Whitehill, Esq., Gardere Wynne Sewell LLP, 1601 Elm St., Dallas, TX 75201. (R)

166. *Square, Inc. v. Protegrity Corporation*, CBM2014-00182, Patent Trial and Appeal Board (2014). Served as an expert for petitioner in a covered business method petition seeking review of U.S. Patent 8,402,281, relating to methods of encrypting databases. Result: all claims invalid under §101. Contact: Matthew Argenti, Esq., Wilson Sonsini Goodrich & Rosati Professional Corporation, 650 Page Mill Road, Palo Alto, CA 94304-1050. (D,R)

167. *VigLink, Inc. v. Linkgine, Inc.*, Patent Trial and Appeal Board (2014). Served as an expert for petitioner in covered business method petitions 2014-00184 and 2014-00185 seeking review of U.S. Patents 7,818,214 and 8,027,883, relating to modifying affiliate links on webpages. Result: all challenged claims found invalid. Affirmed by the Federal Circuit at 2016-2087, 2016-2088. Contact: Robert C. Hilton, Esq., McGuireWoods LLP, 2000 McKinney Ave., Suite 1400, Dallas, TX 75201. (R)

168. *Juhline et al. v. Ben Bridge Jewelers Inc. et al.*, Case 11-cv-2096-GPC-NLS (S.D. Cal.). Served as an expert for defendant Ben Bridge in a class action alleging violation of California Civil Code §1747.8, relating to the collection of personal identification information in connection with credit card transactions. Case has settled. Contact: Rosemarie T. Ring. Esq., Munger, Tolles & Olson LLP, 560 Mission St., 27th Fl., San Francisco, CA 94105.

169. *Catch Curve, Inc. v. Integrated Global Concepts, Inc. v. j2 Global Communications, Inc. et al.*, Case 1:06-CV-02199 (N.D. Ga.). Served as an expert for defendant and counterclaim plaintiff Integrated Global Concepts in a case alleging infringement of U.S. Patents 4,994,926, 5,291,302, 5,459,584, 6,643,034, 6,785,021, 7,365,884 and 7,525,691, relating to store-and-forward fax systems. Infringement claims were dropped. The issue at bar is whether j2 Global had an objective basis to believe that Integrated Global was infringing. Case has settled. Contact: James Heiser, Esq., Chapman and Cutler, LLP, 111 West Monroe St., Chicago, IL 60603. (D,R)

170. *Phoenix Payment Systems, Inc. v. Protegrity Corporation*, CBM2014-00121, Patent Trial and Appeal Board (2014). Served as an expert for petitioner in a covered business method petition seeking review of U.S. Patent 8,402,281, relating to methods of encrypting databases. Underlying litigation settled before CBM could be instituted. Contact: Contact: David J. Wolfsohn, Esq., Duane Morris LLP, 20 South 17th Street, Philadelphia, PA 19103. (R)

171. *Informatica Corporation v. Protegrity Corporation*, CBM2015-00010, CBM2015-00021, Patent Trial and Appeal Board (2014). Served as an expert for petitioner in two covered business method petitions seeking review of U.S. Patents 8,402,281 and 6,321,201, relating to methods of encrypting databases. Result: all claims found invalid under 35 U.S.C. §101. The Board's opinions in the '201 case and the '281 case comment favorably on Dr. Shamos's testimony. Contact: Mark S. Kaufman, Esq., Reed Smith LLP, 1301 K Street N.W., Washington, DC 20005. (D,R)

172. *Qualtrics, LLC v. OpinionLab, Inc.*, IPR2014-00314, IPR2014-00356, IPR2014-00366, IPR2014-00406, IPR2014-00420, and IPR2014-00421, Patent Trial and Appeal Board (2014). Served as an expert for patent owner OpinionLab, Inc. in *inter partes* reviews of U.S. Patents 6,421,724, 6,606,581, 8,041,805, 7,085,820, 7,370,285 and 8,024,668, relating to

methods of soliciting page-specific feedback regarding web pages. All challenged claims have been found invalid except as to the '805 patent. '724 was not instituted. Contact: Chris Kennerly, Esq., Paul Hastings LLP, 1117 S. California Ave., Palo Alto, CA 94304. (D,R)

173. *Callwave Communications, LLC v. AT&T Mobility, LLC et al.*, Case 1:12-cv-01788-RGA (D. Del.). Served as an expert for defendant Research In Motion, Corp. in a case alleging infringement of U.S. Patent 7,907,933, relating to methods of billing for purchases by placing a call to a pay-per-call service. Plaintiff stipulated to non-infringement for appeal purposes, but the Federal Circuit upheld on January 10, 2017. Contact: John V. Gorman, Esq., Morgan, Lewis & Bockius LLP, 1701 Market Street, Philadelphia, PA 19103.

174. *SoftVault Systems, Inc. v. Dassault Systèmes Solidworks Corporation*, Case 5:14-cv-03221-LHK (N.D. Cal.). Served as an expert for defendant Solidworks. in a case alleging infringement of U.S. Patents 6,249,868 and 6,594,765 relating to embedded agents for protecting computer systems against theft. Case has settled. Contact: Cheryl T. Burgess, Esq., Knobbe, Martens, Olson & Bear, L.L.P., 2040 Main Street, 14th Floor Irvine, CA 92614.

175. *PPS Data, LLC v. TransCentra, Inc.*, Case 13-359-LPS (D. Del.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patents 7,181,430, 7,440,924, 7,624,071 and 8,126,809, relating to methods for processing check images in electronic payment systems. Case has settled. Contact: Anthony H. Son, Esq., Maddox Edwards, PLLC, 1900 K Street NW, Suite 725, Washington, DC 20006. (Original firm: Wiley Rein).

176. *Clear With Computers, Inc. v. Spanx, Inc.*, C.A. 6:12-cv-950-LED (E.D. Texas). Served as an expert for defendant, an eBay company, in a case alleging infringement of U.S. Patent 8,266,015, relating to methods of presenting lists of product customization options. Judgment on the pleadings was granted, invalidating the asserted claims under 35 U.S.C. §101. Case was appealed to the Federal Circuit, but the appeal with withdrawn. Case has settled. Contact: Scott McKeown, Esq., Oblon, Spivak, McClelland, Maier & Neustadt, L.L.P., 1940 Duke Street Underpass, Alexandria, VA 22314.

177. *Integrated Global Concepts, Inc. v. Advanced Messaging Technologies, Inc.*, IPR2014-01027 and IPR2014-01028 Patent Trial and Appeal Board (2014). Served as an expert for petitioner seeking *inter partes* review of U.S. Patents 6,020,980, relating to delivering faxes through electronic mail. The PTAB declined to institute review. Contact: Robert J. Schneider, Esq., Taft Stettinius & Hollister LLP, 111 East Wacker, Suite 2800, Chicago, IL 60601. (R)

178. *athenahealth, Inc. v. AdvancedMD Software, Inc.*, Civil Action 1:11-cv-11260-GAO (D. Mass.). Served as an expert for plaintiff athenahealth, Inc. in a case alleging infringement of U.S. Patents 7,617,116 and 7,720,701, relating to detecting errors in medical insurance claim submissions and automated configuration of medical practice management systems. Case has settled. Contact: Robert M. Abrahamsen, Esq., Wolf, Greenfield & Sacks, P.C., 600 Atlantic Avenue, Boston, MA 02210.

179. *CEATS, Inc. v. Orbitz Worldwide, Inc.*, Civil Action 2:13-cv-01385-MMD-PAL (D. Nev.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patents

7,548,867, 7,640,178, 7,660,727, 8,219,448, 8,229,774 and 8,244,561, relating to systems and methods for managing airline seat reservations. Case has settled. Contact: Jared Bunker, Esq., Knobbe, Martens, Olson & Bear, L.L.P., 2040 Main Street, 14th Floor Irvine, CA 92614.

180. *Audatex North America, Inc. v. Mitchell International, Inc.*, Civil Action 3:13-cv-01523-BEN (BLM) (S.D. Cal.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patents 7,912,740, 8,200,513 and 8,468,038, relating to systems and methods for determining the valuation of a damaged vehicle for insurance purposes. Claims found invalid after CBM review, affirmed by the Federal Circuit. Contact: David McPhie, Esq., Irell & Manella LLP, 840 Newport Center Dr., Newport Beach, CA 29660. (R)

181. *Skimlinks, Inc. et al. v. Linkgine, Inc.*, Patent Trial and Appeal Board (2015). Served as an expert for petitioners in covered business method petitions 2015-00086 and 2015-00087 seeking review of U.S. Patents 7,818,214 and 8,027,883, relating to modifying affiliate links on webpages. Result: all claims found invalid, affirmed by the Federal Circuit. Contact: Richard F. Martinelli. Esq., Orrick, Herrington & Sutcliffe LLP, 51 West 52nd St., New York, NY 10019. (R)

182. *Advanced Auctions, LLC. v. eBay, Inc.*, Case 12-cv-1612-BEN (JLB) (S.D. Cal.). Served as an expert for defendant eBay in case alleging infringement of U.S. Patent 8,266,000, relating to methods of conducting Internet auctions. Defendant obtained judgment of invalidity on the pleadings under 35 U.S.C. §101. Contact: Adrian Percer, Esq., Weil, Gotshal & Manges, LLP, 201 Redwood Shores Parkway, Redwood Shores, CA 94065.

183. *MaxMind, Inc. et al. v. Fraud Control Systems.com Corporation*, CBM2015-00094, Patent Trial and Appeal Board (2014). Served as an expert for petitioner in a covered business method petition seeking review of U.S. Patent 8,630,942, relating to methods of determining whether a payment transaction may be fraudulent based on IP addresses. Review was instituted on §101 grounds and Patent Owner requested adverse judgment. Contact: Anthony H. Son, Esq., Maddox Edwards, PLLC, 1900 K Street NW, Suite 725, Washington, DC 20006. (R)

184. *Square, Inc. v. Unwired Planet, LLC*, CBM2014-00156, Patent Trial and Appeal Board (2014). Served as an expert for petitioner in a covered business method petition seeking review of U.S. Patent 7,711,100, relating to conducting point-of-sale transactions based on the location of a wireless device. Challenged claims found invalid. Contact: Sasha G. Rao, Esq., Maynard Cooper and Gale PC, 275 Battery St., San Francisco, CA 94111 (D,R)

185. *Unified Patents, Inc. v. Finnavations LLC*, IPR2015-01209, Patent Trial and Appeal Board (2015). Served as an expert for petitioner in an inter partes review of U.S. Patent 8,132,720, relating to verifying online transaction data through a graphical user interface. Status: not instituted. Contact: Paul C. Haughey, Esq., Kilpatrick Townsend & Stockton LLP, Eighth Floor, Two Embarcadero Center San Francisco, CA 94111 (R)

186. *Hoskin Hogan et al. v. BP West Coast Products LLC et al.*, Case BC 460880 (Super. Ct. Los Angeles Cty. CA, 2011). Served as an expert for defendant Retalix Ltd., alleging negligence in the development and testing of software for processing point-of-sale transactions. Summary

judgment granted in favor of Retalix. Contact: Richard H. Zelichov, Esq., Katten Muchin Rosenman LLP, 2029 Century Park East, Suite 2600, Los Angeles, CA 90067-3012. (D,R)

187. *In re U.S. Patent Application 12/912,726* (USPTO). Served as an expert for applicant AlmondNet, Inc. in an application for a patent relating to distributing digital advertising based on a recipient profile. PTAB affirmed the Examiner's § 101 rejection. Contact: Louis J. Hoffman, Esq., Hoffman Patent Firm. (R)

188. *Wickfire, LLC v. TriMax Media, Inc. et al.*, C.A. 1:14-CV-34 (W.D. Tex). Served as an expert for defendants in a case alleging click fraud in Internet advertising. Jury verdict for Plaintiff, reversed on appeal to the Fifth Circuit. Contact: Barry M. Golden, Esq., Miller, Egan, Molter & Nelson LLP, 2911 Turtle Creek Blvd., Suite 1100 Dallas, TX 75219. (D,R,T)

189. *Square, Inc. v. Unwired Planet, LLC*, CBM2015-00148, Patent Trial and Appeal Board. Served as an expert for petitioner in a covered business method petition seeking review of U.S. Patent 7,711,100, relating to conducting point-of-sale transactions based on the location of a wireless device. Not instituted because claims were found invalid under § 101 in CBM2014-00156. Contact: Sasha G. Rao, Esq., Maynard Cooper and Gale PC, 275 Battery St., San Francisco, CA 94111. (D,R)

190. *Datatrak International Inc. v. Medidata Solutions, Inc.*, C.A. 1:11-cv-00458-PAG (N.D. Ohio). Served as an expert for defendant in a case alleging infringement of U.S. Patent 7,464,087, relating to federated database queries. Defendant obtained summary judgment of invalidity under 35 U.S.C. §101. Contact: Duane-David Hough, Esq., Mayer Brown LLP, 1675 Broadway, New York, NY 10019. (R)

191. *SNMP Research, Inc. et al. v. Avaya, Inc.*, C.A. 1:12-cv-00191-RGA-MPT (D. Del.). Served as an expert for Avaya in an action alleging breach of contract, trade secret misappropriation and copyright infringement involving software implementing the Simple Network Management Protocol (SNMP). Case has settled. Contact: Joshua Krumholz, Esq., Holland & Knight, LLP, 10 St. James Avenue, 11th Floor, Boston, MA 02116. (D,R)

192. *Certain Automated Teller Machines and Point of Sale Devices and Associated Software Therefor*, USITC Inv. No. 337-TA-958. Served as an expert for Respondents NRT Technology Corp. et al. in an International Trade Commission proceeding brought by Complainant Global Cash Access Inc. involving alleged infringement of U.S. Patent 6,081,792, relating to structuring ATM and POS transactions with respect to withdrawal limits. Result: all claims found invalid as indefinite. In affirming this determination, the Commission wrote: "should the extrinsic evidence be considered, the Commission finds NRT's expert testimony credible, see Rebuttal Expert Report of Michael Shamos Regarding Claim Construction ¶¶ 52-58, and that Everi's expert's testimony is not credible." Contact: Colby B. Springer, Esq., Polsinelli LLP (formerly at Lewis Roca Rothgerber LLP), Three Embarcadero Center, Suite 1350, San Francisco, CA 94111. (D,R)

193. *Better Mouse Company, L.L.C. v. SteelSeries ApS, Inc. et al.*, C.A. 2:14-cv-198-JRG (E.D. Texas). Served as an expert for defendant in a case alleging infringement of U.S. Patent

7,532,200, relating to computer mouse whose resolution can be set without external software. Dr. Shamos testified at trial on non-infringement. The jury found for defendant on non-infringement. Contact: Joshua M. Masur, Esq., Zuber Lawler & Del Duca LLP, 2000 Broadway, Suite 154, Redwood City, California 94063. (Original firm: Turner Boyd LLP) (R,T)

194. *Vesta Corporation v. Amdocs Management Limited et al.*, No. 3:14-cv-01142-HZ (D. Ore.). Served as an expert for defendants in a case alleging misappropriation of trade secrets relating to billing in the prepaid mobile phone payment processing market. Case has settled. Contact: Yonaton M. Rosenzweig, Esq., Katten Muchin Rosenman LLP, 2029 Century Park East, Suite 2600, Los Angeles, CA 90067-3012. (D,R)

195. *Benefit Funding Systems, LLC et al. v. U.S. Bancorp*, CA 1:12-cv-00803-LPS (D.Del.). Served as an expert for defendant U.S. Bancorp in an action alleging infringement of U.S Patent 6,625,582, relating to a method of establishing a financial account based on the present value of future retirement payments. All asserted claims were found invalid under 35 U.S.C. §101, a decision affirmed by the Federal Circuit. Contact: Contact: Anthony H. Son, Esq., Maddox Edwards, PLLC, 1900 K Street NW, Suite 725, Washington, DC 20006. (Original firm: Wiley Rein).

196. *Telesign Corporation v. Twilio, Inc.*, C.A. 3:18-cv-03279-VC (N.D. Cal.). Served as an expert for defendant Twilio in an action alleging infringement of U.S. Patent 7,945,034, relating to verification of telephone users based on characteristics of the telephone number, such as carrier and geographic location. Defendant successfully resisted issuance of a preliminary injunction. Case is stayed pending PTAB review. After PTAB review, Twilio's motion for judgment on the pleadings was granted. Contact: Thomas J. Friel, Jr., Esq., Cooley LLP, 3175 Hanover Street, Palo Alto, CA 94304. (R)

197. *Cronos Technologies, LLC v. Expedia, Inc.*, C.A. 13-1538-LPS (D. Del.), *Cronos Technologies, LLC v. Priceline.com, Inc.*, C.A. 13-1541-LPS (D. Del.) and *Cronos Technologies, LLC v. Travelocity.com L.P.*, C.A. 13-1544-LPS (D. Del.). Served as an expert for defendants in three cases, consolidated for some purposes, in actions alleging infringement of U.S. Patent 5,664,110, relating to a remote ordering system enabling a user to build lists of products to be ordered. The Court found non-infringement on summary judgment, affirmed unanimously by the Federal Circuit. Contact: Matthew C. Acosta, Esq., Jackson Walker LLP, KPMG Plaza at Hall Arts, 2323 Ross Avenue, Suite 600, Dallas, TX 75201. (D,R)

198. *Ex Parte Reexamination of U.S. Patent 7,333,430*, Control No. 90/013,532. Served as an expert for patent owner Fortinet, Inc. in a reexamination of U.S. Patent 7,333,430, drawn to distributing network packets for intermediate security processing based on the ultimate destination of the packet. Result: all challenged claims and newly presented claims patentable. Contact: Michael A. DeSanctis, Hamilton DeSanctis & Cha LLP, Financial Plaza at Union Square, 225 Union Boulevard, Ste. 150, Lakewood, CO 80228. (R)

199. *ServiceNow, Inc. v. Hewlett-Packard Company*, Case IPR2015-00717 (PTAB). Served as an expert for patent owner Hewlett-Packard Company in an inter partes review of U.S. Patent 7,027,411, drawn to efficient determination of changes in network topology. Status: settled.

Contact: Monica Grewal, Esq., Wilmer Cutler Pickering Hall and Dorr LLP, 60 State Street, Boston, MA 02109. (D,R)

200. *Intellectual Ventures I LLC v. Nextel Operations, Inc. and Sprint Spectrum L.P.*, C.A. No. 13-1634 (D.Del) and related cases 13-1635; *Intellectual Ventures I LLC v. T-Mobile USA, Inc. et al.*, C.A. No. 13-1632; 13-1633; *Intellectual Ventures I LLC v. United States Cellular Corporation*, C.A. No. 13-1636 and related case 13-1637, all D. Del. Served as an expert for defendants Sprint, T-Mobile and U.S. Cellular in related cases alleging infringement of U.S. Patent 6,115,737, drawn to use of an Internet gateway for processing customer service requests to a web server. The Court invalidated the '737 patent on §101 grounds. Contact: Jason W. Cook, Esq., McGuireWoods LLP, 2000 McKinney Ave., Suite 1400, Dallas, TX 75201. (D,R)

201. *Ex Parte Reexamination of U.S. Patent 7,968,744*, Control No. 90/013,533. Served as an expert for patent owner Fortinet, Inc. in a reexamination of U.S. Patent 7,698,744, drawn to systems and methods for allowing execution of authorized computer code and for protecting computer systems and networks from unauthorized code execution. Result: challenged claim and 14 new claims determined patentable. Contact: Michael A. DeSanctis, Hamilton DeSanctis & Cha LLP, Financial Plaza at Union Square, 225 Union Boulevard, Ste. 150, Lakewood, CO 80228. (R)

202. *Ex Parte Reexamination of U.S. Patent 7,376,125*, Control No. 90/013,531. Served as an expert for patent owner Fortinet, Inc. in a reexamination of U.S. Patent 7,376,125, drawn to a virtual routing engine for software-based packet routing. Result: newly presented claims patentable. Contact: Michael A. DeSanctis, Hamilton DeSanctis & Cha LLP, Financial Plaza at Union Square, 225 Union Boulevard, Ste. 150, Lakewood, CO 80228. (R)

203. *Twilio, Inc. v. Telesign Corporation*, IPR2016-00360. Served as an expert for requester Twilio in an *inter partes* review of U.S. Patent 7,945,034, relating to verification of telephone users based on characteristics of the telephone number, such as carrier and geographic location. Challenged claims confirmed. Contact: Thomas J. Friel, Jr., Esq., Cooley LLP, 3175 Hanover Street, Palo Alto, CA 94304. (D,R)

204. *Twilio, Inc. v. Telesign Corporation*, IPR2016-00450, Patent Trial and Appeal Board (2016). Served as an expert for petitioner in an *inter partes* review of U.S. Patent 8,462,920, relating to verification of telephone users based on characteristics of the telephone number, such as carrier and geographic location. Trial was not instituted. Contact: Contact: Carrie J. Richie, Esq., Cooley LLP, 3175 Hanover Street, Palo Alto, CA 94304. (R)

205. *Smart Systems Innovations, LLC v. Chicago Transit Authority, et al.*, C.A. 14-cv-08053 (N.D. Ill.). Served as an expert for defendants in an action alleging infringement of U.S. Patent 5,828,044, relating to a radio-frequency ID (RFID) credit card system. Defendant successfully resisted issuance of a preliminary injunction. All claims invalidated as non-statutory under 35 U.S.C. §101. Affirmed by the Federal Circuit in October 2017. Contact: Jeffrey M. Connor., Esq., formerly at Kilpatrick Townsend & Stockton LLP, now IP counsel at Honeywell. (D,R)

206. *Unwired Planet LLC v. Google, LLC*, C.A. 3:12-cv-00504-MMD-VPC (D. Nevada). Served as an expert for Google in an action alleging infringement of U.S. Patents 6,292,657, 6,654,786, 6,662,016, 6,684,087, 6,895,240, 6,944,760, 7,024,205, 7,035,647, 7,203,752 and 7,463,151, relating to provision of wireless services. All asserted claims of the '151, '205 and '751 patents have been found invalid by the Patent Trial and Appeal Board. After appeal to the Federal Circuit, the case continued with respect to certain claims of the '752 Patent but these were dismissed by stipulation. Contact: Peter E. Gratzinger, Esq., Munger, Tolles & Olson LLP, 355 South Grand Avenue, Los Angeles, CA 90071.

207. *Xilidev, Inc. v. Boku, Inc. et al.*, C.A. 3:13-cv-02793 (S.D. Cal.). Served as an expert for defendants in an action alleging infringement of U.S. Patent 7,273,168, relating to point-of-sale billing on handheld devices. Claims 1-18 and 20-23 of the '168 patent have been found invalid by the Patent Trial and Appeal Board. Plaintiff agreed to a voluntary dismissal with prejudice. Contact: Frank Pietrantonio, Esq., Cooley LLP, One Freedom Square, 11951 Freedom Drive, Reston, VA 20190.

208. *Intellectual Ventures II LLC v. Commerce Bancshares, Inc. et al.*, C.A. 2:13-CV-04160 (W.D. Mo.). Served as an expert for defendants in an action alleging infringement of U.S. Patents 5,745,574, relating to security in electronic transactions, 6,314,409 and 6,826,694, relating to controlling access to digital property, 6,715,084, relating to intrusion detection, and 7,634,666, relating to a cryptographic engine. All asserted claims have been declared invalid by the Patent Trial and Appeal Board. Decision affirmed by the Federal Circuit in December 2016. Contact: Mark Vander Tuig, Esq., Senniger Powers LLP, 100 North Broadway, 17th Floor, St. Louis, MO 63102.

209. *Hy-Vee, Inc. v. Inmar Digital Promotions Network, Inc.*, C.A. 4:15-cv-00275 (S.D. Iowa). Served as an expert for defendant in an action seeking indemnity for infringement of U.S. Patents 8,219,445, 8,370,199 and 8,538,805, relating to point-of-sale processing of promotions, such as coupons. Hy-Vee had been sued for infringing these patents in *Advanced Marketing Systems, LLC v. Hy-Vee, Inc.*, C.A. 3:15-cv-00103 (W.D. Wisc.). Both cases have settled. Contact: Richard J. Keshian, Esq., Kilpatrick Townsend & Stockton LLP, 1001 West Fourth Street Winston-Salem, NC, 27101. (R)

210. *Motivation Innovations, LLC v. PetSmart, Inc.*, C.A. 1:13-cv-00957 (D.Del.). Served as an expert for defendant in an action alleging infringement of U.S. Patent 5,612,527, relating to a system for redeeming discount offers at point of sale. On motion for judgment on the pleadings, all asserted claims were found invalid under 35 U.S.C. §101. Contact: Kevin A. Zeck, Esq., Perkins Coie, LLP, 1201 Third Avenue, Suite 4900, Seattle, WA 98101-3099.

211. *PPS Data, LLC v. VSoft Corporation et al.*, Case 1:15-cv-00084 (N.D. Ga.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patents 7,181,430, 7,216,106, 7,440,924, 7,624,071 and 8,660,956, relating to methods for processing check images in electronic payment systems. Case has settled. Contact: Anthony H. Son, Esq., Maddox Edwards, PLLC, 1900 K Street NW, Suite 725, Washington, DC 20006 (original firm Andrews Kurth).

212. *Sally Beauty Holdings et al. v. Intellectual Ventures I LLC*, CBM2016-00029, Patent Trial and Appeal Board. Served as an expert for petitioner in a covered business method petition seeking review of U.S. Patent 5,969,324, relating to accounting methods utilizing a non-predictable bar code. Trial was instituted, the PTAB writing in its decision: "We credit the testimony of Dr. Michael Shamos." Case has settled. Contact: Derek Swanson, Esq., McGuireWoods LLP, Gateway Plaza, 800 East Canal Street, Richmond, VA 23219. (R)

213. *Square, Inc. v. Protegrity Corporation*, CBM2015-00014, Patent Trial and Appeal Board (2016). Served as an expert for petitioner in a covered business method petition seeking review of U.S. Patent 6,321,201, relating to methods of encrypting databases. Result: all challenged claims found invalid under 35 U.S. §§101 and 103. Contact: Matthew Argenti, Esq., Wilson Sonsini Goodrich & Rosati Professional Corporation, 650 Page Mill Road, Palo Alto, CA 94304-1050. (R)

214. *T-Mobile US, Inc. v. Intellectual Ventures II LLC*, CBM2016-00083, Patent Trial and Appeal Board. Served as an expert for petitioner in a covered business method petition seeking review of U.S. Patent 6,115,737, relating to use of an Internet gateway for processing customer service requests to a web server. The PTAB determined that the patent did not claim a covered business method. Contact: Alison R. Watkins, Esq., Gibson, Dunn & Crutcher LLP, 1881 Page Mill Road, Palo Alto, CA 94304-1211. (R)

215. *Twin Peaks Software, Inc. v. IBM Corporation*, Case 3:14-cv-03933-JST (N.D. Cal.). Served as an expert witness for defendant IBM in an action alleging infringement of U.S. Patent 7,418,439, relating to a system for storing and sharing networked files. All asserted claims found invalid during claim construction. Contact: Andrew Bramhall, Esq., Quinn Emanuel Urquhart & Sullivan, LLP, 555 Twin Dolphin Drive, 5th Floor, Redwood Shores, CA 94065-2139.

216. *Live Face on Web, LLC v. The Control Group Media Company, Inc. et al.*, Case 2:15-cv-01306 (E.D. Pa.). Served as an expert witness for defendants in an action alleging breach of contract and infringement of copyrights relating to web media players and video productions in which recorded actors promote products for websites. Case has settled. Contact: Damon W.D. Wright, Esq., Venable LLP, 575 Seventh St. N.W., Washington, DC 20004.

217. *Nomadix, Inc. v. Hospitality Core Services, LLC*, Case 2:14-cv-08256-DDP (C.D. Cal.) Served as an expert witness for defendant in a case alleging infringement of U.S. Patents 6,636,894 and 6,868,399, relating to network gateways, U.S. Patent 7,698,432, relating to bandwidth management, U.S. Patent 7,953,857, relating to dynamic data transfer over networks, U.S. Patent 8,266,266, relating to dynamic network authorization, and U.S. Patents 8,156,246, 8,266,269, 8,364,806, 8,725,888 and 8,788,690, relating to providing network content. Case has settled. Contact: Michael J. Mehrman, Merhman Law Office, P.C., 150 Spalding Creek Court, Sandy Springs, GA 30350.

218. *Certain Digital Video Receivers and Hardware and Software Components Thereof*, USITC Inv. No. 337-TA-1001. Served as an expert for Complainants Rovi Corporation et al. against Comcast Corporation et al. in an International Trade Commission proceeding involving alleged infringement of U.S. Patents 8,006,263 , 8,046,801 and 8,578,413, relating to remote

and local electronic TV program guides. On Final Determination, a violation was found with respect to the '263 and '413 patents. Affirmed by the Federal Circuit on March 20, 2020. Contact: Richard A. Kamprath, Esq., McKool Smith, 300 Crescent Court, Suite 1500, Dallas, TX 75201. (D,R,T)

219. *ZKey Investments, LLC v. Facebook, Inc.*, Case 2:16-cv-00782-RSWL-KS (C.D. Cal.). Served as an expert for defendant in a case alleging infringement of U.S. Patent 6,820,204, relating to providing granular control over access to data. Result: all claims found invalid under §101. Affirmed by the Federal Circuit on Jan. 10, 2018. Contact: Andrew C. Mace, Esq., Cooley LLP, 3175 Hanover Street, Palo Alto, CA 94304. (R)

220. *In re: The Matter of the 2016 Presidential Election,* 659 MD 2016 (Pa. Cmwlth. Ct., 2016). Served as an expert for intervenors opposing an action brought seeking a recount of votes in Pennsylvania on the grounds that the state's voting systems are unsecure and vulnerable to hacking by foreign actors. Petitioners discontinued the suit before hearing, refusing to post the required bond. Contact: Lawrence J. Tabas, Esq., Obermayer Rebmann Maxwell & Hippel LLP, One Penn Center, 19th Floor, 1617 John F. Kennedy Blvd., Philadelphia, PA 19103.

221. *Stein v. Cortés,* Case 2:16-cv-06287-PD (E.D. Pa.). Served as an expert for defendant Secretary of the Commonwealth of Pennsylvania in an action for a mandatory injunction to compel a recount and forensic examination of voting systems. Result: injunction denied. The Court's memorandum comments favorably on Dr. Shamos's qualification and testimony. Most claims have been dismissed on summary judgment. Case has settled. Contact: Timothy Gates, Esq., Chief Counsel, PA Department of State, 3306 North Office Bldg., Harrisburg, PA 17120. (R,T)

222. *Free Stream Media Corp. (d.b.a. Samba) v. Alphonso Inc.*, Case No. 3:17-cv-02107 (N.D. Cal., transferred from E.D. Tex.). Served as an expert for defendant Alphonso in an action alleging infringement of U.S. Patents 9,026,668 and 9,386,356, relating to a system for targeting data, such as advertising, to a device, such as a tablet, based on content that is identified as playing on a different device, such as a television. Alphonso won summary judgment of non-infringement. Contact: Neel Chatterjee, Esq., Goodwin Procter LLP, 601 Marshall Street, Redwood City, CA 94063. (D,R)

223. *Copart, Inc. v. Sparta Consulting, Inc.*, Case 2:14-cv-00046-KJM-CKD (E.D. Cal.). Served as an expert for defendant Sparta in an action alleging misappropriation of trade secrets relating to imaging batches of items to be offered at auction. Misappropriation counts were dropped during trial. Contact: Frederick Brown, Esq., Gibson, Dunn & Crutcher LLP, 555 Mission Street, Suite 3000, San Francisco, CA 94105. (D,R)

224. *Apple Inc. v. Masa LLC.*, IPR2016-00748, Patent Trial and Appeal Board (2016). Served as an expert for patent owner in an *inter partes* review of U.S. Patent 8,519,834, relating to a wearable device to alert a user to an incoming cellphone call. All challenged claims found invalid. Affirmed by the Federal Circuit. Contact: Robert M. Evans, Jr., Esq., Lewis Rice LLC, 600 Washington Avenue, Suite 2500, St. Louis, MO 63101. (R)

225. *Tele-Publishing, LLC v. Facebook, Inc. et al.*, Case 1:09-cv-11686-DPW (D. Mass.). Served as an expert for defendants in a case alleging infringement of U.S. Patent 6,253,216, relating to controlling access to information on personal web pages. Result: all claims found invalid under §101; judgment for defendants. Case settled during appeal to the Federal Circuit. Contact: Reuben Chen, Esq., Cooley LLP, 3175 Hanover Street, Palo Alto, CA 94304. (R)

226. *Groupon, Inc. v. International Business Machines Corporation*, Case 1:16-cv-5064 (N.D. Ill.). Served as an expert for Groupon in a case alleging infringement of U.S. Patent 7,856,360, relating to gathering information from attendees at a venue. Case has settled. Contact: Saina Shamilov, Esq., Fenwick & West LLP, 801 California Street, Mountain View, CA 94041. (R)

227. *Stingray Digital Group Inc. v. Music Choice*, Patent Trial and Appeal Board. Served as an expert for petitioner in six *inter partes* reviews of U.S. Patents 7,320,025 (IPR2017-00888) and 9,351,045 (IPR2017-01191), relating to providing supplementing a broadcast media service with an on-demand, personalized media service and U.S. Patents 8,769,602 (IPR2017-01192), 9,357,245 (IPR2017-1193, IPR 2018-0114), relating to providing a visual complement to an audio program, and 9,414,121 (IPR 2017-1450), relating to systems and methods for providing on-demand entertainment. Trial has been instituted in '025, '045, '121 and '602. Patent owner requested adverse judgment in IPR2017-1193. Two claims survived in IPR2018-00114. Contact: Heath Briggs, Esq., Greenberg Traurig, LLP, 1200 17th St., Suite 2400, Denver, CO 80202. (D,R)

228. *Music Choice v. Stingray Digital Group Inc. et al.*, C.A. No. 2:16-CV-0586-JRG-RSP (E.D. Texas). Served as an expert for defendants in a case alleging infringement U.S. Patents 7,320,025 and 9,351,045, relating to providing supplementing a broadcast media service with an on-demand, personalized media service, U.S. Patents 8,769,602 and 9,357,245, relating to providing a visual complement to an audio program, and U.S. Patent 9,414,121, relating to systems and methods for providing on-demand entertainment. Case has settled. Contact: Joshua Raskin, Esq., Greenberg Traurig, LLP, MetLife Bldg., 200 Park Avenue, New York, NY 10166. (R)

229. *LivePerson, Inc. v. 24[7] Customer, Inc.*, IPR2017-00609, Patent Trial and Appeal Board. Served as an expert for patent owner in an *inter partes* review of U.S. Patent 6,970,553, relating to converting a voice call into a chat session. Four of six challenged claims were not found unpatentable. Contact: Bill Trac, Esq., O'Melveny & Myers LLP, Two Embarcadero Center, 28th Floor, San Francisco, CA 94111. (R)

230. *Blackberry Limited v. Blu Products, Inc.*, Case 1:16-cv-23535-FAM (S.D. Fla.). Served as an expert for defendants in a case alleging infringement of 15 patents, including U.S. Patent 6,271,605, relating to a battery disconnect system, U.S. Patent 8,169,449, relating to a multilayer graphics controller, and U.S. Patent 8,411,845, relating to the display of call logs on mobile phones. Case has settled. Contact: Victor Castellucci, Esq., Cozen O'Connor, 2 South Biscayne Blvd., 30th Floor, Miami, FL 33131. (R)

231. *Twitter, Inc. v. YouToo Technologies, LLC.*, Patent Trial and Appeal Board. Served as an expert for patent owner in two *inter partes* reviews of U.S. Patent 9,083,997 (IPR2017-00829,

IRP2017-00830), relating to publishing content on social media sites. All challenged claims found unpatentable. Contact: Samuel E. Joyner, Esq., Carrington, Coleman, Sloman & Blumenthal, LLP, 901 Main Street, Suite 5500, Dallas, TX 75202. (R)

232. *IPDEV Co. v. Ameranth, Inc.*, Case No. 3:14-cv-01303-GPC-JLB (S.D. Cal.). Served as an expert for defendant in an action to determine priority of invention among interfering patents involving U.S. Patents 6,384,850 and 6,871,325, assigned to Ameranth and relating to synchronous updating of restaurant menus on wireless devices, and U.S. Patents 5,991,739 and 8,738,449, relating to Internet ordering methods. Consolidated with Case 233, below. On summary judgment, the Court awarded priority to Ameranth. Contact: John W. Osborne, Esq., Osborne Law LLC, 33 Habitat Lane, Cortlandt Manor, NY 10567. (D,R)

233. *In re: Ameranth Patent Litigation*, Case No. 3:11-cv-01810-DMS-WSG (S.D. Cal.). Served as an expert for Ameranth in an action against numerous defendants alleging infringement of U.S. Patents 8,146,077, relating to synchronous updating of restaurant menus on wireless devices. All asserted claims were found invalid under 35 U.S.C. § 101, affirmed by the Federal Circuit. Contact: John W. Osborne, Esq., Osborne Law LLC, 33 Habitat Lane, Cortlandt Manor, NY 10567. (D,R)

234. *Google Inc. v. Spring Ventures, Ltd.*, IPR2017-01652 and 01653, Patent Trial and Appeal Board. Served as an expert for petitioner in *inter partes* reviews of U.S. Patent 8,661,094, relating to WWW addressing. Trial instituted in 2017-01653, denied in 2017-01652. Result: all claims of the '094 patent were determined to be unpatentable. Affirmed on appeal to the Federal Circuit. At oral argument, Dr. Shamos's qualifications were challenged unsuccessfully. Contact: Scott McKeown, Esq., Ropes & Gray, L.L.P., 2099 Pennsylvania Avenue, Washington, DC 20006-6807. (D,R)

235. *Rovi Guides, Inc. et al. v. Comcast Corporation et al.*, Case No. 1:16-cv-09278-JPO (S.D.N.Y.). Served as an expert for plaintiffs in an action alleging infringement of U.S. Patent 8,713,595, relating to electronic TV program guides and 9,172,987, relating to the use of markup language to alter the functionality of set-top boxes. Case has settled. Contact: Richard A. Kamprath, Esq., McKool Smith, 300 Crescent Court, Suite 1500, Dallas, TX 75201. (D,R)

236. *StrikeForce Technologies, Inc. v. Entrust, Inc. et al.*, Case No. 1:17-cv-00309-LMB-TCB (E.D. Va.). Served as an expert for plaintiff in an action alleging infringement of U.S. Patents 8,484,698, and 8,713,701, relating to out-of-band authentication using mobile devices. Case has settled. Contact: Josef Schenker, Esq., Ropes & Gray LLP, 1211 Avenue of the Americas, New York, NY 10036. (R)

237. *Level One Technologies, Inc. v. Penske Truck Leasing Co, Inc. and Penske Logistics, LLC*, Case No. 4:14-cv-1305-RWS (E.D. Mo.). Served as an expert for defendant in an action alleging trade secret misappropriation and contractual breach of confidentiality relating to a computer system for invoicing and rendering electronic payments in the trucking industry. Case has settled. Contact: Douglas Y. Christian, Esq., Ballard Spahr LLP, 1735 Market Street, 51st Floor, Philadelphia, PA 19103. (D,R)

238. *Uniloc USA Inc. et al. v. Netsuite Inc.*, Case No. 2:16-cv-00862-RWS (E.D. Texas) and *Uniloc USA Inc. et al. v. Nutanix Inc.*, Case No. 2:16-cv-01193-RWS (E.D. Texas). Served as an expert for plaintiff on claim construction issues in an action alleging infringement of U.S. Patent 6,324,578, relating to management of configurable application programs on a network. Later, the asserted claims were found invalid under 35 U.S.C. § 101. Contact: James J. Foster, Esq., Prince Lobel Tye LLP, One International Place, Suite 3700, Boston, MA 02110. (R)

239. *Muransky v. The Cheesecake Factory, Inc. et al.*, Case 2:17-cv-07569-CJC-RAO (C.D. Cal). Served as an expert for defendants in a case involving alleged violations of the Fair Credit Reporting Act, 15 U.S.C. § 1681 ("FCRA") arising from display of more than five digits of a credit card number on customer receipts. Case has settled. Contact: John L. McManus, Esq., Greenberg Traurig, P.A., 401 E. Los Olas Blvd., Suite 2000, Fort Lauderdale, FL 33301. (R)

240. *Twilio, Inc. v. Telesign Corporation*, IPR2016-00451, Patent Trial and Appeal Board (2016). Served as an expert for petitioner in an *inter partes* review of U.S. Patent 8,687,038, relating to verifying an online registration via an out-of-band telephone connection. Trial was not instituted. Contact: Contact: Carrie J. Richie, Esq., Cooley LLP, 3175 Hanover Street, Palo Alto, CA 94304. (R)

241. *Twilio, Inc. v. Telesign Corporation*, IPR2016-01688, Patent Trial and Appeal Board (2016). Served as an expert for petitioner in an *inter partes* review of U.S. Patent 9,300,792, relating to verification of telephone users based on characteristics of the telephone number, such as carrier and geographic location. All challenged claims found unpatentable. Contact: Contact: Carrie J. Richie, Esq., Cooley LLP, 3175 Hanover Street, Palo Alto, CA 94304. (R)

242. *EdiSync Systems, LLC v. Adobe Systems, Inc.*, Civil Action 12-cv-02231-MSK-MEH (D. Colo.). Served as an expert for Defendant Adobe in a case alleging infringement of U.S. Patent 5,799,320, relating to multi-author document editing systems. Case has settled. Contact: David Sipiora, Esq., Kirkpatrick Townsend & Stockton LLP, Suite 600, 1400 Wewatta Street, Denver, CO 80202.

243. *Ford Motor Company v. Versata Software, Inc. et al.*, Case No. 2:15-cv-10628-MFL-EAS (E.D. Mich.). Served as an expert for defendant/counter-plaintiff Versata in a declaratory judgment action relating to alleged infringement of U.S. Patents 5,825,651, 6,405,308 and 6,675,294, relating to product configuration through a graphical user interface; U.S. Patent 7,882,057, relating to complex product configuration using submodels; U.S. Patents 7,200,582 and 7,464,064, relating to checking the consistency of a product configuration model using set equations; and U.S. Patent 8,805,825, relating to product configuration in which attributes are prioritized. Result: jury vedict for Versata for $105 million. Contact: Steve Mitby, Esq., Mitby Pacholder Johnson PLLC, 1001 McKinney St., Suite 925, Houston, TX 77002. (D,R)

244. *Improved Search LLC v. Microsoft Corporation*, C.A. No. 16-cv-650-JFB-SRF (D.Del.). Served as an expert for plaintiff in an action alleging infringement of U.S. Patents 6,604,101 and 7,516,154, relating to methods and systems for translingual searching. Plaintiff sought a judgment of non-infringement so claim constructions could be appealed to the Federal Circuit.

Result: affirmed. Contact: Robert Yorio, Esq., Carr & Ferrell LLP, 120 Constitution Drive, Menlo Park, CA 94025. (D,R)

245. *Comcast Cable Communications, LLC v. Rovi Guides, Inc.*, IPR2017-00866, IPR2017-00867, Patent Trial and Appeal Board. Served as an expert for patent owner in *inter partes* reviews of U.S. Patent 8,713,595, relating to electronic television program guides. All challenged claims found unpatentable. Contact: Josef B. Schenker, Ropes & Gray LLP, 1211 Avenue of the Americas, New York, NY 10036. (D,R)

246. *Comcast Cable Communications, LLC v. Rovi Guides, Inc.*, IPR2017-00950, IPR2017-00951, IPR2017-00952, Patent Trial and Appeal Board. Served as an expert for patent owner in *inter partes* reviews of U.S. Patent 8,006,263, relating to electronic television program guides. All challenged claims found unpatentable. Contact: Josef B. Schenker, Ropes & Gray LLP, 1211 Avenue of the Americas, New York, NY 10036. (D,R)

247. *Unified Patents, Inc. v. Anuwave LLC.*, IPR2018-00223, Patent Trial and Appeal Board. Served as an expert for petitioner in *inter partes* reviews of U.S. Patent 8,295,862, relating to enabling short message system (SMS) communication without using IP services. Terminated by settlement. Contact: Robert High, Esq., Finnegan, Henderson, Farabow, Garrett & Dunner, LLP, 271 17th St. N.W., Suite 1400, Atlanta, GA 30363-6209. (R)

248. *Comcast Cable Communications, LLC v. Rovi Guides, Inc.*, IPR2017-01048, IPR2017-01049, IPR2017-01050, Patent Trial and Appeal Board. Served as an expert for patent owner in *inter partes* reviews of U.S. Patent 8,578,413, relating to electronic television program guides. All challenged claims found unpatentable. Contact: Josef B. Schenker, Ropes & Gray LLP, 1211 Avenue of the Americas, New York, NY 10036. (D,R)

249. *Comcast Cable Communications, LLC v. Rovi Guides, Inc.*, IPR2017-01065, IPR2017-01066, IPR2017-01143, Patent Trial and Appeal Board. Served as an expert for patent owner in *inter partes* review of U.S. Patent 8,046,801, relating to electronic television program guides. All challenged claims found unpatentable. Contact: Josef B. Schenker, Ropes & Gray LLP, 1211 Avenue of the Americas, New York, NY 10036. (D,R)

250. *DevFactory FZ-LLC v. Magnitude Software, Inc.*, Arbitration WIPOA300617. Served as an expert for Claimant DevFactory in an arbitration relating to a claim of breach of a software Technology Services Agreement. Arbitration has terminated. Contact: Steve Mitby, Esq., Ahmad, Zavitsanos, Anaipakos, Alavi & Mensing P.C., 1221 McKinney, Suite 2500, Houston, TX 77010.

251. *BookIT Oy Ajanvarauspalvelu v. Bank of America Corporation et al.*, 3:17-cv-02577-K (N.D. Texas). Served as an expert for BookIT in an action alleging infringement of U.S. Patents 8,589,194 and 9,177,268, relating to mediating communications between a service provider and a user in a telecommunications network. Plaintiff sought a judgment of non-infringement so that claim constructions could be appealed to the Federal Circuit, which affirmed. Contact:

Richard A. Kamprath, Esq., McKool Smith, 300 Crescent Court, Suite 1500, Dallas, TX 75201. (D,R)

252. *Promptu Systems Corporation v. Comcast Corporation et al.*, 2:16-cv-06516-JS (E.D. Pa.). Served as an expert for plaintiff in an action alleging infringement of U.S. Patents 7,047, 196, 7,260,538 and RE44,326, relating to voice control of television set-top boxes. Plaintiff is appealing an adverse claim construction. Contact: Robert Yorio, Esq., Carr & Ferrell LLP, 120 Constitution Drive, Menlo Park, CA 94025. (D,R)

253. *Snap Inc. v. Vaporstream, Inc.*, IPR2018-00200, IPR2018-00312, IPR2018-00369, IPR2018-00397, IPR2018-00404, IPR2018-00408, IPR2018-00416, IPR2018-00439, IPR2018-00455, IPR2018-00458, Patent Trial and Appeal Board. Served as an expert for patent owner in *inter partes* reviews of U.S. Patents 8,886,739, 8,935,351, 9,306,885, 9,306,886, 9,313,155, 9,313,156, 9,313,157, 9,338,111 and 9,413,711, relating to reducing traceability of electronic messages. In IPR2018-00312, IPR2018-00369, IPR2018-00404 and IPR2018-00408 and IPR2018-00458, all challenged claims were found unpatentable. In IPR2018-00397, IPR2018-00416, IPR2018-00439 and IPR2018-00455, and IPR2018-00458, all challenged claims were found patentable. Contact: Douglas R. Wilson, Esq., Heim, Payne & Chorush, LLP, Heritage Plaza, 111 Bagby, Suite 2100, Houston, TX 77002. (R)

254. *Shopify, Inc. v. DDR Holdings, LLC*, IPR2018-01008, IPR2018-01009, IPR2018-01010, IPR2018-01011, IPR2018-01012, IPR2018-01014, Patent Trial and Appeal Board. Served as an expert for petitioner in *inter partes* reviews of U.S. Patents 8,515,825, 9,043,228, and 9,639,876, relating to online affiliate marketing. In 2018-01008 and 2018-01009, the PTAB found all challenged claims patentable. In 2018-01010, 2018-01011, 2018-01012 and 2018-01014, the PTAB found most challenged claims unpatentable, affirmed by the Federal Circuit in 2018-01011, 2018-01012 and 2018-01014. Contact: Jinnie L. Reed, Esq., Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., One Financial Center, Boston. MA 02111. (D,R)

255. *Election Systems & Software, LLC v. Dominion Voting Systems, Inc.*, 1:17-cv-01172-CJB (D. Del.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patent 8,991,701, relating to an accessible voting system. Case has settled. Contact: Robert M. Evans, Jr., Esq., Lewis Rice LLC, 600 Washington Avenue, Suite 2500, St. Louis, MO 63101.

256. *General Motors LLC et al. v. Dorman Products, Inc. et al.*, 2:15-cv-129170-VAR-EAS (E.D. Mich.). Served as an expert for plaintiff in a case alleging copyright infringement and violation of the anti-circumvention provisions of the Digital Millennium Copyright Act relating to offloading of transmission control software from automobiles. Case has settled. Contact: Aaron A. Barlow, Esq., Jenner & Block LLP, 353 North Clark Street, Chicago, IL 60654-3456.

257. *PPS Data, LLC v. Jack Henry & Associates, Inc.*, Case 2:18-cv-00007-JRG (E.D. Texas). Served as an expert for plaintiff in a case alleging infringement of U.S. Patents 7,181,430, 7,216,106, 7,440,924, 7,624,071 and 8,126,809, relating to methods for processing check images in electronic payment systems. The '430, '924, '071 and '809 patent were found invalid by the Court under 35 U.S.C. § 101. After a jury trial, all asserted claims of the '106

patent were found not infringed and invalid. Contact: Anthony H. Son, Esq., Maddox Edwards, PLLC, 1900 K Street NW, Suite 725, Washington, DC 20006. (D,R,T)

258. *NEXT Payment Solutions, Inc. v. CLEAResult Consulting, Inc.*, Case 1:17-cv-08829 (N.D. Illinois). Served as an expert for defendant in a case alleging misappropriation of trade secrets relating to a system for managing energy rebate appointments and inspections. The trade secret counts were dismissed on summary judgment. Contact: Anthony Fuga, Esq., Holland & Knight LLP, 131 S. Dearborn Street, 30th Floor, Chicago, IL 60603. (R)

259. *Certain Digital Video Receivers and Related Hardware and Software Components*, USITC Inv. No. 337-TA-1103. Served as an expert for Complainants Rovi Corporation et al. against Comcast Corporation et al. in an International Trade Commission proceeding involving alleged infringement of U.S. Patents 9,294,799, relating to resumption on a second device of video paused on a first device, and 9,578,363, relating to providing video in a format suitable for a particular device. Those patents were subsequently dropped. Dr. Shamos testified about his observation of user focus groups. The ITC issued an exclusion order, upheld by the Federal Circuit. Contact: Richard A. Kamprath, Esq., McKool Smith, 300 Crescent Court, Suite 1500, Dallas, TX 75201. (D,R,T)

260. *ARM Ltd. et al. v. Complex Memory, LLC*, IPR2019-00053, IPR2019-00058, Patent Trial and Appeal Board. Served as an expert for petitioners in *inter partes* reviews of U.S. Patent 5,890,195, relating to cache memory (SRAM) integrated with main memory (DRAM) and U.S. Patent 6,658,576, relating to an energy-conserving computer operating system. Outcome: both IPRs terminated by settlement. Contact: Kevin Anderson, Esq., Duane Morris LLP, 505 9th Street, NW, Suite 1000, Washington, DC 20004-2166. (R)

261. *Supercell Oy v. Gree, Inc.*, PGR2018-00070, PGR2018-00071, Patent Trial and Appeal Board. Served as an expert for patent owner in post-grant reviews of U.S. Patents 9,770,656 and 9,770,664, relating to user interfaces for multiplayer online games. Institution denied in both PGRs. Contact: Scott McKeown, Esq., Ropes & Gray, L.L.P., 2099 Pennsylvania Avenue, Washington, DC 20006-6807. (R)

262. *Amazon Services, LLC v. South Carolina Dept. of Revenue*, Docket No. 17-ALJ-0238-CC. (S.C. Admin. Ct.). Served as an expert for South Carolina in a tax dispute relating to online sales through Amazon's Merchant Fulfillment Network. Result: Amazon found liable to pay tax. Contact: John Hoefer, Esq., Willoughby & Hoefer, P.A., 940 Richland St., P.O. Box 8416, Columbia, SC 29202-8416. (D)

263. *Supercell Oy v. Gree, Inc.*, PGR2019-00018, Patent Trial and Appeal Board. Served as an expert for patent owner in a post-grant review of U.S. Patent 9,891,799, relating to a method for moving a plurality of objects in a computer game. All claims found unpatentable under 35 U.S.C. § 101. Affirmed by the Federal Circuit. Contact: Scott McKeown, Esq., Ropes & Gray, L.L.P., 2099 Pennsylvania Avenue, Washington, DC 20006-6807. (D,R)

264. *Beal v. Outfield Brew House, LLC.*, Case 2:18-cv-4028 (W.D. Missouri). Served as an expert for plaintiff, representative of a putative class, in a case alleging violation of the

Telephone Consumer Protection Act, 47 U.S.C. § 227, specifically on the issue whether certain dialing systems constitute an "Automatic Telephone Dialing System" under the statute. The District Court ruled for defendant on summary judgment based on statutory interpretation, now on appeal to the Eighth Circuit. Contact: Bill Kenney, Esq., Bill Kenney Law Firm, LLC., 1100 Main St. Suite 1800, Kansas City, MO 64105. (D,R)

265. *Smartmatic USA Corporation v. Election Systems & Software, LLC,* IPR2019-00531, Patent Trial and Appeal Board. Served as an expert for patent owner in an inter partes review of U.S. Patent 8,096,471, relating to a ballot marking device having an attached ballot box and IPR2019-00527 of U.S. Patent 7,753,273. All '471 claims found patentable. Four '273 claims found patentable. Contact: Robert M. Evans, Jr., Esq., Lewis Rice LLC, 600 Washington Avenue, Suite 2500, St. Louis, MO 63101. (D,R)

266. *Curling et al. v. Raffensperger et al.,* Case 1:17-CV-2989AT (N.D. Georgia). Served as an expert for defendants Secretary of State and State Election Board in a case in which plaintiffs seek an injunction of forbid use of DRE voting machines in Georgia in 2019. Preliminary injunction denied as to the November 2019 election. Contact: Vincent Russo, Esq., Robbins Ross Alloy Belinfante Littlefield LLC, 500 14th Street N.W., Atlanta, GA 30318. (D,R)

267. *Smith v. Truman Road Development, LLC d/b/a No OtherPub,* Case 4:18-cv-670-NKL (W.D. Missouri). Served as an expert for plaintiff, representative of a putative class, in a case alleging violation of the Telephone Consumer Protection Act, 47 U.S.C. § 227, specifically on the issue whether certain dialing systems constitute an "Automatic Telephone Dialing System" under the statute. The District Court ruled for defendant on summary judgment based on statutory interpretation. Contact: Bill Kenney, Esq., Bill Kenney Law Firm, LLC., 1100 Main St. Suite 1800, Kansas City, MO 64105. (R)

268. *J. T. Hand et al. v. Beach Entertainment, LLC d/b/a Shark Bar,* Case 4:18-cv-668-NKL (W.D. Missouri). Served as an expert for plaintiff, representative of a putative class, in a case alleging violation of the Telephone Consumer Protection Act, 47 U.S.C. § 227, specifically on the issue whether certain dialing systems constitute an "Automatic Telephone Dialing System" under the statute. Partial summary judgment was granted, now on appeal to the Eighth Circuit. Contact: Bill Kenney, Esq., Bill Kenney Law Firm, LLC., 1100 Main St. Suite 1800, Kansas City, MO 64105. (R)

269. *WhereverTV, Inc. v. Comcast Corporation, et al.,* Case 2:18-cv-00529-UA-CM (M.D. Florida). Served as an expert for plaintiff in a case alleging infringement of U.S. Patent 8,656,431, relating to a system for integrating television and IPTV channels into a global interactive program guide. Contact: Adam Sanderson, Esq., Reese Marketos LLP, 750 N. St. Paul St., Suite 600, Dallas, TX 75201. (R)

270. *Droplets, Inc. v. Nordstrom, Inc.*, Case 3:12-CV-04049-JST (N.D. Cal.). Served as an expert for defendant in an action alleging infringement of U.S. Patent 8,402,115, relating to delivering interactive links for presenting applications on a client computer. Case has settled.

Contact: Benjamin Kleinman, Esq., Kilpatrick Townsend & Stockton LLP, Two Embarcadero Center Suite 1900, San Francisco, CA 94111. (D,R)

271. *Droplets, Inc. v. Yahoo!, Inc.*, Case 3:12-CV-03733-JST (N.D. Cal.). Served as an expert for defendant in an action alleging infringement of U.S. Patent 8,402,115, relating to delivering interactive links for presenting applications on a client computer. At trial, Plaintiff sought $250 million, was awarded $15 million. Contact: Kevin P. Anderson. Esq., Duane Morris LLP, 505 9th Street, N.W., Suite 1000, Washington, DC 20004-2166. (D,R,T)

272. *Square, Inc. v. 4361423 Canada, Inc. d/b/a AnywhereCommerce*, IPR2019-01651, IPR2019-01652, IPR2019-01653, and IPR2019-001654, Patent Trial and Appeal Board. Served as an expert for petitioner in inter-partes reviews of U.S. Patents 9,443,239, 9,613,351, and 9,818,107, relating to an attachment to a cellphone to facilitate credit card transactions. Result: all challenged claims umpatentable in all four IPRs. Contact: David Tennant, Esq., White & Case, L.L.P., 701 Thirteenth Street, NW, Washington, DC 20005. (R)

273. *Uniloc 2017 LLC. v. Netflix, Inc. et al.*, Lead Consolidated Case SACV8:18-cv-2055-GW-DFMx (C.D. Cal.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patents 8,407,609, relating to tracking the amount of time a presentation is watched online, and 9,721,273, relating to aggregating and presenting audio and video over a network. Case has settled. Contact: Sal Lim, Esq., Feinberg Day Kramer Alberti Lim Tonkovich & Belloli LLP, 1600 El Camino Real, Suite 280, Menlo Park, CA 94025. (R)

274. Comcast Cable Communications, LLC v. WhereverTV, Inc., IPR2019-01482, and IPR2019-001483, Patent Trial and Appeal Board. Served as an expert for Patent Owner in inter-partes reviews of U.S. Patent 8,656,431, relating to a system for integrating television and IPTV channels into a global interactive program guide. Institution denied in both cases. Contact: Adam Sanderson, Esq., Reese Marketos LLP, 750 N. St. Paul St., Suite 600, Dallas, TX 75201. (R)

275. Boom! Payments, Inc. v. Stripe, Inc. et al., Case 3:19-cv-0050-VC (N.D. Cal.). Served as an expert for Defendants Shopify, Inc. and Shopify (USA) Inc. in an action alleging infringement of U.S. Patents 8,429,084, and 9,235,857, relating to a system for confirming that a physical exchange of goods has occurred in an online transaction. All asserted claims found invalid under 35 U.S.C. § 101 upon Defendants' motion to dismiss. Contact: Vincent M. Ferraro, Esq., Mintz, Levin, Cohn, Ferris, Glovsky and Popeo P.C., Chrysler Center, 666 Third Avenue, New York, NY 10017.

276. Curb Mobility, LLC. v. Kaptyn, Inc. et al., Case 2:18-cv-02416-MMD-GWF (D. Nev.). Served as an expert for Defendants in an action alleging infringement of U.S. Patent 6,347,739, relating to a system for accepting credit cards in taxicabs. All asserted claims found invalid under 35 U.S.C. § 101. Contact: Robert Yorio, Esq., Carr & Ferrell LLP, 120 Constitution Drive, Menlo Park, CA 94025. (R)

277. Canon, Inc. v. TCL Electronics Holdings, Ltd., et al., Case 2:18-cv-00546-JRG (E.D. Texas). Served as an expert for Plaintiff in an action alleging infringement of U.S. Patent

7,810,130, relating to buffering video content, U.S. Patent 7,746,413, relating to interpreting instructions from a television remote control, and U.S. Patents 8,078,767, 8,346,986 and 8,713,206, relating to controlling a digital display when an external device has been disconnected. Case has settled. Contact: Kyotaro Ozawa, Esq., Paul Hastings LLC, Ark Hills Sengokuyama Mori Tower, Fortieth Floor 1-9-10 Roppongi, Minato-ku, Tokyo 106-0032 Japan. (D,R)

278. *Uniloc 2017 LLC v. Paychex, Inc.*, Case No. 1:19-cv-11272-RGS (D. Mass.), consolidated for certain purposes with *Uniloc 2017 LLC v. AthenaHealth Inc.*, Case No. 1:19-cv-11278-RGS (D. Mass.). Served as an expert for plaintiff in actions alleging infringement of U.S. Patent 6,324,578, relating to management of configurable application programs on a network. Paychex case dismissed for lack of jurisdiction. Cases have settled. Contact: James J. Foster, Esq., Prince Lobel Tye LLP, One International Place, Suite 3700, Boston, MA 02110. (D,R)

279. *H2O Resources, LLC v. Oilfield Tracking Services, LLC*, AAA Case No. 01-18-0003 6309 (Houston, Texas). Served as an expert for defendants in an arbitration alleging misappropriation of trade secrets under 18 U.S.C. § 1836 and 12 P.S. § 5301 (Pennsylvania) relating to a system for tracking movement of produced water generated from oil and gas drilling. Matter has settled. Contact: Paul Greco, Esq., Fisher Philips LLP, 150 N. Radnor Chester Road, Suite C300, Radnor, PA 19087. (D,R)

280. *J.T. Hand et al. v. ARB KC, LLC d/b/a Angels Rocks Bar,* Case 4:19-cv-108-BCW (W.D. Missouri). Served as an expert for plaintiff, representative of a putative class, in a case alleging violation of the Telephone Consumer Protection Act, 47 U.S.C. § 227, specifically on the issue whether certain dialing systems constitute an "Automatic Telephone Dialing System" under the statute. Contact: Bill Kenney, Esq., Bill Kenney Law Firm, LLC., 1100 Main St. Suite 1800, Kansas City, MO 64105. (R)

281. *Doohan et al. v. CTB Investors, LLC d/b/a PBR Big Sky Cowboy Bar et al.*, Case 4:19-cv-111-FJG (W.D. Missouri). Served as an expert for plaintiff, representative of a putative class, in a case alleging violation of the Telephone Consumer Protection Act, 47 U.S.C. § 227, specifically on the issue whether certain dialing systems constitute an "Automatic Telephone Dialing System" under the statute. Contact: Bill Kenney, Esq., Bill Kenney Law Firm, LLC., 1100 Main St. Suite 1800, Kansas City, MO 64105. (R)

282. *Taylor et al. v. KC Vin, LLC d/b/a/ Pizza Bar, et al.*, Case 4:19-cv-110-NKL (W.D. Missouri). Served as an expert for plaintiff, representative of a putative class, in a case alleging violation of the Telephone Consumer Protection Act, 47 U.S.C. § 227, specifically on the issue whether certain dialing systems constitute an "Automatic Telephone Dialing System" under the statute. Contact: Bill Kenney, Esq., Bill Kenney Law Firm, LLC., 1100 Main St. Suite 1800, Kansas City, MO 64105. (R)

283. *The Thomas L. Pearson and The Pearson Family Members Foundation, et al. v. The University of Chicago,* Case 4:18-cv-00099-GKF-FHM (N.D. Oklahoma). Served as an expert for plaintiffs in an action alleging breach of an agreement granting $100 million to the

University of Chicago. Case has settled. Contact: P. Scott Hathaway, Esq., Conner & Winters, LLP, 4000 One Williams Center, Tulsa, OK 74172-0148. (D,R)

284. *ESW Holdings, Inc. v. Roku, Inc.*, Case 6:19-cv-00044-ADA (W.D. Texas). Served as an expert for Plaintiff in an action alleging infringement of U.S. Patent 9,420,349, relating to monitoring a digital media stream and identifying media objects through fingerprinting. Jury verdict for defendent. Contact: Conor Civins, Esq., Bracewell LLP, 111 Congress Avenue, Suite 2300, Austin, TX 78701-4061 (D,R,T)

285. *Apple, Inc. v. Fintiv, Inc.*, IPR2020-00019, Patent Trial and Appeal Board. Served as an expert for Patent Owner in an inter-partes review of U.S. Patent 8,843,125, relating to a system and method for managing a mobile wallet through a Trusted Service Manager (TSM). Institution denied. Contact: Marcus Barber, Esq., Kasowitz Benson Torres LLP, 333 Twin Dolphin Drive, Suite 200, Redwood Shores, CA 94065. (D, R)

286. *Election Systems & Software, LLC v. Hart InterCivic, Inc.*, PGR2020-00031, Patent Trial and Appeal Board. Served as an expert for petitioner in a post-grant review of U.S. Patent 10,445,966, relating to conversion of printed ballots into cast vote records by optical character recognition. Result: all challenged claims unpatentable. Federal Circuit appeal was dismissed by Patent Owner. Contact: Robert M. Evans, Jr., Esq., Lewis Rice LLC, 600 Washington Avenue, Suite 2500, St. Louis, MO 63101. (D,R)

287. *Launius v. Flores, in her official capacity as Presiding Officer, Chair of Trustees, of Dallas County Community College District*, Cause DC-19-08429 (Dist. Ct., Dallas Cty., Texas). Served as an expert for contestee in an action alleging that an election held May 4, 2019 approving a $1 billion bond issue should be overturned because "the true outcome of the election cannot be ascertained." After a bench trial, the Court granted judgment in favor of contestee. Affirdmed by the Court of Appeals. The Texas Supreme Court declined review. Contact: Adam Rothey, Esq., Thompson & Horton LLP, 500 N. Akard St., Suite 3150, Dallas, TX 75201. (D,T)

288. *Slyce Acquisition, Inc. v. Syte - Visual Conception Ltd. et al.*, Case 6:19-cv-00257-ADA (W.D. Texas). Served as an expert for Plaintiff in an action alleging infringement of U.S. Patent 9,152,624, relating to navigating Web content via image analysis. Case has settled. Contact: Michael Chibib, Esq., Bracewell LLP, 111 Congress Avenue, Suite 2300, Austin, TX 78701-4061 (R)

289. *Early Warning Services, LLC v. William Grecia*, IPR2020-00763, Patent Trial and Appeal Board. Served as an expert for petitioner in an inter partes review of U.S. Patent 8,887,308, relating to generation of tokens authenticating users seeking access to digital cloud content. Review was not instituted, but the patent was found invalid on § 101 grounds in litigation. Contact: Cory Smith, Esq., Bryan Cave Leighton Paisner LLP, Two North Central Avenue, Suite 2100, Phoenix, AZ 85004-4406. (R)

290. *Supercell Oy v. Gree, Inc.*, PGR2020-00063, Patent Trial and Appeal Board. Served as an expert for patent owner in a post-grant review of U.S. Patent 10,406,432, relating to a method for providing information in a head-mounted display based on gaze sensing. Institution

denied. Contact: Scott McKeown, Esq., Ropes & Gray, L.L.P., 2099 Pennsylvania Avenue, Washington, DC 20006-6807. (R)

291. *Digital Retail Apps, Inc. v. H-E-B Grocery Company, LP*, Case 6:19-cv-00167-ADA (W.D. Texas). Served as an expert for defendant in an action alleging infringement of U.S. Patents 9,262,781, and 9,934,506, relating to use of QR codes in point-of-sale electronic payment applications. Case settled before trial. Contact: Andrew Klein, Esq., Perkins Coie LLP, 3150 Porter Drive, Palo Alto, CA 94304-1212. (D,R)

292. *HLFIP Holding, Inc. d/b/a/ Smart Communications IP Holdings v. Rutherford County, Tennessee et al.*, Case 3:19-cv-00714 (M.D. Tenn.). Served as an expert for intervenor VendEngine, Inc. in an action alleging infringement of U.S. Patent 10,291,617, relating to a computerized method of eliminating contraband in mail directed to correctional facilities. Defendant and intervenor prevailed on judgment on the pleadings that the patent was ineligible under 35 U.S.C. § 101. Contact: W. Edward Ramage, Esq., Baker Donelson, Bearman, Caldwell & Berkowitz, P.C., Monarch Plaza, Suite 1600, 3414 Peachtree Road N.E., Atlanta, GA 30326. (D,R)

294. *Broadband iTV, Inc. v. DISH Network, L.L.C.*, Case 6:19-cv-716-ADA (W.D. Texas). Served as an expert for Plaintiff in an action alleging infringement of U.S. Patents 9,648,388, 9,998,791, 10,028,026 and 10,506.269, relating to hierarchical navigation of video-on-demand television menus. Case has settled. Contact: Sal Lim, Esq., Kramer Day Alberti Lim Tonkovich & Belloli LLP, 577 Airport Boulevard, Suite 250, Burlingame, California 94010. (D,R)

295. *Arendi S.A.R.L. v. Blackberry Limited et al.*, Case 1:12-cv-01595-LPS (D. Del.). Serving as an expert for Defendant in an action alleging infringement of U.S. Patents 7,917,843 and 8,306,993, relating to a touchscreen mechanism for providing name and address handling by an associated information system. Contact: Jason W. Cook, Esq., McGuireWoods LLP, 2000 McKinney Ave., Suite 1400, Dallas, TX 75201. (D,R)

296. *Unified Patents, LLC v. Monarch Networking Solutions LLC*, IPR2020-01708, Patent Trial and Appeal Board. Served as an expert for petitioner in an inter partes review of U.S. Patent 7,756,507, relating to out-of-band authentication to obtain access to a digital network. All challenged claims found unpatentable. Contact: John M. Baird, Esq., Duane Morris LLP, 505 9th Street, N.W., Suite 1000, Washington, DC 20004-2166. (R)

297. *Aqua Connect, Inc. et al. v. TeamViewer U.S. Inc. et al.*, Case 1:18-cv-01572-MN (D. Del.). Served as an expert for Plaintiffs in an action alleging infringement of U.S. Patents RE46,386 and 8,924,502, relating to updating a user session in a Mach-derived system environment. At trial, the jury awarded Plaintiffs $5.7 million, before prejudgment interest. Contact: Ryan E. Hatch, Esq., Hatch Law, P.C., 13323 Washington Blvd., Suite 100, Los Angeles, CA 90066. (D,R,T)

298. *PayPal, Inc. v. RetailMeNot, Inc.*, Case 6:20-cv-00339-ADA (W.D. Texas). Served as an expert for PayPal in an action alleging infringement by RetailMeNot of U.S. Patents 6,917,961 and 7,693,937, relating to evolving interactive browser dialog boxes, U.S. Patent 7,659,905,

relating to pre-fetching data on a network, U.S. Patents 8,909,248 and 9,654,923, relating to provision of location-based services, and U.S. Patents 9,053,514 and 9,082,153, relating to automatic rebate and coupon redemption, and alleging in counterclaims infringement by PayPal of U.S. Patents 10,296,931, and 10,489,814, relating to accessing promotional offers displayed on websites by circumventing secure sandbox protections. Case has settled. Contact: Steve Marshall, Esq., Fish & Richardson, P.C., 1000 Maine Avenue, S.W., Suite 1000, Washington, DC 20024.

299. *Rovi Guides, Inc. et al. v. Comcast Corporation et al.*, Case No. 2:18-cv-00253-AG-FFM (C.D. Cal.). Served as an expert for plaintiffs in an action alleging infringement of U.S. Patents 7,827,585, relating to electronic TV program guides, 9,294,799, relating to an on-demand media delivery system, 9,369,741, relating to an interactive television reminder system, 9,578,363, relating to accessing video content via standard and high-definition channels, 9,621,956, relating to a television transport control interface, and 9,668,014, relating to methods for storing video assets. Case has settled. Contact: Richard A. Kamprath, Esq., McKool Smith, 300 Crescent Court, Suite 1500, Dallas, TX 75201.

300. *RetailMeNot, Inc. v. Honey Science, LLC,* Case 1:18-cv-00937-CFC-MPT (D. Del.). Served as an expert for defendant in an action alleging infringement of U.S. Patents 9,626,688, 10,290,015, 10,296,931, and 10,489,814, relating to accessing promotional offers displayed on websites by circumventing secure sandbox protections. Case has settled. Contact: Richard Birnholz, Esq., Irell & Manella LLP, 1800 Avenue of the Stars, Suite 900, Los Angeles, CA 90067-4276.

301. *Certain Video Processing Devices, Components Thereof, and Digital Smart Televisions Containing the Same*, USITC Inv. No. 337-TA-1222. Served as an expert for Complainant DivX, LLC against numerous smart television manufacturers in an International Trade Commission proceeding involving alleged infringement of, *inter alia*, U.S. Patent 8,832,297, relating to multiphase adaptive bitrate streaming. Case has settled. Contact: Jessica Perry, Esq., Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., One Financial Center, Boston, MA 02111.

302. *Google LLC v. Sonos, Inc.*, Case No. 3:20-cv-03845-EMC (N.D. Cal.). Served as an expert for Google in an action alleging infringement of U.S. Patent 7,065,206, relating to echo and noise control, 7,899,187, relating to digital rights management, 8,583,489, relating to notification of availability of media content, 10,140,375, relating to personalized network searching, and 10,229,586, relating to communication via wireless sensor systems. Result: all claims dismissed on summary judgment. Contact: Patrick D. Curran Esq., Quinn Emanuel Urquhart & Sullivan LLP, 111 Huntington Avenue, Suite 520, Boston, MA 02199. (R)

303. *Hitel Technologies LLC v. Nike, Inc.*, Case 6:20-cv-00591-ADA (W.D. Texas). Served as an expert for Nike in an action alleging infringement of U.S. Patent 7,689,617, relating to adaptive learning during Web navigation. Case was dropped by plaintiff during claim construction. Contact: Christopher Renk, Esq., Arnold & Porter Kaye Scholer LLP, 70 West Madison Street, Suite 4200, Chicago, IL 60602-4231.

304. *Hitel Technologies LLC v. Levi Strauss & Co.*, Case 6:20-cv-00589-ADA (W.D. Texas). Served as an expert for Levi Strauss in an action alleging infringement of U.S. Patent 7,689,617, relating to adaptive learning during Web navigation. Case was dropped by plaintiff during claim construction. Contact: Robert A. McFarlane, Esq., Hanson Bridgett LLP, 425 Market Street, 26th Floor, San Francisco, CA 94105.

305. *Unified Patents, LLC v. Caselas, LLC,* IPR2021-00799, Patent Trial and Appeal Board. Served as an expert for petitioner in an inter partes review of U.S. Patent 9,715,691, relating to providing information about charge-backs in credit reports. Result: all challenged claims found unpatentable. See Final Written Decision. Contact: Larissa Bifano, Esq., DLA Piper LLP, 33 Arch Street, 26th Floor, Boston, MA 02110-1447. (D,R)

306. *Fortinet, Inc. v. Forescout Technologies, Inc.*, Case 3:20-cv-03343-EMC-ADA (N.D. Cal.). Served as an expert for plaintiff in an action alleging infringement of U.S. Patents 8,458,314, relating to administration of network security privileges, 9,369,299, relating to methods for controlling remote network access, 9,503,421, relating to security information and event management, 9,894,034, relating to configuration of network endpoint security, and 9,948,662, relating to application layer network security. Case has settled. Contact: Rachel Blitzer, Esq., Skadden, Arps, Slate, Meagher & Flom LLP, One Manhattan West, New York, NY 10001. (R)

307. *Delaware North iGaming, Inc. v. Miomni Gaming Ltd. et al.*, C.A. 2019-0301-JTL (Del. Ch.). Served as a court-appointed expert in a matter alleging breach of contract to provide software and computing services. Case has settled. Contact: Vice-Chancellor J. Travis Laster, Court of Chancery, 500 North King Street, Wilmington, DE 19801.

308. *Zillow Group et al. v. International Business Machines Corp.*, IPR2020-01656, Patent Trial and Appeal Board. Served as an expert for patent owner in an *inter partes* review of U.S. Patent 8,315,904, relating to a computerized method for managing promotions. Review was instituted, but all Challenged Claims were found patentable. Contact: Gautam Patnaik, Esq., Desmarais, LLP, 1701 Pennsylvania Avenue NW, Suite 200, Washington, D.C. 20006. (D,R)

309. *ByteDance Ltd. and TikTok Inc. v. Triller, Inc.*, IPR2021-00099, Patent Trial and Appeal Board. Served as an expert for patent owner in an *inter partes* review of U.S. Patent 9,691,429, relating to systems and methods for creating music videos synchronized with an audio track. Case has settled. Contact: Brent Lorimer, Esq., Workman Nydegger, 60 East South Temple, Suite 1000, Salt Lake City, UT 84111. (D,R)

310. *Broadband iTV, Inc. v. Amazon.Com, Inc. et al.*, Case 6:20-cv-921-ADA (W.D. Texas). Served as an expert for Plaintiff in an action alleging infringement of U.S. Patents 9,648,388, 9,973,826, 10,028,026, 10,506,269, 10,536,750 and 10,536,751, relating to hierarchical navigation of video-on-demand television menus. Asserted claims found invalid as non-statutory, affirmed by the Federal Circuit. Contact: Sal Lim, Esq., Kramer Day Alberti Lim Tonkovich & Belloli LLP, 577 Airport Boulevard, Suite 250, Burlingame, California 94010. (D,R)

311. *DISH Network, L.L.C, v. Broadband iTV, Inc.*, IPR2020-01267, Patent Trial and Appeal Board. Served as an expert for patent owner in in an *inter partes* review of U.S. Patent 10,028,026, relating to hierarchical navigation of video-on-demand television menus. Case has settled. Contact: Sal Lim, Esq., Kramer Day Alberti Lim Tonkovich & Belloli LLP, 577 Airport Boulevard, Suite 250, Burlingame, California 94010. (D,R)

312. *DISH Network, L.L.C, v. Broadband iTV, Inc.*, IPR2020-01280, Patent Trial and Appeal Board. Served as an expert for patent owner in in an *inter partes* review of U.S. Patent 9,998,791, relating to hierarchical navigation of video-on-demand television menus. Case has settled. Contact: Sal Lim, Esq., Kramer Day Alberti Lim Tonkovich & Belloli LLP, 577 Airport Boulevard, Suite 250, Burlingame, California 94010. (D,R)

313. *DISH Network, L.L.C, v. Broadband iTV, Inc.*, IPR2020-01359, Patent Trial and Appeal Board. Served as an expert for patent owner in in an *inter partes* review of U.S. Patent 9,648,388, relating to hierarchical navigation of video-on-demand television menus. Case has settled. Contact: Sal Lim, Esq., Kramer Day Alberti Lim Tonkovich & Belloli LLP, 577 Airport Boulevard, Suite 250, Burlingame, California 94010. (D,R)

314. *Justservice.net, LLC. v. Dropbox, Inc.*, Case 6:20-cv-00070-ADA (W.D. Texas). Served as an expert for Defendants in an action alleging infringement of U.S. Patents 8,126,990, 8,195,776, 8,392,542, 9,722,993, 10,387,270 and 10,476,868, relating to network-based file backup systems. Case has settled. Contact: Monica Grewal, Esq., Wilmer Cutler Pickering Hale and Dorr LLP, 60 State Street, Boston, MA 02109.

315. *Dropbox, Inc. v. Motion Offense, LLP*, Case 6:20-cv-00251-ADA (W.D. Texas). Served as an expert for declaratory judgment plaintiff Dropbox in an action relating to alleged infringement of U.S. Patents 10,013,158, 10,021,052, 10,303,353, 10,587,548, and 10,613,737, relating to file-sharing systems. At trial, all asserted claims were found not infringed, not entitled to priority to 2012, and were found invalid. Contact: Monica Grewal, Esq., Wilmer Cutler Pickering Hale and Dorr LLP, 60 State Street, Boston, MA 02109. (D,R,T)

316. *HealthPlanCRM, LLC d/b/a Cavulus v. AvMed, Inc. et al.*, Case 01-19-0002-2557 (American Arbitration Association). Served as an expert for respondents in an arbitration alleging misappropriation of trade secrets concerning a customer relationship management (CRM) platform relating to Medicare Advantage Plans. Result: all claims dismissed by arbitrator. Contact: Chris Schwing, Esq., Holland & Knight LLP, 50 N. Laura Street, Suite 3900, Jacksonville, FL 32202. (R)

317. *Talavera et al. v. Global Payments, Inc. et al.*, Case 3:21-cv-1585-TWR-AGS (S.D. Cal.). Served as an expert for defendants in an action alleging infringement of copyright in a computer program that operates storefronts for online purchase of school supplies. Contact: Matthew D. Murphey, Esq., Murphey & Murphey, 120 Vantis Drive, Suite 300, Aliso Viejo, California 92656. (R)

318. *AlphaSense Oy et al. v. Sentieo, Inc.*, Case 1:21-cv-01011-CFC/JLH-MPT (D. Del.). Served as an expert for defendant in a case alleging infringement of U.S. Patent 11,023,675, relating to a

user interface for a financial document search engine. Case has settled. Contact: Jennifer Ying, Esq., Morris, Nichols, Arsht & Tunnell, LLP, 1201 North Market Street, 16th Floor, Wilmington, DE 19899-1347. (R)

319. *Triller, Inc. v. TikTok PTE, Ltd.*, IPR2022-00179, IPR2021-00180, and IPR2021-00181, Patent Trial and Appeal Board. Served as an expert for petitioner in *inter partes* reviews of U.S. Patents 9,294,430, 9,648,132, and 9,992,232, relating to systems and methods for locating and downloading digital music to a wireless device. Review was instituted in 2022-00179 and 2022-00180; denied in 2022-00181. Case has settled. Contact: Brent Lorimer, Esq., Workman Nydegger, 60 East South Temple, Suites 1000, Salt Lake City, UT 84111. (D,R)

320. *RFCyber Corp. v. Google LLC and Google Payment Corp.*, C.A. 2:20-cv-00274-JRG (E.D. Texas). Served as an expert for Google in an action alleging infringement of U.S. Patents 6,292,657, 8,118,218, 8,448,855, 9,189,787, 9,240,009, and 10,600,046, relating to electronic commerce payment methods. Case has settled. Contact: Heather Takahashi, Esq., Munger, Tolles & Olson LLP, 355 South Grand Avenue, Los Angeles, CA 90071.

321. *KioSoft Technologies, LLC et al. v. PayRange, Inc.*, PGR2021-00077, Patent Trial and Appeal Board. Served as an expert for patent owner in a post-grant review of U.S. Patent 10,719,833, relating to methods for authorizing payments wirelessly at vending machines. Result: claim 1 unpatentable; claims 2-27 not unpatentable. Contact: Matthew Argenti, Esq., Wilson Sonsini Goodrich & Rosati, 650 Page Mill Road, Palo Alto, CA 94304. (D,R)

322. *Fintiv, Inc. v. Apple, Inc.* C.A. 1:21-cv-00896-ADA (W.D. Texas). Serving as an expert for plaintiff in an action alleging infringement of U.S. Patent 8,843,125, relating to a system and method for managing a mobile wallet through a Trusted Service Manager (TSM). Defendant obtained summary judgment of non-infringement, reverse and remanded by the Federal Circuit. After remand, the District Court dismissed the case based on an adverse claim construction, now on appeal to the Federal Circuit. Contact: Marcus Barber, Esq., Kasowitz Benson Torres LLP, 333 Twin Dolphin Drive, Suite 200, Redwood Shores, CA 94065. (D, R)

323. *NRT Technology Corp. et al. v. Everi Holdings Inc. et al.*, C.A. 1:19-cv-00804-MN (D. Del.). Serving as an expert for Plaintiffs in an action alleging misuse of U.S. Patent 6,081,792, relating to structuring ATM and POS transactions with respect to withdrawal limits. Contact: Colby B. Springer, Esq., Polsinelli LLP (formerly at Lewis Roca Rothgerber LLP), Three Embarcadero Center, Suite 1350, San Francisco, CA 94111. (D,R)

324. *KioSoft Technologies, LLC et al. v. PayRange, Inc.*, PGR2021-00093, Patent Trial and Appeal Board. Served as an expert for patent owner in a post-grant review of U.S. Patent 10,891,614, relating to methods for authorizing payments wirelessly at vending machines. Claims 7, 11-13, 16 and 17 found not unpatentable. Contact: Matthew Argenti, Esq., Wilson Sonsini Goodrich & Rosati, 650 Page Mill Road, Palo Alto, CA 94304. (D,R)

325. *OANDA Corporation v. GAIN Capital Holdings Inc. et al.*, C.A. 3:20-cv-05784-ZNQ-DEA (D. N.J.). Served as an expert for Plaintiff in an action alleging infringement of U.S. Patents

7,146,336 and 8,392,311, relating to systems and methods of online currency trading. Case has settled. Contact: Drew Koning, Esq., Koning Zolar LLP 169 Saxony Road, Suite 115, Encitas, CA 92024-6780. (R)

326. *AnywhereCommerce, Inc. et al. v. Ingenico, Inc. et al.*, C.A. 1:19-cv-11457-IT (D. Mass.). Served as an expert for Defendants in an action alleging infringement misappropriation of trade secrets involving card reading devices connecting to cellphones via audio jack. Result: verdict for Defendants. Contact: Jeffrey Techentin, Esq., Adler Pollock & Sheehan P.C., One Citizens Plaza, 8th Floor, Providence, RI 02903-1345. (D,R,T)

327. *Samsung Electronics Co. Ltd. v. Aire Technology Ltd*,, IPR2022-00875, Patent Trial and Appeal Board. Served as an expert for petitioner in an *inter partes* review of U.S. Patent 8,205,249, relating to a method for carrying out a secure electronic transaction. Terminated by settlement prior to institution. Contact: Daniel Tishman, Esq., Fish & Richardson, P.C., 1000 Maine Avenue, S.W., Suite 1000, Washington, DC 20024. (R)

328. *Content Square SAS v. Quantum Metric, Inc.*, IPR2022-01167, Patent Trial and Appeal Board. Served as an expert for petitioner in an *inter partes* review of U.S. Patent 11,036,823, relating to a method for capturing and replaying user interactions with a webpage through a Document Object Model (DOM) tree. Terminated by settlement. Contact: Stephen R. Smith, Esq., Cooley LLP, 1299 Pennsylvania Avenue, NW, Suite 700, Washington, DC 20004-2400. (R)

329. *Open Text Corporation et al. v. SAS C6*, C.A. 2084-cv-02578-BLS1 (Mass. Super.). Served as an expert for Defendant in an action alleging breach of a software license agreement and misappropriation of trade secrets involving enterprise content management systems. Case has settled. Contact: Matthew C. Hurley, Esq., Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., One Financial Center, Boston, MA 02111. (R)

330. *ABG Intermediate Holdings 2, LLC at al. v. Bolt Financial, Inc.*, C.A. 22-cv-00473-IT (S.D. N.Y.). Served as an expert for Plaintiff in a case alleging breach of contract for development of an ecommerce software platform and misuse of proprietary information. Case has settled. Contact: Bill Natbony, Esq., Cadwalader, Wickersham & Taft LLP, 200 Liberty Street, New York, NY 10281.

331. *In the Matter of Certain Digital Set-Top Boxes and Systems and Services Including the Same*, USITC Inv. No. 337-TA-1315. Served as an expert for Complainant Broadband iTV, Inc. in an ITC proceeding alleging infringement of U.S. Patents 9,866,909, 9,936,240, 10,555,014, and 11,277,669, relating to hierarchical navigation of video-on-demand television menus. Case has settled. Contact: Sal Lim, Esq., Kramer Day Alberti Lim Tonkovich & Belloli LLP, 577 Airport Boulevard, Suite 250, Burlingame, California 94010. (R)

332. *Proofpoint, Inc. et al. v. Vade Secure Incorporated et al.*, Case 3:19-cv-04238-MMC (N.D. Cal.). Served as an expert for plaintiffs in an action alleging misappropriation of trade secrets and breach of employment and confidentiality agreements relating to cybersecurity technology.

Result: jury verdict for plaintiffs for $13.9 million. Contact: Sean Pak, Esq., Quinn Emanuel Urquhart & Sullivan, LLP, 50 California Street, 22nd Floor San Francisco, California 94111.

333. *Apple, Inc. v. Fintiv, Inc.*, IPR2022-00976, Patent Trial and Appeal Board. Served as an expert for Patent Owner in an inter-partes review of U.S. Patent 9,892,386, relating to a mobile financial services system for making payments using mobile wallets. All challenged claims found unpatentable, appeal to the Federal Circuit dismissed as moot. Contact: Marcus Barber, Esq., Kasowitz Benson Torres LLP, 333 Twin Dolphin Drive, Suite 200, Redwood Shores, CA 94065. (D,R)

334. *BJ's Wholesale Club Holdings, Inc. v. Walmart Apollo, LLC.*, IPR2022-01471, Patent Trial and Appeal Board. Served as an expert for Petitioner in an inter-partes review of U.S. Patent 10,121,133, relating to a method for retail self-checkout using a mobile device. Institution was denied. Contact: Michael Messinger, Esq., Vorys, Sater, Seymour and Pease LLP, 1909 K Street NW, Suite 900, Washington, DC 20006-1152. (D,R)

335. *KioSoft Technologies, LLC et al. v. PayRange, Inc.*, PGR2021-00084, Patent Trial and Appeal Board. Served as an expert for patent owner in a post-grant review of U.S. Patent 10,891,608, relating to methods for authorizing payments wirelessly at vending machines. Review was not instituted. Contact: Matthew Argenti, Esq., Wilson Sonsini Goodrich & Rosati, 650 Page Mill Road, Palo Alto, CA 94304.

336. *Versata Software, Inc., et al. v. Configit A/S,* Case 2:20-cv-09019-JAK-MRW (C.D. Cal.). Served as an expert for Plaintiff in an action alleging trade secret misappropriation and infringement of U.S. Patents 6,836,766 and 10,360,612, relating to product configuration systems. Case has settled. Contact: Michael Chibib, Esq., Bracewell LLP, 111 Congress Avenue, Suite 2300, Austin, TX 78701-4061 (R)

337. *Apple, Inc. v. Mozido-Corfire-Korea, Ltd.*, IPR2022-01149, Patent Trial and Appeal Board. Served as an expert for real party in interest Fintiv, Inc. in an inter-partes review of U.S. Patent 10,223,692, relating to a method for establishing temporary payment cards on a mobile device. All challenged claims found unpatentable. Contact: Marcus Barber, Esq., Kasowitz Benson Torres LLP, 333 Twin Dolphin Drive, Suite 200, Redwood Shores, CA 94065. (D,R)

338. *Apple, Inc. v. Mozido, Inc.*, IPR2022-01150, Patent Trial and Appeal Board. Served as an expert for real party in interest Fintiv, Inc. in an inter-partes review of U.S. Patent 9,189,785, relating to a method for selecting a debit network using a scannable code. Some challenged claims found unpatentable. Claims 5, 12, and 19 found patentable. Contact: Marcus Barber, Esq., Kasowitz Benson Torres LLP, 333 Twin Dolphin Drive, Suite 200, Redwood Shores, CA 94065. (D,R)

339. *In re Xyrem (Sodium Oxybate) Antitrust Litigation*, Case 5:20-md-02966-RS (N.D. Cal.). Deposed as a fact witnesss concerning expert reports submitted in case 149, *Jazz Pharmaceuticals, Inc. v. Roxane Laboratories, Inc.*, regarding methods for controlling the

distribution of sensitive drugs. Contact: Jack E. Pace III, Esq., White & Case LLP, 1221 Avenue of the Americas, New York, NY 10020 (D)

340. *Roku, Inc. v. IOENGINE, LLC,* IPR2022-01257, IPR2022-01258, Patent Trial and Appeal Board. Served as an expert for Patent Owner in inter-partes reviews of U.S. Patent 10,447,819, relating to a secure portable device implementing a plug-n-play VPN. Institution denied in both IPRs. Contact: Greg Chuebon, Esq., Dechert LLP, Three Bryant Park, 1095 Avenue of the Americas, New York, NY 10036-6797. (D,R)

341. *Beijing Meishe Network Technology Co., Ltd. v. TikTok Inc.*, C.A. 3:23-cv-06012-SI (N.D. Cal). Served as an expert for plaintiff in an action alleging copyright infringement and trade secret misappropriation of software for editing video and audio on mobile devices. Case has settled. Contact: Stephanie Wood, Esq., Cherian LLP, 8350 N. Central Expressway, Suite 1900, Dallas, TX 75206.

342. *Ivanti, Inc. v. Patch My PC, LLC,* C.A. 1:22-cv-00643-NYW-SKC (D. Col.). Served as an expert for defendant in an action alleging infringement of U.S. Patents 6,990,660, 7,823,147 and 8,407,687, relating to methods for updating software remotely over a network by using patch fingerprints. On summary judgment, all asserted claims were found paten-ineligible under 35 U.S.C. § 101. Contact: Daniel W. McDonald, Esq., Merchant & Gould P.C., Suite 220, 150 S. Fifth St., Minneapolis MN 55402. (D,R)

343. *Samsung Electronics, Co. Ltd. v. Cardware, Inc.*, IPR2023-00196, IPR2023-00210, IPR2023-00211, and IPR2023-00219, Patent Trial and Appeal Board. Served as an expert for Petitioner in inter-partes reviews of U.S. Patents 10,810,579 (IPR 196), 10,339,520 (IPRs 210, 211), and 11,176,538 (IPR 219), relating to a device for simulating a magnetic-stripe credit card. Institution was denied in IPR2023-00210; the remainder settled. Contact: Nicholas Stevens, Esq., Fish & Richardson, 60 South Sixth Street, Suite 3200, Minneapolis, MN 55402. (D,R)

344. *Snap, Inc. v. YouMap, Inc.*, IPR2022-00568, Patent Trial and Appeal Board. Served as an expert for Patent Owner in an inter-partes review of U.S. Patent 10,616,727, relating to providing location information associated with social network posts. Result: 16 substitute claims found patentable. Contact: Richard A. Catalina, Esq., Jardim, Meisner & Susser, P.C., 766 Shrewsbury Ave., Suite E-202, Tinton Falls, NJ 07724. (D,R)

345. *Everi Payments, Inc. v. Sightline Payments LLC,* IPR2022-00614, IPR2022-00663, and, IPR2022-00696, Patent Trial and Appeal Board. Served as an expert for Patent Owner in inter-partes reviews of U.S. Patents 8,708,809 (IPR 614), 8,998,708 (IPR 663), 9,196,123 (IPR 696), 9,466,176 (IPR 706), and 9,785,926 (IPR 707), relating to systems for funding casino gaming accounts also usable for non-gaming purposes. All challenged claims found unpatentable. Contact: James Murphy, Esq., Polsinelli LLP, 1000 Louisiana Street, 64 Fl, Houston, TX 77002. (D,R)

346. *SurgeTech, LLC v. Uber Technologies, Inc.*, C.A. 1:22-cv-00882-GBW-CJB (D. Del.). Served as an expert for plaintiff in an action alleging infringement of U.S. Patents 11,334,598, 11,360,999 and 11,475,047, relating to methods for allocating and pricing transportation

services based on supply, demand and performance factors. The asserted claims were found patent-ineligible on a motion of judgment on the pleadings, now on appeal to the Federal Circuit. Contact: James Glass, Esq., Quinn Emanuel Urquhart & Sullivan LLP, 51 Madison Avenue, 22nd Floor, New York, New York 10010.

347. *Samsung Electronics, Co. Ltd. v. Cardware, Inc.*, IPR2023-00314, Patent Trial and Appeal Board. Served as an expert for Petitioner in an inter-partes review of U.S. Patent 10,628,820, relating to a device for simulating a magnetic-stripe credit card. Case has settled. Contact: Nicholas Stevens, Esq., Fish & Richardson, 60 South Sixth Street, Suite 3200, Minneapolis, MN 55402. (R)

348. *Election Systems & Software, LLC v. Smartmatic USA Corporation*, 1:18-cv-01259-UNA (D. Del.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patent 8,096,471, relating to a ballot marking device having an attached ballot box. The asserted claims were found ineligible under 35 U.S.C. § 101. Affirmed by the Federal Circuit. Contact: Robert M. Evans, Jr., Esq., Lewis Rice LLC, 600 Washington Avenue, Suite 2500, St. Louis, MO 63101. (D,R)

349. *Textile Computer Systems, Inc. v. Broadway National Bank et al.*, 6:21-cv-00150-ADA (W.D. Tex.). Served as an expert for defendants in cases (including 6:21-cv-00152, 6:21-cv-00154, 6:21-cv-00156 and 6:21-cv-00157) alleging infringement of U.S. Patents 8,505,079, 8,533,802, 9,584,499, 10,148,659, and 10,560,454 relating to online authentication methods. Case has settled. Contact: Jeffrey D. Blake, Esq., Merchant & Gould, 191 Peachtree Street NE, Suite 3800, Atlanta, GA 30303.

350. *Kroy IP Holdings, LLC v. Groupon, Inc.*, 1:17-cv-01405-MN (D. Del.). Served as an expert for defendant in a case alleging infringement of U.S. Patent 6,061,660, relating to online incentive and award fulfillment methods. All claims found invalid on a motion to dismiss alleging collateral estoppel based on prior IPRs. Reversed and remanded by the Federal Circuit in February 2025 in 2023-1359. Contact: Ryan Phelan, Esq., Marshall, Gerstein & Borun, LLP, 233 South Wacker Drive, 300 Willis Tower, Chicago, IL 60606-6357.

351. *Underwood v. IFA Holdings, LLC dba Cygnal*, 1:21-cv-00830-ACA (N.D. Ala.). Served as an expert for defendant in a case alleging violations of the Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227. Case has settled. Contact: Stephen J. Baumgarner, Esq., Maynard Cooper & Gale LLP, 1901 Sixth Ave. North, Suite 1700, Birmingham, AL 35203.

352. *BJ's Wholesale Club Holdings, Inc. v. Walmart Apollo, LLC.*, IPR2022-01528, -01561, -01563, -01564, Patent Trial and Appeal Board. Served as an expert for Petitioner in an inter-partes reviews of U.S. Patent 10,803,435, relating to a method for retail self-checkout using a mobile device. Institution was denied in 1561. In 1528, 1563, and 1564, all challenged claims were found unpatentable. Contact: Michael Messinger, Esq., Vorys, Sater, Seymour and Pease LLP, 1909 K Street NW, Suite 900, Washington, DC 20006-1152. (D,R)

353. *Samsung Electronics, Co. Ltd. v. Cardware, Inc.*, PGR2023-00012, PGR2023-00013, Patent Trial and Appeal Board. Served as an expert for Petitioner in post-grant reviews of U.S.

Patent 11,328,286, relating to a device for simulating a magnetic-stripe credit card. Trial has been instituted in both cases. Case has settled. Contact: Nicholas Stevens, Esq., Fish & Richardson, 60 South Sixth Street, Suite 3200, Minneapolis, MN 55402. (R)

354. *Daedalus Blue, LLC v. Microsoft Corporation,* Case 6:20-cv-01152-ADA (W.D. Texas). Served as an expert for plaintiff in an action alleging infringement by of U.S. Patent 7,177,886, relating to reliable backup to remote servers, U.S. Patent 7,437,730, relating to scalable on-demand virtual machine deployment, U.S. Patent 8,381,209, relating to hypervisor access control mechanisms, U.S. Patent 8,572,612, relating to scaling of virtual machines in a cloud computing environment, and U.S. Patent 8,671,232, relating to policy-based data management in storage-area networks. Case has settled. Contact: Robin Curtis, Esq., Bunsow De Mory LLP, 701 El Camino Real, Redwood City, CA 94063.

355. *Ebates Performance Marketing, Inc. d/b/a Rakuten Rewards v. International Business Machines Corporation,* IPR2022-00646, Patent Trial and Appeal Board. Served as an expert for Patent Owner in an *inter partes* review of U.S. Patent 7,631,646, relating to single sign-on in a federated computing environment. Claims 1–4, 12–16, 18, 19 found unpatentable; claims 5–11, 17, and 20 not unpatentable. Contact: Karim Oussayef, Esq., Desmarais, LLP, 230 Park Avenue, 26th Floor, New York, NY 10169. (D,R)

356. *Roku, Inc. v. IOENGINE, LLC,* IPR2022-01551, IPR2022-01552, IPR2022-01553, IPR2022-01554, Patent Trial and Appeal Board. Served as an expert for Patent Owner in inter-partes reviews of U.S. Patent 10,972,584, relating to a secure portable device implementing a plug-n-play VPN. Institution denied in all four cases. Contact: Greg Chuebon, Esq., Dechert LLP, Three Bryant Park, 1095 Avenue of the Americas, New York, NY 10036-6797. (R)

357. *Apple, Inc. v. Fintiv, Inc.*, IPR2023-00398, IPR2023-00399, Patent Trial and Appeal Board. Served as an expert for Patent Owner in inter-partes reviews of U.S. Patents 10,438,196 and 9,208,488, respectively, relating to an infrastructure supporting multiple mobile wallet providers. Result: no challenged claims unpatentable in either case. Contact: Marcus Barber, Esq., Kasowitz Benson Torres LLP, 333 Twin Dolphin Drive, Suite 200, Redwood Shores, CA 94065. (D,R)

358. *IOENGINE, LLC v. Roku, Inc.*, Case 6:21-cv-01296-ADA (W.D. Texas). Served as an expert for Patent Owner in a case alleging infringement of U.S. Patents 10,447,819 and 10,972,584, relating to a secure portable device implementing a plug-n-play VPN. Result: jury verdict of non-infringement, now subject to post-trial motions. Contact: Greg Chuebon, Esq., Dechert LLP, Three Bryant Park, 1095 Avenue of the Americas, New York, NY 10036-6797. (D,R,T)

359. *United States v. David Gerald Minkkinen et al.,* Case 2:22-cr-00613 (S.D. W.Va). Serving as an expert for defendant Minkkinen in a case alleging theft of trade secrets relating to statewide unemployment insurance systems. Contact: Mike Nogay, Esq., Sellitti, Nogay & Nogay, PLLC, 3125 Pennsylvania Avenue, Weirton, West Virginia 26062. (R)

360. *Hum Industrial Technology, Inc. v. Amsted Rail Company, Inc.*, IPR2023-00538, IPR2023-00539, IPR2023-00540, Patent Trial and Appeal Board. Served as an expert for

Patent Owner in inter-partes reviews of U.S. Patents 9,365,223, 9,981,673, and 10,137,915, repectively, relating to systems for detecting anomalies in train consists and railcars. Results: in 538, some claims found unpatenable. In 539, all challenged claims unpatentable. In 540, all challenged claims unpatentable. All decision on appeal to the Federal Circuit. Contact: Ryan N. Miller, Esq., Fox Rothschild LLP, 2000 Market Street, 20th Floor, Philadelphia, PA 19103-3222. (R)

361. *Entain Corporate Services Ltd. et al. v. GAN (UK) Limited*, IPR2023-00027, Patent Trial and Appeal Board. Served as an expert for Patent Owner in an inter-partes review of U.S. Patent 8,821,296, relating to casino management systems for linking online and offline gaming accounts. Result: all challenged claims unpatentable. Contact: Jarrad M. Gunther, Esq., Duane Morris LLP, 30 South 17th Street, Philadelphia, PA 19103-4196. (D,R)

362. *Ex Parte Reexamination of U.S. Patent 8,762,498*, Control No. 90/015,238. Served as an expert for Unified Patents in a reexamination of U.S. Patent 8,762,498, drawn to Internet communications through a virtual domain. All reexamined claims cancelled. Contact: Michael H. Jones. Esq., Rothwell, Figg, Ernst & Manbeck, P.C., 901 New York Avenue, N.W., Suite 900 East, Washington. DC 20001. (R)

363. *FaceTec, Inc. v. iProov Ltd.*, Case 2:21-cv-02252-ART-BNW (D. Nevada). Serving as an expert for Defendant/Counterclaim Plaintiff in an action alleging infringement of U.S. Patents 10,776,471 and 11,157,606 by iProov, relating to authentication through facial recognition, and infringement of U.S. Patent 9,621,548 by FaceTec, relating to online identity validation. Contact: Ryan E. Hatch, Esq., Hatch Law, P.C., 13323 Washington Blvd., Suite 100, Los Angeles, CA 90066.

364. *Lexos Media IP, LLC v. Abt Electronics, Inc.*, Case 1:22-cv-04878 (N.D. Ill.). Served as an expert for Plaintiff in an action alleging infringement of U.S. Patents 5,995,102, 6,118,449, and 7,975,241, relating to modifying a cursor image. Case has settled. Contact: Ken P. Kula, Esq., Buether Joe & Counselors, LLC, 1700 Pacific Avenue, Suite 4750 Dallas, Texas 75201.

365. *Lexos Media IP, LLC v. Amazon.com, Inc.*, Case 2:22-cv-00169-JRG (E.D. Texas), consolidated with *Lexos Media IP, LLC v. Target Corporation*, Case 2:22-cv-00175-JRG (E.D. Texas) and *Lexos Media IP, LLC v. Office Depot*, Case 2:22-cv-00273-JRG (E.D. Texas). Served as an expert for Plaintiff in an action alleging infringement of U.S. Patents 5,995,102, 6,118,449, and 7,975,241, relating to modifying a cursor image. Case has settled as to all defendants. Contact: Ken P. Kula, Esq., Buether Joe & Counselors, LLC, 1700 Pacific Avenue, Suite 4750 Dallas, Texas 75201. (D,R)

366. *Lexos Media IP, LLC v. MSC Industrial Direct Co., Inc.*, Case 3:22-cv-01736-X (N.D. Texas). Served as an expert for Plaintiff in an action alleging infringement of U.S. Patents 5,995,102, 6,118,449, and 7,975,241, relating to modifying a cursor image. Case has settled. Contact: Ken P. Kula, Esq., Buether Joe & Counselors, LLC, 1700 Pacific Avenue, Suite 4750 Dallas, Texas 75201.

367. *Lexos Media IP, LLC v. Nike, Inc.*, Case 2:22-cv-00311-JRG (E.D. Texas), consolidated with *Lexos Media IP, LLC v. Walmart, Inc.*, Case 2:22-cv-00175-JRG (E.D. Texas), *Lexos Media IP, LLC v. Ulta Beauty, Inc.*, 2:22-cv-00292-JRG (E.D. Texas), *Lexos Media IP, LLC v. Northern Tool and Equipment, Inc.*, 2:22-cv-00355-JRG (E.D. Texas), *Lexos Media IP, LLC v. The Gap, Inc.*, 2:22-cv-00299-JRG (E.D. Texas), and *Lexos Media IP, LLC v. CDW LLC*, 2:22-cv-00275-JRG (E.D. Texas). Served as an expert for Plaintiff in an action alleging infringement of U.S. Patents 5,995,102, 6,118,449, and 7,975,241, relating to modifying a cursor image. Case has settled as to all defendants. Contact: Ken P. Kula, Esq., Buether Joe & Counselors, LLC, 1700 Pacific Avenue, Suite 4750 Dallas, Texas 75201. (D,R)

368. *Lexos Media IP, LLC v. Overstock.Com, Inc.*, Case 2:22-cv-02324-JAR-ADM (D. Kan.). Served as an expert for Plaintiff in an action alleging infringement of U.S. Patents 5,995,102, 6,118,449, and 7,975,241, relating to modifying a cursor image. Contact: Ken P. Kula, Esq., Buether Joe & Counselors, LLC, 1700 Pacific Avenue, Suite 4750 Dallas, Texas 75201.

369. *CosmoKey Solutions GmbH & Co. KG v. Duo Security, Inc.*, 1:18-cv-1477 (D. Del.). Served as an expert for plaintiff in a case alleging infringement of U.S. Patent 9,246,903, relating to online multi-factor authentication. A jury found the patent not infringed under 35 U.S.C. § 273 and invalid. Contact: Scott Weingaertner, Esq., Goodwin Procter LLP, The New York Times Building, 620 Eighth Avenue, New York, NY 10018. (D,R,T)

370. *United Services Automobile Association v. Truist Bank*, 2:22-cv-00291-JRG-RSP (E.D. Texas). Served as an expert for plaintiff in a case alleging infringement of U.S. Patents 9,818,090, 10,482,432, 11,182,753, 11,544,944, and 11,625,770, relating to remote check deposit. Defendant has counterclaimed, asserting infringement of U.S. Patents 7,336,813, 7,519,214, relating to determining skew in digital images, U.S. Patents 7,283,644, 7,899,210, and 9.760,797, relating to an image-based security system, and U.S. Patent 8,136,721, relating to improvements in optical character recognition. Case has settled. Contact: Anthony Rowles, Esq., Irell & Manella LLP, 1800 Avenue of the Stars, Los Angeles, CA 90067-4276.

371. *RFCyber Corp. v. Visa U.S.A., Inc.*, 6:22-cv-00697-ADA (W.D. Texas). Served as an expert for Visa in a case alleging infringement of U.S. Patents 8,118,218, 8,448,855, 9,189,787, and 9,240,009, relating to mobile payment devices and funding electronic purses. Case has settled. Contact: James C. Yoon, Esq., Wilson Sonsini Goodrich & Rosati P.C., 650 Page Mill Road, Palo Alto, CA 94304-1050. (R)

372. *SitePro, Inc. v. Waterbridge Resources, LLC et al.*, 6:23-cv-00115-ADA-DTG (W.D. Texas). Served as an expert for SitePro in a case alleging infringement of U.S. Patents 8,649,909, 9,342,078, 9,898,014, 10,488,871, 11,175,680, and 11,294,403, relating to remote control of fluid-handling devices. Case has settled. Contact: M. Craig Tyler, Esq., Perkins Coie LLP, 405 Colorado Street, Suite 1700, Austin, TX 78701-0089.

373. *Diogenes Limited and Colossus (IOM) Limited v. DraftKings Inc.*, 1:21-cv-01695-MN-CJB (D. Del.). Served as an expert for DraftKings in a case alleging infringement of U.S. Patents 8,721,439, 9,117,341, 9,275,516, 9,424,716, 9,704,338, 10,970,969, 10,997,822,and 11,200,779, relating to wagering methods, in particular, offering to cash out a wager on an event before the

event has terminated. Infringement allegations were dropped at to the first seven patents; the '779 patent was found invalid in IPR2023-00268. Case has settled. Contact: Jamie R. Lynn, Esq., Baker Botts L.L.P., 700 K Street N.W., Washington, DC 20001.

374. *Truist Bank v. United Services Automobile Association*, IPR2023-00183 (PTAB). Served as an expert for Patent Owner in an inter-partes review of U.S. Patent 11,182,753, relating to remote check deposit. Case has settled. Contact: Anthony Rowles, Esq., Irell & Manella LLP, 1800 Avenue of the Stars, Los Angeles, CA 90067-4276. (R)

375. *Redmon Jeang LLC v. TurnSignl, Inc. et al.*, 0:22-cv-02749-NEB-LIB (D. Minn.). Served as an expert for defendant in a case alleging infringement of U.S. Patents 11,443,395, 11,494,861, and 11,494,862, relating to systems and methods for contacting an attorney during a traffic stop. Defendant won a judgment on the pleadings that the claims were patent-ineligible. Contact: Mark Nelson, Esq., Barnes & Thornburg LLP, 2121 N. Pearl Street, Suite 700, Dallas, TX 75201.

376. *TurnSignl, Inc. et al. v. Redmon Jeang LLC*, IPR2024-00103, IPR2024-00104, IPR2024-00105, Patent Trial and Appeal Board. Served as an expert for Patent Owner in inter-partes reviews of U.S. Patents 11,443,395, 11,494,861, and 11,494,862, repectively, relating to systems and methods for contacting an attorney during a traffic stop. Petitions were withdrawn before institution based on the outcome of case 375, above. Contact: Mark Nelson, Esq., Barnes & Thornburg LLP, 2121 N. Pearl Street, Suite 700, Dallas, TX 75201. (R)

377. *MessageBird, B.V. et al. v. Validity, Inc.* , 1:22-cv-12116-NMG (D. Mass.). Served as an expert for defendant in a case alleging infringement of U.S. Patent 8,719,356, relating to monitoring deliverability of electronic mail. Case has settled. Contact: Jennifer Hayes, Esq., Nixon Peabody LLP, 305 S. Grand Avenue, Suite 4100, Los Angeles, CA 90071-3151.

378. *Cardware, Inc. v. Samsung Electronics, Co. Ltd. et al*, 2:22-cv-00141-JRG-RSP (E.D. Texas). Served as an expert for Defendants in a case alleging infringement of U.S. Patents 10,339,520, 10,628,820, 10,810,579, 11,176,538, and 11,328,286, relating to a device for simulating a magnetic-stripe credit card. Case has settled. Contact: Nicholas Stevens, Esq., Fish & Richardson, 60 South Sixth Street, Suite 3200, Minneapolis, MN 55402.

379. *Cortex MCP, Inc. v. VISA Inc.*, 5:23-cv-05720-FB (N.D. Cal.). Serving as an expert for defendant in an action alleging infringement of U.S. Patents 9,251,531, 9,954,854, 10,749,859, and 11,329,973, all relating to tokenization methods for securing electronic credentials, e.g., in electronic payment systems. Contact: Matthew Argenti, Esq., Wilson Sonsini Goodrich & Rosati, 650 Page Mill Road, Palo Alto, CA 94304.

380. *VISA Inc. v. Cortex MCP, Inc.*, IPR2024-00486, IPR2024-00487, IPR2024-00488, IPR2024-00489, and IPR2024-00490, Patent Trial and Appeal Board. Served as an expert for Petitioner in inter partes reviews of U.S. Patents 9,251,531 (IPR2024-00486, IPR2024-00487), 9,954,854 (IPR2024-00488), 10,749,859 (IPR2024-00489), and 11,329,973 (IPR2024-00490), all relating to tokenization methods for securing electronic credentials, e.g., in electronic payment systems. Outcomes: in -00486, Claims 1, 3–6, 8–18 of 1-20 unpatentable; in -00487,

all claims unpatentable; in -00488, no claims unpatentable; in -00489, claims 1, 3–9, 11–18, and 20 of 21 unpatentable; in -00490, claims 1, 3–8, 10–16 of 17 unpatentable. Contact: Matthew Argenti, Esq., Wilson Sonsini Goodrich & Rosati, 650 Page Mill Road, Palo Alto, CA 94304.

381. *Snap Inc. v. Playvuu, Inc.*, IPR2023-00848 (PTAB). Served as an expert for Patent Owner in an inter-partes review of U.S. Patent 10,931,911, relating to compositing multimedia content. Patent Owner requested adverse judgment. Contact: David Tsai, Esq., Pillsbury Winthrop Shaw Pittman LLP, Four Embarcadero Center, 22nd Floor San Francisco, CA 94111-5998. (R)

382. *Zigen, Inc. et al. v. Cabin Management Solutions et al.*, 4-23-cv-00210 (S.D. Texas). Serving as an expert for defendant in an action alleging misappropriation of trade secrets relating to customized aircraft audiovisual systems. Contact: Peter Vogel, Esq., VogelITLaw, 5925 Forest Lane, Suite 136, Dallas, TX 75230. (R,T)

383. *The Chosen, Inc. v. Angel Studios, Inc. v. Come and See Foundation, Inc.*, AAA 01-23-001-5829. Served as an expert for interested party Educational Media Foundation in an action alleging software copyright infringement. Contact: Thor Y. Urness, Esq., Bradley Arant Boult Cummings LLP, Roundabout Plaza, 1600 Division Street, Suite 700, Nashville, TN 37203.

384. *AirSlate, Inc. v. Inkit, Inc.*, 1:23-cv-01307-RGA-SRF (D. Del.). Served as an expert for defendant in a case alleging infringement of U.S. Patent 11,449,815, relating to automating document workflows. Result: Plaintiff dismissed the case before trial. Contact: John M. Hintz, Esq., Frost Brown Todd LLP, 205 E. 42nd Street, Suite 1900, New York, NY 10176. (R)

385. *CSC Serviceworks, Inc.. v. PayRange, Inc.*, IPR2023-01186, Patent Trial and Appeal Board. Served as an expert for patent owner in a post-grant review of U.S. Patent 8,856,045, relating to methods for authorizing payments wirelessly at vending machines. Case has settled. Contact: Matthew Argenti, Esq., Wilson Sonsini Goodrich & Rosati, 650 Page Mill Road, Palo Alto, CA 94304. (R)

386. *Mynette Technologies, Inc. et al. v. United States et al.*, 1:16-cv-01647-RTH (Fed. Claims). Served as an expert for plaintiff in a case alleging infringement of U.S. Patents 7,719,425, 7,924,156, 9,524,458, and 9,569,777, relating to the use of NFC chips in passports. Case has settled. Contact: Robert Yorio, Esq., Carr & Ferrell LLP, 120 Constitution Drive, Menlo Park, CA 94025. (R)

387. *Ex Parte Reexamination of U.S. Patents RE46,386 and 8,924,502*, Control Nos. 90/019,142 and 90/019,143. Served as an expert for patent owner Aqua Connect in a reexamination of U.S. Patents RE46,386 and 8,924,502, relating to updating a user session in a Mach-derived system environment. All reexamined claims affirmed. Contact: Ryan E. Hatch, Esq., Hatch Law, P.C., 13323 Washington Blvd., Suite 100, Los Angeles, CA 90066. (R)

388. *Touchstream Technologies, Inc. v. Charter Communications, Inc. et al.*, 2:23-cv-00059-JRG (E.D. Texas). Served as an expert for defendant in a case alleging infringement of U.S.

Patents 8,356,251, 11,048,751, and 11,086,934, relating to controlling a television display from a mobile device. Dr. Shamos testified at a jury trial on noninfringement and invalidity. Result: jury verdict of noninfringement. In a 38-page opinion denying Touchstream's motion for a new trial, Judge Gilstrap referred to Dr. Shamos's' testimony 61 times. Contact: Dina M. Hayes, Esq., Arnold & Porter Kaye Scholer LLP, 70 West Madison Street, Suite 4200, Chicago, IL 60602-4231. (D,R,T)

389. *Autoscribe Corporation v. Repay Holdings Corporation et al.*, 1:24-cv-04282-SCJ (N.D. Georgia). Served as an expert for Repay defendants in a case alleging infringement of U.S. Patent 11,620,621, relating to tokenization in an electronic payment system. Case has settled as to the Repay defendants. Contact: David Harper, Esq., Haynes and Boone, LLP, 2801 N. Harwood Street, Suite 2300 Dallas, TX 75201. (R)

390. *SportsCastr Inc. d/b/a PANDA Interactive v. Genius Sports Ltd.*, 2:23-cv-0471-JRG (E.D. Texas). Serving as an expert for plaintiff in a case alleging infringement of U.S. Patents 10,425,697, 10,805,687, 11,039,218, and 11,871,088, all relating to synchonizing livestreamed video with related event information. Contact: Patrick Lafferty, Esq., King & Spalding LLP, 1700 Pennsylvania Avenue, NW, Suite 900, Washington, D.C. 20006. (R)

391. *SportsCastr Inc. d/b/a PANDA Interactive v. Sportradar Group AG*, 2:23-cv-0472-JRG (E.D. Texas). Serving as an expert for plaintiff in a case alleging infringement of U.S. Patents 10,425,697, 10,805,687, 11,039,218, and 11,871,088, all relating to synchonizing livestreamed video with related event information. Contact: Patrick Lafferty, Esq., King & Spalding LLP, 1700 Pennsylvania Avenue, NW, Suite 900, Washington, D.C. 20006.

392. *Adeia Guides, Inc. v. Videotron Ltd.*, T-841-21 (Fed. Ct. of Canada). Serving as an expert for plaintiff in a case alleging infringement of Canadian Patents 2,553,922, relating to providing a streaming version of a broadcast television program, 2,635,571, relating to delivering television program based on the receiver's display capabilities, 2,775,674, relating to selectively disabling trick play functions, and 2,967,187, relating to monitoring a user's viewing progress with a serial television program. Contact: Daniel Cappe, Esq., Goodmans LLP, Bay Adelaide Centre - West Tower, 333 Bay Street, Suite 3400, Toronto, ON M5H 2S7.

393. *Ex Parte Reexamination of U.S. Patents 10,447,819 and 10,972,584*, Control Nos. 90/019,292 and 90/019,293. Served as an expert for patent owner IOENGINE, LLC in reexaminations of U.S. Patents 10,447,819 and 10,972,584, relating to relating to a secure portable device implementing a plug-n-play VPN. Contact: Greg Chuebon, Esq., Dechert LLP, Three Bryant Park, 1095 Avenue of the Americas, New York, NY 10036-6797. (R)

394. *Thentia Corporation v. Julian Cardarelli, GovCore Canada, Inc., et al.*, CV-24-00726669-0000 (Ontario Super. Ct.). Served as an expert for plaintiff in a case alleging misappropriation of trade secrets relating to a system for automating regulatory agency activities. Contact: Dena Varah, Esq., Lenczner Slaght LLP, 130 Adelaide St. W., Suite 2600, Toronto, ON, Canada M5H 3P5. (R)

395. *Ex Parte Reexamination of U.S. Patent 8,407,722*, Control No. 90/019,662. Served as an expert for Unified Patents in a reexamination of U.S. Patent 8,407,722, drawn to an Internet routing architecture. Contact: Jessica Marks, Esq., Unified Patents, 4445 Willard Avenue, Suite 600, Chevy Chase, MD 20815. (R)

396. *Monticello Enterprises LLC. v. Macy's Inc., et al.,* 6:23-00753-XR (W.D. Texas) (lead case), consolidated with *Monticello Enterprises LLC. v. Petco Health & Wellness Co, Inc. et al.,* 6:23-cv-00761-XR and *Monticello Enterprises LLC. v. Starbucks Corporation,* 6:23-cv-00763. Serving as an expert for defendants in a case alleging infringement of U.S. Patents 9,824,408, 10,121,186, 10,643,266, 11,004,139, 11,461,828, and 11,468,497, relating to on-line, wireless, and in-app payment systems. Contact: Bryan P. Clark, Esq., The Webb Law Firm, One Gateway Center, 420 Ft. Duquesne Blvd., Suite 1200, Pittsburgh, PA 15222. (R)

397. *Ex Parte Reexamination of U.S. Patent 8,370,457*. Served as an expert for Unified Patents in a reexamination of U.S. Patent 8,370,457, drawn to network communication through a virtual domain. Contact: Stephen A. Courtiaus, Esq., Slater Matsil, LLP, 17304 Preston Rd., Suite 900, Dallas, TX 75252. (R)

398. *Hanshow Technology Co., Ltd. v. SES-Imagotag SA et al.,* 2:23-cv-00174-RWS-RSP (E.D. Texas). Served as an expert for defendants in a case alleging infringement of U.S. Patents 8,346,210, 9,641,994, and 11,540,216, relating to managing services through the use of RFID and NFC tags. Case has settled. Contact: Matt Acosta, Esq., Platt Richmond PLLC, 101 N. Riverfront Blvd., Suite 150, Dallas, TX 75207. (D,R)

399. *NEC Corporation. v. Becker Professional Development Corporation,* 4:24-cv-00647-O (N.D. Texas). Served as an expert for defendant in a case alleging infringement of U.S. Patents 8,595,779, relating to pausing live video for time-shifted viewing, and 8,909,809, relating to adaptive bitrate streaming. Case has settled. Contact: Jacob Zambrzycki, Esq., Moore & VanAllen, 100 N. Tryon Street., Suite 4700, Charlotte, NC 28202-4003. (D,R)

400. *Hanshow Technology Co., Ltd. v. SES-Imagotag SA et al.,* 2:23-cv-00617-RWS-RSP (E.D. Texas). Served as an expert for defendants in a case alleging infringement of U.S. Patents 10,701,321, relating to analysis of images in video surveillance systems, and 11,087,272, relating to identifying and counting items on store shelves through robotic image capture. Case has settled. Contact: Matt Acosta, Esq., Platt Richmond PLLC, 101 N. Riverfront Blvd., Suite 150, Dallas, TX 75207. (R)

401. *Caselas, LLC v. Capital One, NA,* 6:22-cv-0293-ADA (W.D. Texas) and *Caselas, LLC v. Wells Fargo Bank, NA,* 6:22-cv-0295-ADA (W.D. Texas). Served as an expert for defendants in a case alleging infringement of U.S. Patents 7,529,698, 7,661,585, 9,117,206, 9,117,230, and 9,715,691, all relating to providing information about charge-backs in credit reports. Result: all asserted claims found patent-ineligible in 1:21-cv-03480-VMC (N.D. Ga.), affirmed by the Federal Circuit. Contact: Robert A, Angle, Esq., Troutman Pepper Locke LLP, Troutman Pepper Building, 1001 Haxall Point, 15th Floor Richmond, VA 23219.

402. *American Airlines, Inc. and Southwest Airlines Co. v. Intellectual Ventures I LLC,* IPR2025-00785, IPR2025-01511, Patent Trial and Appeal Board. Served as an expert for Petitioners in inter partes reviews of U.S. Patents 7,257,582 and 7,712,080, relating to methods of parallel processing. Institution denied in 00785 and discretionarily denied in 01511. Contact: John Campbell, Esq., McKool Smith Hennigan, 303 Colorado Street, Suite 2100, Austin, TX 78701. (R)

403. *Mudflap, Inc. v. Sky Capital Group, LLC et al.*, (Sup. Ct. Santa Clara Cty., CA), *Mudflap, Inc. v. Patterson et al.*, JAMS Case No. 5100001313, and *Mudflap, Inc. v. Patterson et al.*, AAA Case No. 01-23-0002-8859. Served as an expert for Complainant in arbitrations concerning misappropriation of trade secrets concerning a closed-loop system for truck fuel purchases. Cases were resolved favorbly to Mudflap. Contact: Kevin O'Brien, Esq., Alto Litigation, 4 Embarcadero Center, San Francisco, CA 94111.

404. *Apple, Inc. v. Varia Holdings LLC,* IPR2024-01362, -01363, -01364, Patent Trial and Appeal Board. Served as an expert for Patent Owner in inter partes reviews of, respectively, U.S. Patents 8,381,974, 9,405,947, and 8,127,984, relating to methods of simulating NFC signals. All challenged claims found unpatentable in each IPR. Contact: Timothy Gilman, Esq., Kasowitz LLP, 1633 Broadway, New York, NY 10019. (D,R)

405. *Election Systems & Software, LLC v. Hart InterCivic, Inc.*, PGR2025-00066, Patent Trial and Appeal Board. Served as an expert for petitioner in a post-grant review of U.S. Patent 12,125,319, relating to conversion of printed ballots into cast vote records by optical character recognition. Petition was discretionarily denied. Contact: Robert M. Evans, Jr., Esq., Lewis Rice LLC, 600 Washington Avenue, Suite 2500, St. Louis, MO 63101. (R)

406. *Google Inc. v. Cardware, Inc.*, IPR2025-01344 and -01361, Patent Trial and Appeal Board. Served as an expert for petitioner in *inter partes* reviews of U.S. Patents 10,810,579 and 11,620,634, respectively, relating to a tokenizing electronic payment device. Both petitions were discretionarily denied. Contact: Daniel Zeilberger, Esq., Paul Hastings, LLP., 2050 M Street NW, Washington, DC 20036. (R)

407. *Truesight Communications, LLC v. Lenovo Group Limited, et al.*, 2:24-cv-00031-JRG (E.D. Texas). Served as an expert for defendants in a case alleging infringement of U.S. Patents 8,745,749, relating to virtualization of an SD card, and 8,898,803, relating to a kiosk delivery system for electronic content. Case has settled. Contact: Amanda N. Brouillette, Esq., Kilpatrick Townsend & Stockton, LLP, Suite 2100, 1100 Peachtree Street NE, Atlanta, GA 30309-4538. (D,R)

408. *Google Inc. v. Cardware, Inc.*, IPR2025-01513 and -01514, Patent Trial and Appeal Board. Served as an expert for petitioner in *inter partes* reviews of U.S. Patents 10,339,520 and 11,765,538, respectively, relating to device that emulates a a credit card. Both petitions were discretionarily denied. Contact: Daniel Zeilberger, Esq., Paul Hastings, LLP., 2050 M Street NW, Washington, DC 20036. (R)

409. *Cardtek International, Ltd. et al. v. Chick-Fil-A, Inc.*, 2:25-cv-00091-JRG-RSP (E.D. Texas). Served as an expert for defendant in a case alleging infringement of U.S. Patents 7,039,593, 8,600,770, and 10,628,818, relating to dividing a payment amount due among multiple electronic payment sources. Case has settled. Contact: Ryan K. Walsh, Esq., Jones Day, 1221 Peachtree St. N.E., Suite 400, Atlanta, GA 30361.

410. *Intellectual Ventures I LLC et al. v. American Airlines, Inc.*, 4:24-cv-00980-ALM (E.D. Texas). Serving as an expert for Defendant in a case alleging infringement of U.S. Patent 7,712,080, relating to methods of parallel processing. Contact: Alan Block, Esq., McKool Smith Hennigan, One California Plaza, 300 South Grand Avenue, Suite 2900, Los Angeles, CA 90071. (R)

411. *Okta, Inc. et al. v. Thales DIS France SAS*, IPR2026-00327, Patent Trial and Appeal Board. Serving as an expert for Petitioner in an inter partes review of U.S. Patent 12,254,103, relating to managing secuirty policies for an electronic wallet in a mobile device. Contact: Rick Besenius, Esq., Fish & Richardson PC, 60 South 6th Street, Suite 3200, Minneapolis, MN 55402. (R)

412. *IntelliSafe Analytics, LLC v. Nicholas Anthony et al.*, GD-26-000318 (Allegheny Cnty. PA C.C.P.). Serving as an expert for Plaintiff in a case alleging breach of a software and firmware development contract. Contact: Matthew D. Gailey, Esq., Cozza Law Group, 400 Holiday Drive, Suite 210 Pittsburgh, PA 15220. (R,T)

413. *Yieldmo, Inc. v. TEADS, Inc. et al.*, 1:25-cv-737-PAE (S.D.N.Y). Served as an expert for Plaintiff in a case alleging infringement of U.S. Patents 10,832,729, 10,832,780, 11,604,918, and 12,271,683, relating to methods for serving interactive content over the Internet. The asserted claims were found invalid under 35 U.S.C. § 101. Contact: C. Graham Gerst, Esq., Global IP Law Group, LLC, 55 W. Monroe Street, Suite 3400, Chicago, IL 60603.

414. *Schoeneckers, Inc. v. ITA Group, Inc. et al.*, 4:25-cv-00002-HCA (S.D. Iowa). Serving as an expert for Defendants in a case alleging infringement of U.S. Patents 8,768,764, 9,779,421, and 11,501,339, relating to methods for embedding a portable incentive application on a website. Contact: Nicholas F. Miller, Esq., Brick Gentry, P.C., 6701 Westown Pkwy # 100, West Des Moines, IA 50266. (R)

415. *Shirokov and Firebird GT Limited v. Ardatovskiy et al.*, 25-cv-02701-EMC (N.D. Cal.). Serving as an expert for Plaintiffs in a case alleging infringement of copyrights in a computer system for selling rail tickets. Contact: Thomas E. Bejin, Esq, Taft Stettinius & Hollister LLP., 27777 Franklin Road, Suite 2500, Southfield, MI 48034. (R)

416. *MachiningCloud, Inc. et al. v. Kennametal Inc.*, 2:25-cv-02158-SB-AJR and 2:25-cv-10745-SB-AJR (C.D. Cal.). Serving as an expert for Defendants in a case relating to U.S. Patents 9,817,387, 10,754,322, and 10,430,675, relating to methods for configuring machine tool assemblies. Contact: Neil Elan, Esq., Stubbs, Alderton & Markiles, LLP, 2801 N. Harwood Street, Suite 2300 Dallas, TX 75201. (D,R)

Legislative Testimony

Testimony before the Texas Legislature concerning electronic voting, Austin, Texas, 1987. Result: passage of the Texas Electronic Voting Law.

Invited testimony before the British House of Lords, Subcommittee B of the European Union Committee, April 20, 2000. Subject: European regulation of eCommerce.

Testimony before the Pennsylvania Legislature State Government Committee concerning electronic voting, Philadelphia, March 10, 2004.

Testimony before the United States Commission on Civil Rights concerning electronic voting, Washington, DC, April 9, 2004.

Testimony before the U.S. House of Representatives Committee on Science concerning voting system certification, Washington, DC, June 24, 2004.

Testimony before the U.S. House of Representatives Committee on House Administration concerning voting system security, Washington, DC, July 7, 2004.

Testimony before the U.S. House of Representatives Committee on Government Reform concerning electronic voting technology, Washington, DC, July 20, 2004.

Testimony on DREs and paper trails before the Virginia Legislature Study Commission on Voting System Certification and Security, Richmond, VA, August 16, 2004.

Testimony before the Election Assistance Commission, Technical Guidelines Development Committee, Subcommittee on Computer Security and Transparency, Gaithersburg, MD, Sept. 20, 2004.

Testimony before the House Ways and Means Committee of the Maryland General Assembly on voting machine paper trails, Annapolis, MD, December 7, 2004.

Testimony before the U.S. House of Representatives Committee on House Administration concerning paper trails, Washington, DC, September 28, 2006.

Testimony before the U.S. Election Assistance Commission concerning the Voting System Testing and Certification Program, Washington, DC, October 26, 2006.

Testimony before the Georgia State Board of Elections, Powder Springs, GA, December 21, 2007.

Testimony before the Maryland House of Delegates Ways and Means Committee, Annapolis, MD, January 18, 2007.

Testimony before the U.S. Senate Committee on Rules and Administration on the Ballot Integrity Act of 2007, Washington, DC, July 25, 2007.

Testimony before the Pennsylvania Senate State Government Committee, March 18, 2024.

Arbitration

Dr. Shamos has served as an arbitrator in computer-related disputes for the American Arbitration Association.

Electronic Voting

Dr. Shamos has served as an examiner of electronic voting systems and consultant on electronic voting.

Member, Sarasota Source Code Audit Task Force, Florida Secretary of State (2007-2008)

Consultant to the Pennsylvania Secretary of the Commonwealth (2004-).

Consultant to the Massachusetts Secretary of the Commonwealth (2006).

Project SERVE Security Peer Review Group (2003).

Attorney General's Designee for electronic voting examinations, State of Texas (1987-2000).

Statutory Examiner for electronic voting, Commonwealth of Pennsylvania (1980-1996).

Consultant to Montgomery County, Pennsylvania (1996).

Consultant to the Secretary of State of Nevada (1996).

Consultant to the Delaware Legislature (1989).

Consultant to the Secretary of State of West Virginia (1984).

Business Experience

President, Expert Engagements LLC, expert witness firm (2003-present).

President, Unus, Inc., database publishing software (formerly Unilogic, Ltd.) (1990-1992)

President, Notifax Corporation (1989-1994). Automated notification by facsimile.

President, Lexeme Corporation (1984-87), software language translation products.

Managing Partner, Shamos and Tchen (1978-82), computer consulting firm.

Supervisory Programmer, National Cancer Institute (1970-72), while a commissioned officer in the United States Public Health Service (O-3).

Associate Engineer, IBM Corporation (1968-70) (Components Division), design of manufacturing information systems.

Consulting

Morgan Stanley Dean Witter (2000-2002) (now Morgan Stanley).

McKinsey & Co. (1999-2001).

Bell Atlantic Corporation (1999-2008) (now Verizon).

LG-CNS, South Korea (2002-2004). Project to automate the Korean court system.

Directorships

Unilogic, Ltd. (1979–87) (later Unus, Inc. d/b/a Cygnet Publishing Technologies, 1987-2013). Database publishing software.

The Billiard Archive (1983–), also Curator. Historical nonprofit foundation.

Lexeme Corporation (1984-1987). Computer source language translation.

Notifax Corporation (1989-1994)

Insurance Technology Corporation (1992–1995). IT consulting for the insurance industry.

Personal Data

Date of birth: April 21, 1947.

Married to Julie Shamos (formerly Julie Van Allen), August 12, 1973.

Children: Josselyn (born May 20, 1982), Alexander (born August 3, 1984).

Grandchildren: Harlow Elizabeth Crane (born April 9, 2010), Bishop Moses Crane (born July 13, 2012), Amelia Eleanor Shamos (born April 17. 2019), Sophia Anastasia Shamos (born March 14, 2021)

Military Status: Veteran (Commissioned Officer, U.S. Public Health Service, 1970-72).

Contact Information

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Pittsburgh, PA 15213
Office Telephone: 412-268-8193
Office Fax: 412-268-6298
Email: shamos@cs.cmu.edu

Publications

Google Scholar citations. Erdös number = 3: Erdös -> {Daniel Kleitman, Patrick O'Neill, Joel Spencer} -> Albert Meyer -> Shamos

SCIENCE

Books

1. *Computational Geometry: An Introduction*, with F. P. Preparata. Springer-Verlag (1985, revised ed., 1991), 390 pp. ISBN 0387961313. According to CiteSeer in 2012, this is the 93rd most cited work in the field of computer science.

2. *Вычислительная геометрия: введение*. Russian translation of "Computational Geometry: An Introduction." Moscow: Mir Publishers (1989). ISBN 5030010416.

3. 计算几何导论 (Jìsuàn jǐhé dǎolùn) Chinese translation by Zhuang Xingu of "Computational Geometry: An Introduction." Science Press (1990). ISBN 9787030018366.

4. *Keisan kikagaku nyumon*. Japanese translation by T. Asano and T. Asano of *Computational Geometry: An Introduction*, with F. P. Preparata. Soken Shuppan (Jul. 1992). ISBN 4795263213.

5. *Handbook of Academic Titles*. 193 pp. (Jan. 2011). An encyclopedia of various academic designations used at over 1000 colleges and universities in the United States.

6. *Geometria obliczeniowa. Wprowadzenie*. Polish translation of "Computational Geometry: An Introduction." Warsaw: Helion (2003) 392 pp. ISBN 83-7361-098-7.

7. *Shamos's Catalog of the Real Numbers*. A list, patterned after Sloane & Plouffe, The Encyclopedia of Integer Sequences, Academic Press (1995). Over 10,000 interesting real numbers arranging in lexical order by decimal expansion, with accompanying formulas.

Book Chapters

1. "Privacy and Public Records." Chapter 16 in *Personal Information Management*, Jones & Teevan, eds., Univ. of Washington Press (2007), ISBN978-0-295-98737-8.

Articles

1. "On the Piezoelectric Effect in Bone," with M. H. Shamos and L. S. Lavine. *Nature* **197**:81 (1963).

2. "An Absorber Theory of Acoustical Radiation," with M. A. Tavel. *Journal of the Acoustical Society of America* **54**:46–49 (1973).

3. "Problems in Computational Geometry." Unpublished book manuscript (1974, revised 1977). Distributed in photocopy.

4. "Geometric Complexity." *Proceedings of the Seventh Annual ACM Symposium on Automata and Theory of Computation* (May 1975) 224–233.

5. "Closest-point Problems," with D. J. Hoey. *Proceedings of the Sixteenth IEEE Symposium on Foundations of Computer Science* (Oct. 1975) 151–162.

6. "Divide and Conquer in Multidimensional Space," with J. L. Bentley. *Proceedings of the Eighth Annual ACM Symposium on Automata and Theory of Computing* (May 1976) 220–230.

7. "Geometric Intersection Problems," with D. J. Hoey. *Proceedings of the Seventeenth Annual IEEE Symposium on Foundations of Computer Science* (Oct. 1976) 208–215.

8. "Lower Bounds from Complex Function Theory," with G. Yuval. *Proceedings of the Seventeenth Annual IEEE Symposium on Foundations of Computer Science* (Oct. 1976) 268–273.

9. "Geometry and Statistics: Problems at the Interface." In *Algorithms and Complexity: New Directions and Recent Results*, J. F. Traub, ed., Academic Press (1976) 251–280.

10. "Divide and Conquer for Linear Expected Time," with J. L. Bentley. *Information Processing Letters* 7 (1977) 87–91.

11. "A Problem in Multivariate Statistics: Algorithm, Data Structure, and Applications," with J. L. Bentley. *Proceedings of the Fifteenth Allerton Conference on Communications, Control and Computers* (Sep. 1977) 193–201.

12. "Optimal Algorithms for Structuring Geographic Data," with J. L. Bentley. *Proceedings of the Harvard Conference on Topological Data Structures for Geographic Information Systems* (Oct. 1977) 43–51.

13. "Computational Geometry." Ph.D. Thesis, Yale University (1978). University Microfilms, Ann Arbor, MI.

14. "Time and Space," with A. R. Meyer. In *Perspectives on Computer Science,* A. K. Jones, ed. Academic Press (1978).

15. *Combinatorics on Graphs I: Graph Polynomials*. Unpublished book manuscript (1978).

16. "Robust Picture Processing Operators and Their Implementation as Circuits." *Proceedings of the Fall 1978 Workshop on Image Processing,* Carnegie Mellon University (1978).

17. "A practical system for source language translation," with T. R. Kueny and P. L. Lehman. *Proceedings of the National Conf. on Software Reuseability and Maintainability*, pp. B-1 – B-12, Washington, DC (Sep. 1986).

18. "The Early Years of Computational Geometry – A Personal Memoir." *Advances in Discrete and Computational Geometry* (B. Chazelle, J. E. Goodman, and R. Pollack, eds.), *Contemporary Mathematics*, Amer. Math. Soc., Providence (1998).

19. "A Multiparty Computation for Randomly Ordering Players and Making Random Selections," with Latanya Sweeney. Carnegie Mellon Univeristy School of Computer Science Technical Report CMU-ISRI-04-126 (July 2004)

20. *Overcounting Functions*. A systematic method of transforming certain multiple summations into single summations, with new number-theoretic results.

21. *Property Enumerators and a Partial Sum Theorem*. A new result allowing rapid symbolic evaluation of certain types of double summations.

DIGITAL LIBRARIES

Articles

1. "Machines as readers: a solution to the copyright problem." J. Zhejiang Univ. Science 6A, 11, pp. 1179-1187 (Nov. 2005).

Book Chapters

1. "The Universal Digital Library: Intelligent Agents and Information on Demand," with Raj Reddy. Chapter 6 in Emerging Communication Technologies and the Society, by N. Balakrishnan, Indian National Science Academy (2000). ISBN 81-7319-341-X.

Reports

1. "Japanese Digital Information Policy, Intellectual Property and Economics," in "Digital Information Organization in Japan," International Technology Research Institute (1999).

ELECTRONIC VOTING

Books

1. "Glossary of Electronic Voting."

Articles

2. "Voting System Certification — An Examiner's View." Invited paper presented at the Election Center Conference, Reno, Nevada (Sep. 1989).

3. "Electronic Voting — Evaluating the Threat." Proc. Third ACM Conf. on Computers, Freedom & Privacy, San Francisco, CA (Mar. 1993).

4. "Paper v. Electronic Voting Records — An Assessment." Proc. 14th ACM Conf. on Computers, Freedom & Privacy, Berkeley, CA (Apr. 2004).

5. "Evaluation of Voting Systems," with P.L. Vora, B. Adida, R. Bucholz, D. Chaum, D. Dill, D. Jefferson, D. Jones, W. Lattin, A. Rubin and M. Young, Commun. ACM 47(11):144 (2004).

6. "Voting as an Engineering Problem." *The Bridge* (publication of the National Academy of Engineering), Summer 2007, pp. 35-39.

7. "Realities of E-Voting Security," with A. Yasinsac. IEEE Security and Privacy 10:5 (Sep/Oct 2012), pp. 16-17. Also guest editor of that issue, devoted to E-voting Security.

8. "Why our voting systems are safe." Op-ed in the Pittsburgh Post-Gazette, Dec. 31, 2016.

Published Reports

9. "Software and Security Analysis of the ES&S iVotronic 8.0.1.2 Voting Machine Firmware," with Yasinsac et al., February 23, 2007. Review commissioned by the Secretary of State of Florida to investigate irregularities in the Florida Congressional District 13 election of 2006.

BILLIARDS

Books

1. *Pool.* New York: Mallard Press division of Bantam-Doubleday-Dell Promotional Book Company (Aug. 1991). 128 pp. ISBN 0-7924-5310-7.

2. *Le billard et le billard américain*. Paris: Minerva, 1992, reprinted 1997. 128 pp. Translation by Jean-Yves Prate of the author's American book, *Pool*. ISBN 2–8307–0160–7 (1992), 2-8814-3135-6 (1997).

3. *The Illustrated Encyclopedia of Billiards*. New York: Lyons & Burford (1993). 310 pp. ISBN 1-55821-219-1.

4. *Pool Snooker Carambola*. Padua: Facto Edizioni (1993). 128 pp. Italian translation of *Pool*. Translated by Elisabetta Bezzon. ISBN 88-85860-20-6. The first English-language billiard book ever published in Italian.

5. *Pool*. New York: Friedman/Fairfax (Jun. 1994). 128 pp. ISBN 1-56799-061-4. Paperback edition of the author's 1991 *Pool*.

6. *Shooting Pool: The People, the Passion, the Pulse of the Game*, with photographs by George Bennett. New York: Artisan (Jun. 1998). 144 pp. ISBN 1-885183-95-X. A photographic survey of pool in the U.S. in 1997. A Book-of-the-Month Club bonus selection (Fall, 1998).

7. *Setting the Stage for Fifty Years*. Coralville, IA: Billiard Congress of America (Jun. 1998). 88 pp. A history of the Billiard Congress of America.

8. *The New Illustrated Encyclopedia of Billiards*. New York: Lyons Press (1999). 320 pp. ISBN 1-55821-797-5. An expanded and revised edition of *The Illustrated Encyclopedia of Billiards*.

9. *The Complete Book of Billiards*. New York: Gramercy Books (2000). 306 pp. ISBN 0-517-20869-5. Reissue of author's 1993 *The Illustrated Encyclopedia of Billiards*.

In Preparation

SCIENCE

Articles

1. *A Graph-Theoretic Model of Electronic Payment Systems*, with Michael Trick.

LAW

Books

1. *A Dictionary of American Intellectual Property* (1995).

Invited Talks

ELECTRONIC COMMERCE

"The Future of eCommerce." Presentation to the Association for Corporate Growth, Pittsburgh, PA (Dec. 2001).

"The U.S., Korea and the Internet Bubble." Korea International Trade Association (Seoul, July 2003).

"Electronic Judiciary Services in the United States." Address at the Supreme Court of Korea (Dec. 2004).

"eGovernment in the United States." Public address at the University of Hong Kong (Feb. 2005).

"Global SCM as a Cross-Border eCommerce Model," Korea International Trade Association, Seoul, Korea (Mar. 2007).

"Innovate or Die." Invited talk at the Verizon Leadership Meeting, Morristown, NJ (Jun. 2007).

"A Formula for Innovation." Public address at the University of Hong Kong (Feb. 2008).

"Ask My Robot: How Computers Answer Questions." University of Hong Kong (Feb. 2013).

"How Bitcoin Works: A Non-Technical Introduction." University of Hong Kong (Mar. 2014).

"What's a Bitcoin? A Non-Technical Introduction." Carnegie Mellon University (Oct. 2014).

COMPUTER SCIENCE

"Surprises in Experimental Mathematics." Carnegie Mellon University Mathematics Seminar (Feb. 2002).

"Learning by Doing or Learning by Listening?" University of Hong Kong (Feb. 2007).

"Discoveries in Experimental Mathematics." University of Hong Kong (Feb. 2009).

"How Did It (Computational Geometry) Start?" Keynote address at the 20th Canadian Conference on Computational Geometry, Montreal, Canada (Aug. 2008).

"The Internet of Everything." University of Hong Kong (Mar. 2015).

"How Do Driverless Cars Work?" University of Hong Kong (Mar. 2017).

"How Machines Learn (Without Being Taught)." University of Hong Kong (Feb. 2018).

"What is Quantum Computing All About?" University of Hong Kong (Feb. 2019).

SCIENCE AND LAW

"Digital Property in the 21st Century." Keynote address for the Spring Meeting of the American Intellectual Property Law Association, Pittsburgh, PA (May 2000). View slides.

"Who Owns This Algorithm?" Carnegie Mellon University (Nov 1991); Microelectronics and Computer Corporation (Jan. 1992); Univ, of Texas at Austin (Jan. 1992); UCLA (Feb. 1992).

"New Computer Technology and Its Application to Worker's Compensation." Forum IV, Newport Beach, CA (Feb. 1992).

"The Office of the Future, If There Is One." 1994 IAIABC Conf., Pittsburgh, PA (Sep. 1994).

"The Fringes of Infringement." University of Texas, Austin, TX (Sep. 1995).

"The Arts and the Internet." Allegheny County Bar Association Continuing Legal Education course (June 26, 1996).

"The Universal Information Resource." Inventing the Future, Symposium in Honor of Raj Reddy's 60th Birthday, Carnegie Mellon University, Pittsburgh, PA (May 1998).

"The Universal Library." University of Texas at Austin (Sep. 1998)

"The Universal Library and Its Role in Scientific Information." Keynote address to the RNA Society symposium on Emerging Sources of RNA Information, Arlington, VA (Dec. 8, 1998).

"Digital Property in the 21st Century." Luncheon address to the American Intellectual Property Law Association, Pittsburgh, PA (May. 2000).

"Copyright Protection and Distance Learning." Hong Kong Intellectual Property Office (Feb. 2002).

"The Universal Dictionary." Address at International Institute of Information Technologies (IIIT), Hyderabad, India (Jan. 2003).

"The Million Book Projects." Public address at the University of Hong Kong (Jan. 2003).

"Mathematics and the Privacy Laws." ALADDIN Workshop on Privacy in D.A.T.A., Pittsburgh, PA (Mar. 2003).

"Machines as readers: a solution to the copyright problem." 1st Int'l Conf. on Universal Digital Library, Hangzhou, China (Nov. 2005).

"Your Books Might Cost More Now: The Role of the Expert in Software Patent Litigation." University of Hong Kong (Feb. 2006).

"University Technology Transfer: How to Fix It." Asia Conference on Technology Transfer (ACTT) 2006, Seoul, S. Korea (Mar. 2006).

"How Big a Problem is Copyright"? USAIN Conference, Cornell University, Ithaca, NY (Oct. 2006).

"Digital Ownership." 2d Intl. Conf. on Universal Digital Library, Alexandria, Egypt (Nov. 2006).

"Google and the Death of Books." University of Hong Kong (Feb. 2010).

"FaceWars." (About the lawsuit between Facebook and the Winkelvoss twins). University of Hong Kong (Feb. 2011).

"Swiping the iPhone: Billions Lost With the Stroke of a Pen." University of Hong Kong (Feb. 2012).

"Global Phone Wars: Apple v. Samsung." University of Hong Kong (Mar. 2016).

ELECTRONIC VOTING

"Voting System Certification — An Examiner's View." Election Center Conference, Reno, Nevada (Sep. 1989).

"Electronic Voting — Evaluating the Threat." Third Conf. on Computers, Freedom and Privacy, San Francisco, CA (Mar. 1993).

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