

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TABLEAU SOFTWARE, LLC

Petitioners,

v.

iCHARTS LLC,

Patent Owner

Case No. IPR2024-01389

U.S. Patent No. 8,520,000

DECLARATION OF DR. JEFFREY MILLER

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I, Jeffrey Miller, hereby declare as follows:

I. BACKGROUND

1. I have been retained by Patent Owner in connection with the above-captioned *Inter Partes* Review (“IPR”) proceeding involving U.S. Patent No. 8,520,000 (“the ’000 Patent”) (Ex. 1001).

2. I have been asked by iCHARTS LLC (“iCHARTS”) to offer opinions regarding the ’000 Patent and Claims 1-4 (the “Challenged Claims”) of the ’000 Patent, as set forth in the Petition for IPR (“the Petition”). This declaration sets forth the opinions I have reached to date regarding these matters.

3. I am being compensated by iCHARTS at my standard hourly consulting rate of \$ 500 per hour for my time spent on this matter. My compensation is not contingent on the outcome of the IPR or on the substance of my opinions.

4. I have no financial interest in Patent Owner.

II. EDUCATION AND WORK HISTORY

5. I received BS and MS degrees in Computer Engineering and Computer Science from the University of Southern California in 2002, respectively, and a PhD degree in Computer Science from the University of Southern California in 2007.

6. Since 2002, I have conducted research on software and network architectures and algorithms used in mobile and wireless communication, with a specific application in vehicular networking and data gathering. My dissertation

concerned real-time traffic data processing. It focused on gathering traffic data in a distributed fashion over cellular links, with individual vehicles transmitting speed—retrieved from a host vehicle computer system through the on-board diagnostics port (“OBD-II” as required by federal regulation) — and location — as a latitude/longitude pair determined by GPS to a central system, rather than gathering data through expensive hardware embedded in roads at discrete locations. The system maintained in real-time the fastest path of each vehicle from its current location to its destination.

7. I continued my work in vehicle tracking after receiving my Ph.D., specifically gathering data from an OBD port in different host vehicles and transmitting it to a central server over the cellular network. My research involved creating hardware devices that included a central processing unit (CPU), GPS receiver, cellular transceiver, and OBD connector. I wrote firmware to run on the CPU to retrieve data from the vehicle’s electronic control unit through the OBD port, to determine the location of the vehicle from the GPS receiver, and to transmit this data to a central server over the cellular network. These devices were installed in over 100 vehicles of different makes and models, including vehicles manufactured by Toyota, Honda, Mercedes, Ford, and Subaru.

8. I developed the devices for gathering vehicular data and location as the Principal Investigator (PI) on two grants provided by the United States Department

of Transportation, administered by the Alaska University Transportation Center. One of the grants specifically consisted of designing, creating, and installing vehicle tracking devices in OBD ports in over 100 vehicles to gather location and diagnostic data from each vehicle, send this data to a central server, and analyze the data to draw multiple conclusions. One application of this involved working with the Municipality of Anchorage to identify the locations of vehicle slippage on the roads to aid in dispatching sand trucks. The data was also used to determine the average speed of traffic on roadways for routing vehicles along fastest and, in conjunction with snowplow and sand truck location data, safest routes.

9. I have secured over \$8,200,000 for projects concerning Intelligent Transportation Systems applications and Science, Technology, Engineering, and Mathematics (STEM) education at the K12, undergraduate, and graduate levels.

10. As set forth in more detail in my CV, I have authored numerous publications, including a book supplement, on vehicular technology, networking and security, and intelligent transportation systems applications. Some publications include applications for determining fastest paths of vehicles through tracking of distributed vehicles in a transportation network utilizing OBD data, GPS receivers, and cellular transceivers. Other publications include descriptions of devices used for tracking vehicles, including cars, snowplows, and heavy-duty trucks. I have given many presentations, including several on all the topics described above.

11. I assisted in developing curricula in circuit design, software engineering, computer networking, networking security, capstone classes in computer engineering and computer science that revolve around custom projects for groups of students, and many others. These classes exist in the Computer Science and Computer Engineering programs at California State University at Los Angeles, the University of Southern California, the University of Alaska Anchorage, and Southern Utah University. I am an inventor on U.S. Patent No. 9,715,369, “Vehicle accessory engagement tracking,” related to data collection from snowplows for use in intelligent transportation applications.

12. I am currently the Dean of Engineering and Computational Sciences and Professor of Computer Science at Southern Utah University (SUU). I have served in this position since July 2022. In this role, I oversee the departments of Computer Science and Cybersecurity (with programs in Computer Science, Software Development, Information Technology, Cybersecurity, Artificial Intelligence and Machine Learning, and Financial Technology), Engineering and Technology (with programs in Civil Engineering, Mechanical Engineering, Construction Management, Electrical Engineering, and Engineering Technology), Mathematics (with programs in Data Science, Theoretical Mathematics, Actuarial Mathematics, and Mathematics Education), and Aviation (with programs in Fixed-Wing Pilot, Rotor-Wing Pilot, Aviation Maintenance Technician, and Aviation

Administration and Leadership). These departments have over 60 full-time faculty, 1,500 major students, and 64 undergraduate and graduate degree and certificate programs.

13. I previously served as a Professor of Computer Science and Information Technology Practice, and Department Chair of the Information Technology Program, in the Viterbi School of Engineering at the University of Southern California in Los Angeles, where I taught courses on programming, software development, design and construction of large software systems, and analysis of algorithms.

14. As Department Chair of the Information Technology Program, I oversaw more than 50 professors and lecturers teaching over 75 different courses focused on artificial intelligence, computer programming, applied analytics, cloud computing, computer and digital forensics, 3D computer graphics and modeling, applied computer security, blockchain, connected devices, computing education, enterprise information systems, mobile app development, video game programming, design and management, web technologies and applications, and digital entrepreneurship.

15. Prior to joining the University of Southern California, I served as an Associate Professor of Computer Science and Computer Systems Engineering at the University of Alaska Anchorage, where I taught courses on electrical engineering,

computer systems and design, computer programming, systems administration, VLSI circuit design, computer networking, and network security.

16. I am a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE) and the Association of Computing Machinery (ACM). I was the General Chair for the IEEE 69th Vehicular Technology Conference in fall 2009, the IEEE 15th Intelligent Transportation Systems Conference in fall 2012, and the IEEE 77th Vehicular Technology Conference in fall 2013. I was also a Program Co-Chair and Technical Program Chair for the IEEE 73rd Vehicular Technology Conference in fall 2011. I was on the IEEE Intelligent Transportation Systems Society Board of Governors for the term from January 2009-December 2011 and January 2017-December 2019, and I was elected as Vice President for Administrative Activities in the same society from January 2011-December 2012. I was also on the IEEE Vehicular Technology Society Board of Governors for the term from September 2011 – December 2013. From October 2011-December 2013, I was the Editor-in-Chief of the IEEE ITS Magazine. Within the IEEE Intelligent Transportation Systems Society (“ITSS”), I have been an Associate Editor for the IEEE Transactions on Intelligent Transportation Systems. In 2010, I was the treasurer for the Alaska section of the IEEE and was the chair of the section from January 2011-December 2011. During my time as chair of the IEEE Alaska Section, the section won the 2011 Outstanding Section Award for the Region 6 Northwest Area. In

addition to being a member of the Intelligent Transportation Society of Alaska, I was also the president from January 2010-December 2011.

17. Attached as Appendix A is a copy of my current C.V. further elaborating on my professional background and qualifications. Attached as Appendix A is a copy of my current C.V. further elaborating on my professional background and qualifications.

III. MATERIALS CONSIDERED

18. In forming my opinions, I have reviewed the '000 Patent and its prosecution history. I have also reviewed and considered the references cited by the Petitioners, the Petition itself, the Declaration of Christopher Schmandt (EX1003) submitted with the Petition, and other documents and information as set forth in this declaration.

19. In reaching my opinions, I have relied upon my experience in the field and also considered the viewpoint of a person of ordinary skill in the art ("POSITA") at the time of the earliest claimed priority date of the '000 Patent. As explained below, I am familiar with the level of a person of ordinary skill in the art regarding the technology at issue as of that time.

IV. OVERVIEW OF THE TECHNOLOGY, THE '000 PATENT, AND THE PRIOR ART

A. Technical Background

20. The '000 patent was filed on February 17, 2009, and claims priority as a continuation-in-part of U.S. Patent Application No. 12/205,802 (“the '802 application”), which was filed on September 5, 2008 and now U.S. Patent No. 8,271,892. EX1001, (22), (63). I understand the '000 patent also claims priority to Provisional Application No. 61/077,728, which was filed on July 2, 2008. EX1001 (60).

21. The '000 Patent is a continuation-in-part of the '892 Patent. The '000 Patent also pertains to particular systems and methods for generating and sharing interactive charts. The '000 builds on the inventive concepts of the '892 Patent and discloses that “the interactive charts are generated in an online portal that allows users to customize the interactive features of the chart.” EX1001, Abstract. An online portal may also be provided to allow “users to automatically embed interactive chart(s) in another website without reprogramming the code of the website each time the interactive chart(s) are changed or new interactive chart(s) are added.” *Id.* In other words, the interactive charts can also be embedded in other websites without the need to reprogram the other websites each time an interactive chart is embedded in those websites using a chart box tool.

22. Prior to the invention, to develop and incorporate the appearance of interactive charts, a programmer had to be hired to “develop the chart, link it to a data source and embed it onto the web-site.” *Id.* 16:47–48. In contrast, by embedding the charts with the chart box in the website and using the chart box tool, “no programming is required to embed charts in the website.” *Id.* 16:52–53. In addition, the number of charts that can be displayed using the disclosed chart box is unlimited. *Id.* 16:55. In order to change the charts displayable in the chart box, “no programming is required because a user only needs to drag and drop the chart(s) using the tool.” The costs are “therefore a fraction of the present cost, effectively removing a barrier to more visual data content on the web.” *Id.* 16:56–59.

23. The language of each of the claims, including Claim 1, is consistent with the inventive concepts described above, as found in the '000 Patent specification. Claim 1 recites a computer implemented method comprising the steps of: i) “receiving a selection, on a first website, of at least one interactive chart from a plurality of interactive charts,” and ii) “displaying, in response to the selection the at least one interactive chart embedded in a chart box on a second website, wherein the chart box is a web widget.” *Id.* 18:24–29. At “least one interactive chart is generated on a generation interface that is configured to allow a user to generate an interactive chart from a chart template store.” *Id.* 18:30–33. Further, “at least one interactive chart is displayed on second website in absence of the generation

interface, which enables the user to a) render the chart, b) obtain input from a user and c) rerender the chart using the input thereby enabling the interactive chart to retain interactivity.” *Id.* 18:34–39.

B. The '000 Patent

24. The '000 Patent relates to a system and method for generating and sharing interactive charts. The interactive charts are “generated in an online portal” that allows users to “customize the interactive features of the chart.” EX1001, Abstract:2-4. The interactive charts can be embedded in other websites without the need to reprogram the other websites each time an interactive chart is embedded in those websites using a chart box tool. *Id.* 5:31-34.

25. The '000 Patent discloses “an interactive chart online portal **200** [that] includes an interactive chart generator **204**, an interactive chart sharer **208**, a user interface **212**, a data store **216** and a chart template data store **220**.” *Id.* 7:53–56. This is illustrated in Fig. 2 of the patent, which is reproduced below:

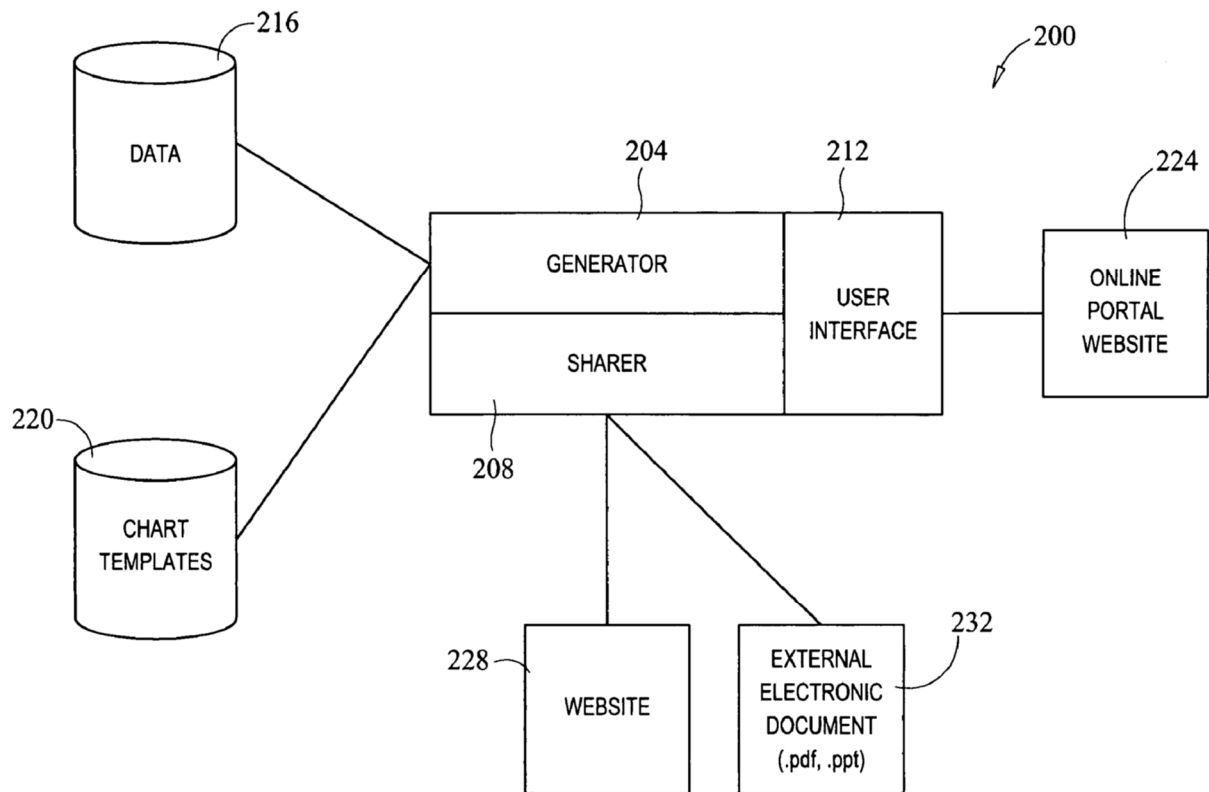


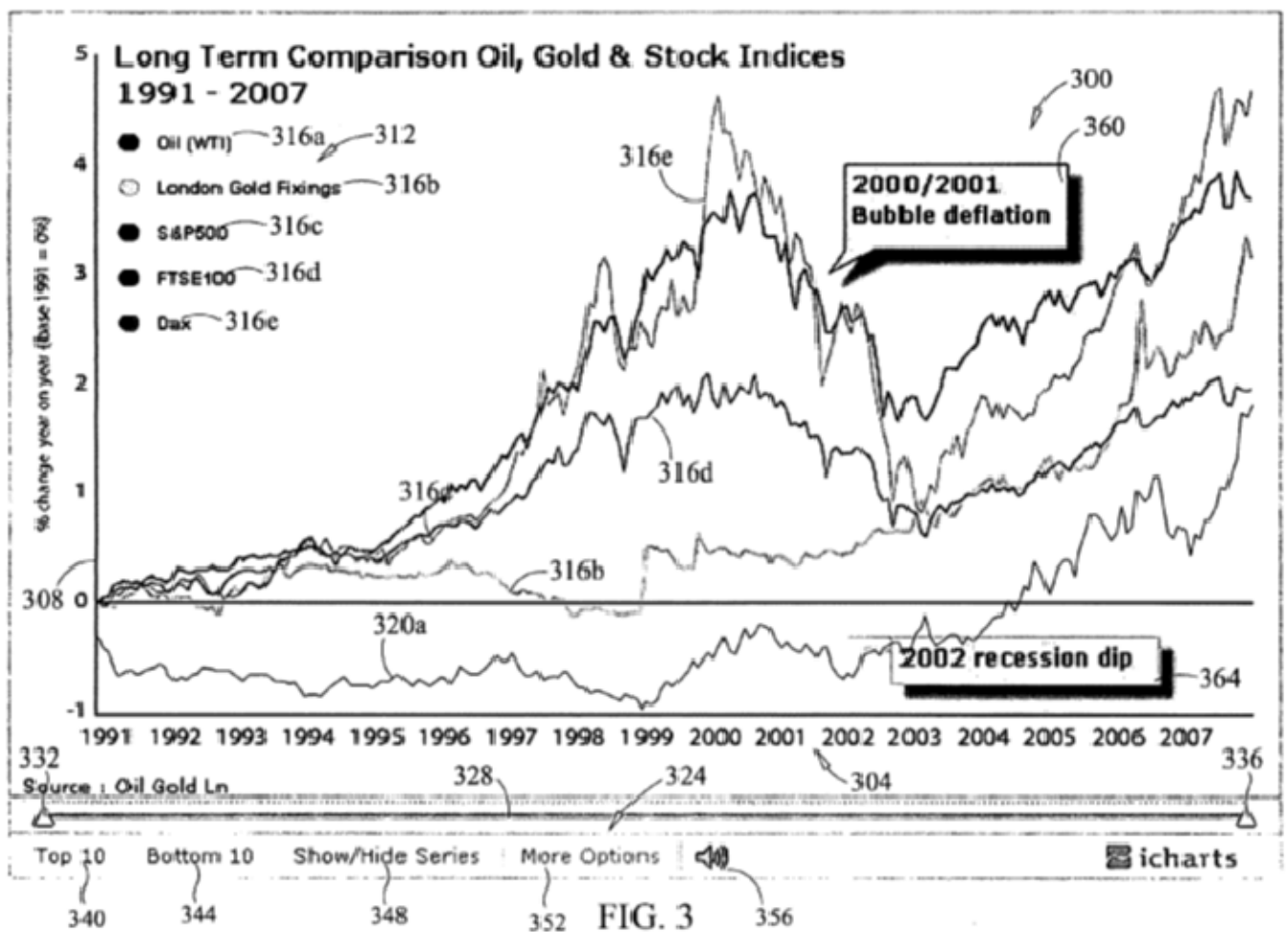
FIG. 2

Users upload or enter data at the online portal website **224** through the user interface **212**. *Id.* 8:1-3. Data is stored in the data store **216**. *Id.* 8:1-3. The interactive chart generator **204** “uses the data and chart templates stored in the chart template data store **220** to generate the interactive charts.” *Id.* 8:3-5.

26. The sharer **208** can be accessed through website **224** and user interface **212**. *Id.* 8:6-8. A generated interactive chart can be published on an external webpage **228** as an interactive chart or as a static chart. *Id.* 8:8-10. The generated interactive chart can also be “embedded in an external document **232** as an interactive chart or

as a static chart.” *Id.* 8:7-9. Examples of external documents **232** include “PPT (e.g., power point) documents, PDF (e.g., Adobe) documents, DOC (e.g., Word) documents, and the like.” *Id.* 8:11-14.

27. FIG. 3, reproduced below, shows an exemplary interactive chart **300**. *Id.* 8:22-23.



28. Chart **300** has interactive features that allows a user to interact with the chart to, for example, modify or change the user’s view of the chart, learn more about

the chart data, and the like. *Id.* 9:9-12. Examples of interactive features include a zoom feature, a data mouse-over pop-up window, a data hide/share feature, an audio playback feature, a drill down feature, and data gliding feature, and the like. *Id.* 9:12-15. A video playback interactive feature may be provided. *Id.* 9:61-64. Another example of an interactive feature is a “Copy-to-my-account” feature that allows a user to copy the chart to an account at an interactive-chart-generation-and sharing web portal anywhere the user sees the chart online. *Id.* 9:15-19.

29. FIG. 8, reproduced below, is a flow diagram of the process of generating and sharing an interactive chart. *Id.* 10:1-3.

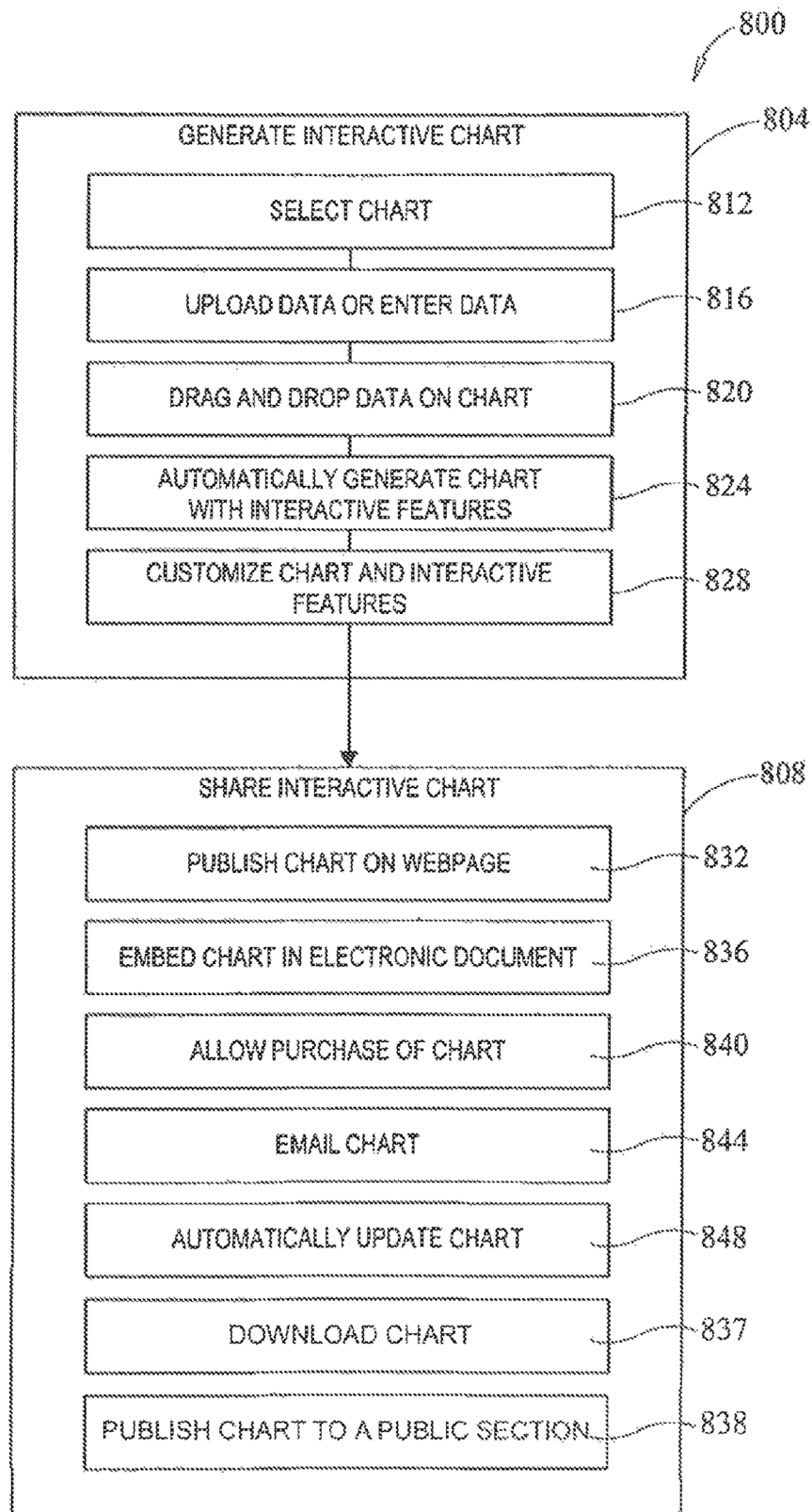


FIG. 8

30. The '000 Patent states that “[g]enerating the interactive chart **804** may include selecting a chart (block **812**), uploading data or entering data (block **816**), dragging and dropping data on the chart (block **820**), automatically generating the chart with interactive features (block **824**) and customizing the interactive features (block **828**).” *Id.* 10:10-15.

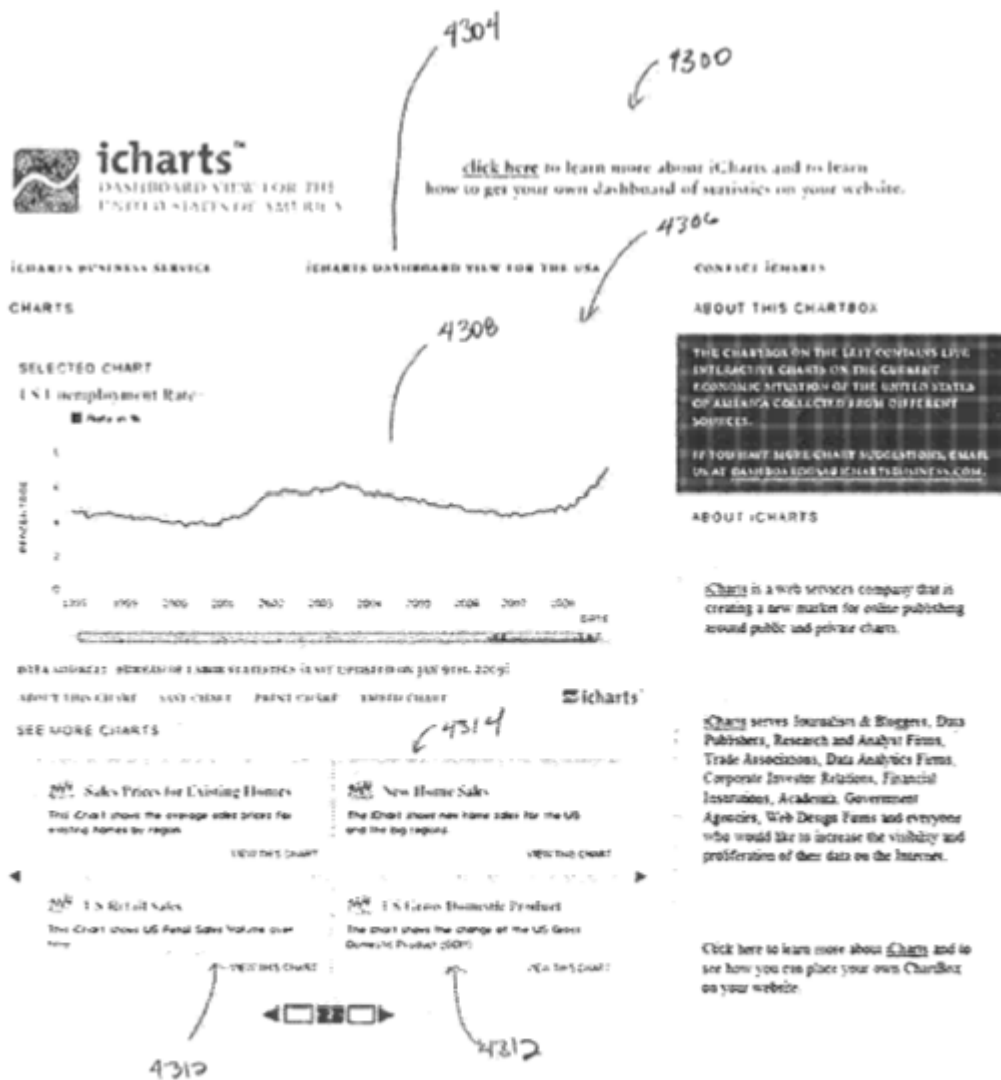
31. Online charts are created and stored online as flash files in a web portal. *Id.* 8:32-33. Once the interactive chart is created, it can be downloaded as an interactive self-contained object. *Id.* 10:16-22. The '000 Patent discloses that the stored interactive chart could be a “flash object.” *Id.* 13:49-50. The '000 Patent describes one embodiment of “the interactive chart **300**” as “a flash file that contains code that a) renders the chart, b) obtains input from the user as per his desired action on this chart (i.e., interactivity), and c) re-renders the chart using the input as parameters.” *Id.* 8:23-27. The interactive chart data is “stored within the flash file.” *Id.* 8:27-28. The flash file would contain dynamic code, executed on the client-side for interactivity. Thus, the interactive charts that are downloaded are self-contained flash files that can exist independent of the web portal. *Id.* 8:47-48.

32. The '000 Patent discloses that “[s]haring the interactive chart **808** may include publishing the chart in a web page (block **832**), embedding the chart in an electronic document (block **836**), downloading the chart as an interactive self-contained object that can be embedded elsewhere (block **837**), publishing the chart

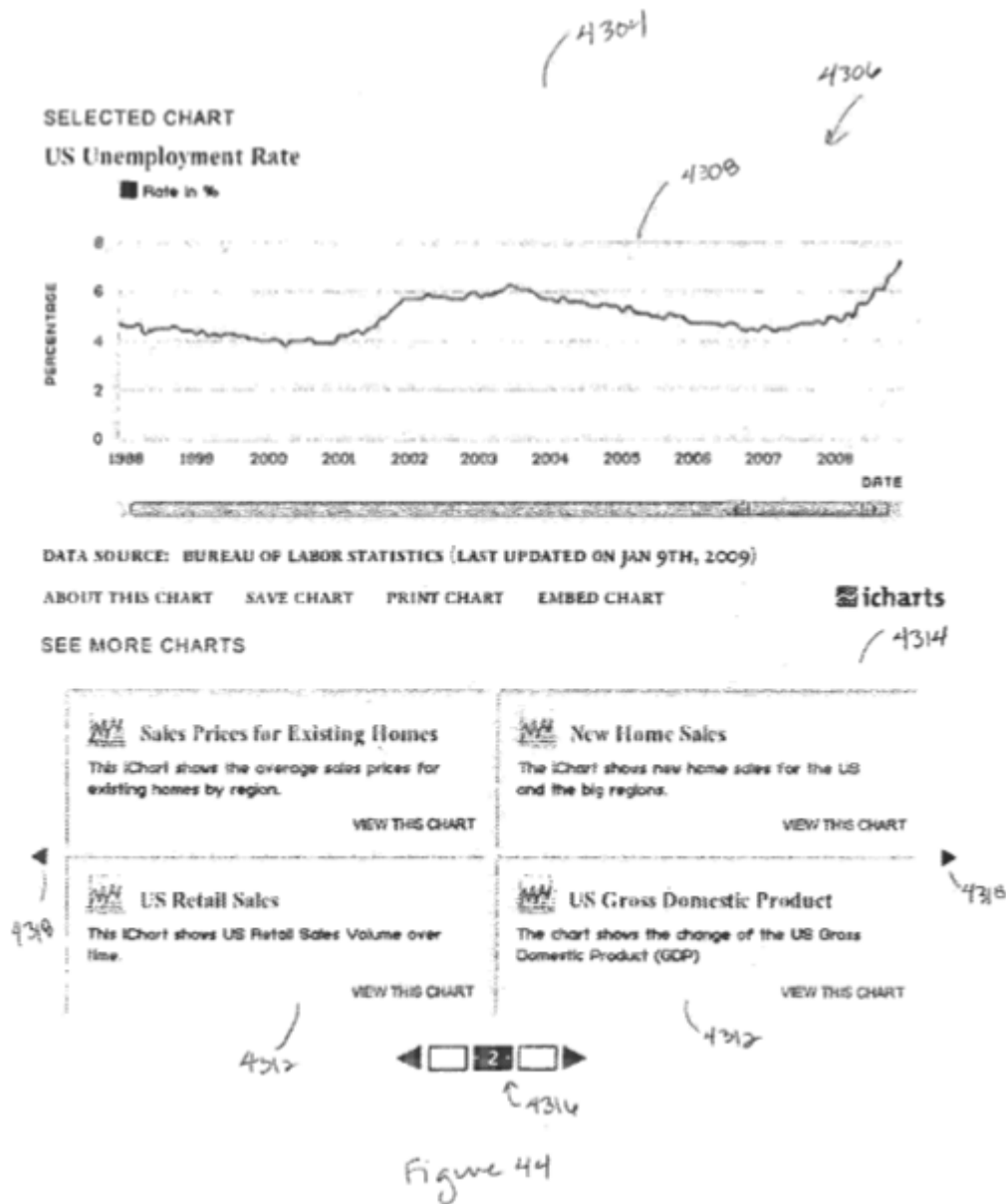
to the public section of the web portal (block **838**), allowing the chart to be purchased (block **840**), and/or emailing the chart (block **844**).” *Id.* 10:16-22. “The chart may also be automatically updated (block **848**).” *Id.* 10:22-23.

33. The interactive charts can also be embedded in other web sites without the need to reprogram the other websites each time an interactive tool is embedded in those websites using a chart box tool. *Id.* 5:41-45.

34. FIG. 43, reproduced below, illustrates shows a business services application website that includes a chart box **4304**. *Id.* 15:49-52.



35. The chart box 4304 is shown in further detail in FIG. 44, which is reproduced below. *Id.* 15:51-52.



36. Chart box **4304** is configured to be embedded on a website to display one or more interactive charts on that website. *Id.* 15:52-55. Charts are added to the chart box using a chart box tool provided by another website that allows users to generate, purchase or otherwise manipulate and select the interactive charts. *Id.* 15:55-58. Chart box **4304** allows users or businesses with large amounts of data to

display varying charts easily and flexibly on their website without the need for programming. *Id.* 15:64-67. A blogger, for example, can embed a chart box on the blog website and automatically update the charts displayed in the chart box without reprogramming the website for the blog using another website. *Id.* 15:58-61.

37. The chart box **4304** can be a flash widget. *Id.* 16:1. The chart box **4304** may be embedded once onto a customer site using an embed code. *Id.* 16:2-3. The embed code for the chart box **4304** may include retrieve code to fetch the interactive chart or charts selected for the chart box **4304** embedded in the customer site. *Id.* 16:3-6. Alternatively, the embed code may include a data feed that is used to automatically update the interactive chart or charts displayed in the chart box **4304**. *Id.* 16:6-9.

38. Chart box **4304** includes a viewing pane **4306** configured to display an interactive chart **4308**. *Id.* 16:11-12. Chart box **4304** also includes multiple interactive charts **4312** in a chart selection pane **4314**. *Id.* 16:12-14. Each of the interactive charts **4312** may be selected for display in the viewing pane **4306**. *Id.* 16:14-15.

39. User interface **4500** shown in FIG. 45 may be provided on the same website that allows for the generation or purchase of interactive charts or on another website coupled to a server that includes several interactive charts that can be selected for display in the chart box **4304**. *Id.* 16:25-29. A user may select possible

interactive charts for inclusion in chart box **4304** using toolbar **4504**. *Id.* 16:29-31.

The user may use charting pane **4508** to view and/or browse the interactive charts **4512** that can be selected for display in the chart box **4304**. *Id.* 16:31-33.

40. User interface **4500** also includes a chart box region **4516** that includes a chart box folder **4520**. *Id.* 16:33-35. Chart box folder **4520** is connected to chart box **4304** such that the retrieve code for data feed displays the interactive chart(s) selected by the user in chart box folder **4520**. *Id.* 16:35-38. The user can select the interactive chart(s) for display in chart box **4304** by, for example, dragging and dropping one or more of the charts **4512** onto the chart box folder **4520**. *Id.* 16:38-41. When the user drops the selected chart(s) **4512** onto chart box folder **4520**, the chart is automatically displayed in the chart box **4304** embedded on the user's website. *Id.* 16:41-44.

41. By embedding charts with chart box **4304** in the website and using the chart box tool **4500**, no programming is required to embed charts in the website. *Id.* 16:50-53. Furthermore, the number of charts that can be displayed using chart box **4304** is unlimited. *Id.* 16:53-55. To change the charts displayable in the chart box, no programming is required because a user only needs to drag and drop the chart(s) using the tool **4500**. *Id.* 16:55-57.

1. Claims

42. The '000 Patent has 4 claims and 1 independent claims. Claim 1 is reproduced below:

1. A computer-implemented method comprising:
receiving a selection, on a first website, of at least one interactive chart from a plurality of interactive charts; and
displaying, in response to the selection the at least one interactive chart embedded in a chart box on a second website, wherein the chart box is a web widget,
wherein the at least one interactive chart is generated on a generation interface configured to allow a user to generate the interactive chart with a chart template from a chart template store,
wherein the at least one interactive chart, when displayed on the second website in the absence of the generation interface, enables a user to a) render the chart, b) obtain input from a user and c) rerender the chart using the input thereby enabling the interactive chart to retain interactivity,
wherein the selection is made by dragging and dropping the at least one interactive chart from the plurality of charts into a chart box

folder connected to the chart box such that retrieve code for data feed displays the at least one interactive chart on the first website, and wherein the at least one interactive chart is automatically displayed on the second website using a data feed from the first website to the second website upon the dragging and dropping selection.

EX1001, Claim 1.

43.

2. Prosecution History

44. I have reviewed the prosecution history of the '000 Patent, and my opinions described herein account for the '000 Patent's prosecution history.

C. Cited References

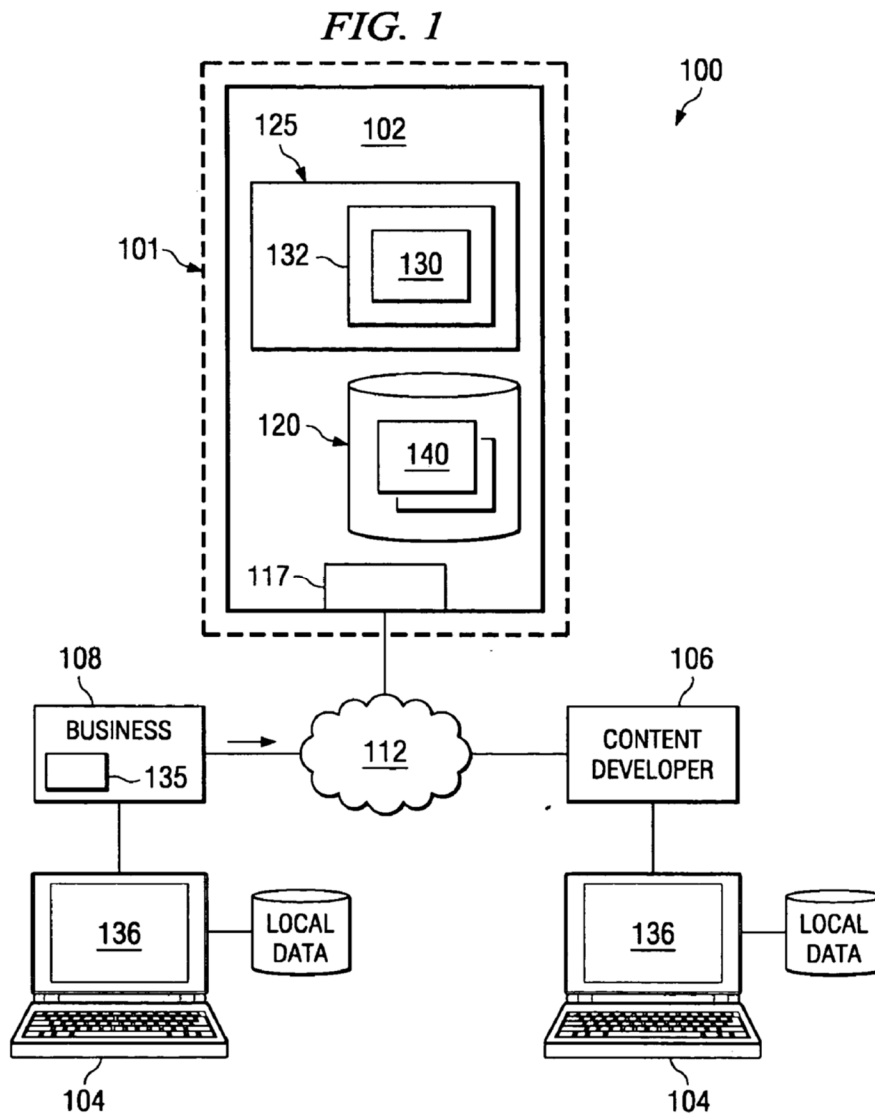
45. The Petition cites to various references to demonstrate the background technology and its invalidity grounds.

1. Rostoker Summary (EX1005)

46. Grounds 1-3 of the Petition rely, in part, upon, Rostoker, U.S. Publication No. 2008/0127052 ("Rostoker"), filed December 26, 2006. Each Ground uses an obviousness argument for all claims of the '595 Patent. Petition at 14.

47. Rostoker discloses software for developing custom business applications in a service-oriented architecture. EX1005 [0002]:1-3. FIG. 1 of Rostoker, reproduced below, illustrates a system **100** for presenting, providing, or

otherwise managing enterprise application content and other data services **140** via a content provider **101**. *Id.* [0018]:1-4.



48. Content provider **101** may be considered a storefront. *Id.* [0018]:4-7. Content provider **101** uses a component manager **130** to present a plurality of data services **140** to businesses **108**, or their individual users, as well as other companies

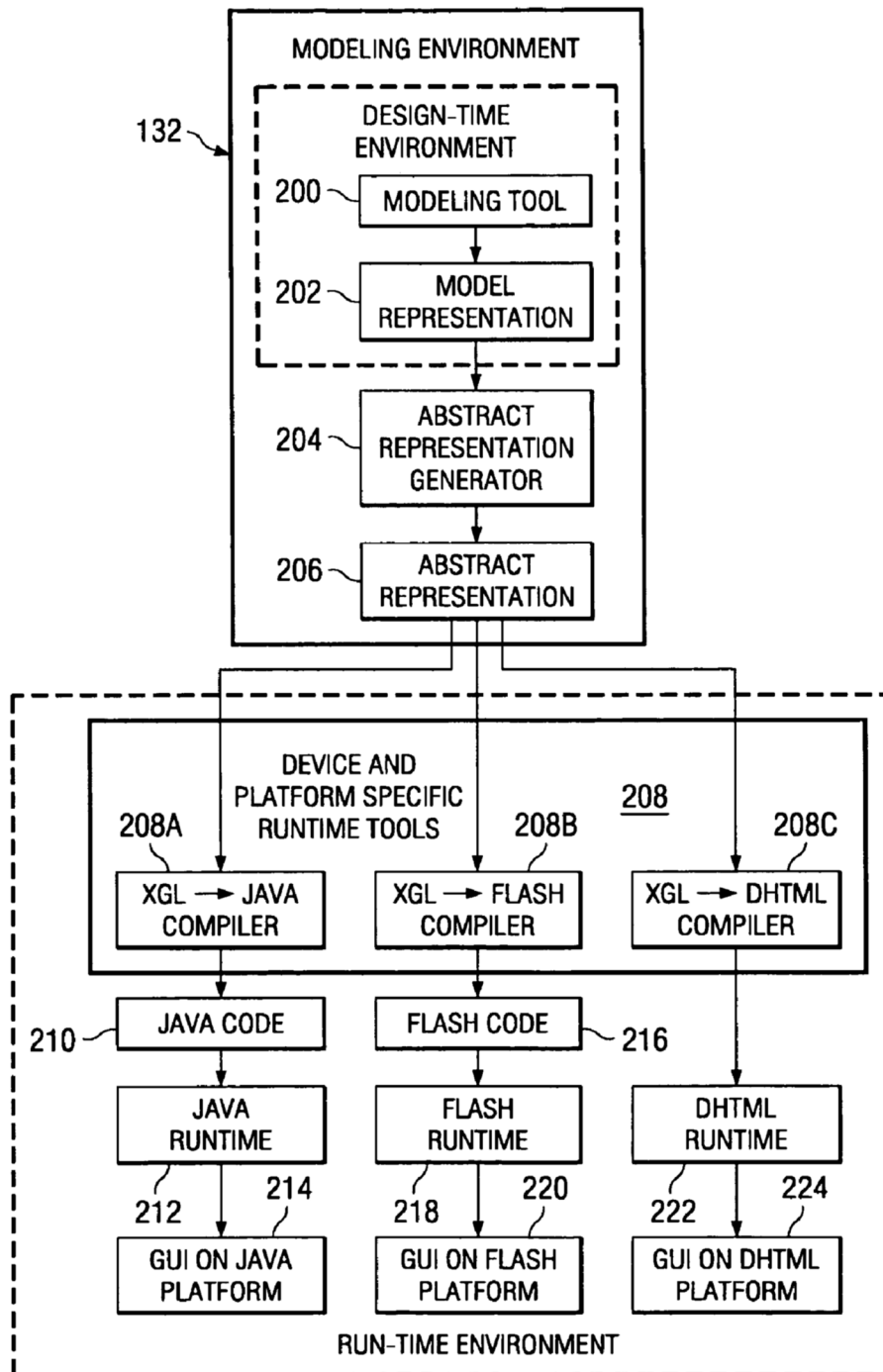
and users in the network. *Id.* [0019]:1-5. Business **108** may use, or request others to use, component manager **130** to download or purchase reusable components **140**. *Id.* [0037]:33-39. At least some of the reusable components **140** were created, modified, or otherwise uploaded by developer **106** to content provider **101**. *Id.* [0037]:33-39.

49. Content provider **101** may provide or utilize a bank of easily searched xApps and xApp components (services/queries with prebuilt UIs) that can be recomposed/adapted to customer needs, such as business **108**. *Id.* [0021]:1-5. The solution can enable the creation, adaption, configuration, or other development of an analytical application **135** or a dashboard by a non-technical user or semi-technical business analyst. *Id.* [0021]:7-10. The non-technical user or business analyst may more easily develop composite applications **135**. *Id.* [0022]:1-5.

50. Component manager **130** is a hosted solution on a remote server **102**. *Id.* [0028]:1-5. System **100** is typically a distributed client/server system that spans one or more networks **112**. *Id.* [0028]:5-7. The various components — such as servers **102** and clients **104** — may communicate via a virtual private network (VPN), a Secure Shell (SSH) tunnel, or other secure network connection. Server **102** may include interface **117** for computing with other computer systems, such as clients **104**, over network **112** in a client-server or other distributed environment. *Id.* [0036]:1-4.

51. FIG. 2A, reproduced below, shows a modeling environment **132** that includes component manager **130**. *Id.* [0040]:1-5.

FIG. 2A



52. The modeling environment **132** may implement or utilize a generic, declarative, and executable graphical user interface (GUI) language (generally described as XGL). *Id.* [0042]:1-3. XGL is generally independent of any particular GUI framework or runtime platform. *Id.* [0042]:3-5. XGL is normally not dependent on characteristics of a target device on which the graphic user interface is to be displayed and may also be independent of any programming language. *Id.* [0042]:5-8.

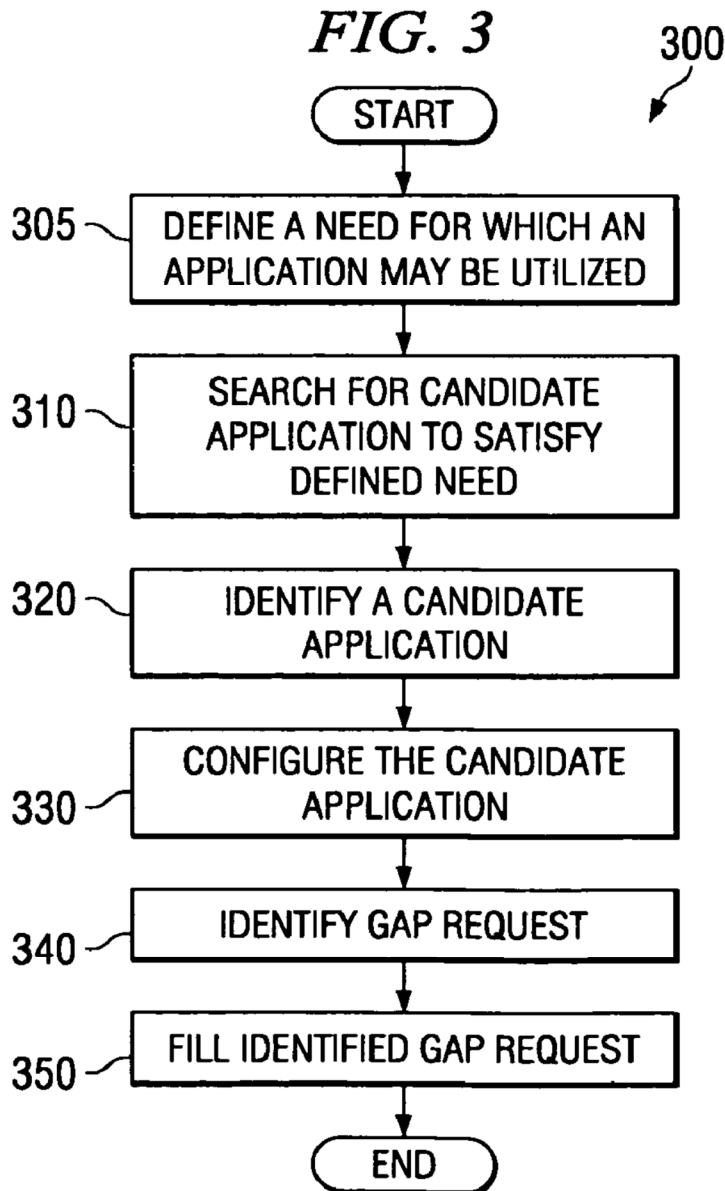
53. Modeling tool **200** may be used by a GUI designer or business analyst during the application design phase to create model representation **202** for a GUI application. *Id.* [0044]:1-4. Model representation **202** may be a collection of XML documents with a well-formed syntax. *Id.* [0044]:17-19.

54. Abstract representation generator **204** takes model representation **202** as an input and outputs abstract representation **206** for model representation. *Id.* [0045]:5-8. For each type of model representation, mapping rules may be provided for mapping the model representation to the XGL representation **206**. *Id.* [0045]:14-16.

55. Abstract representation **206** is such that the appearance and semantics of a GUI generated from the XGL representation work consistently on different target devices irrespective of the GUI capabilities of the target device and the target device platform. *Id.* [0047]:1-5. An XGL-to-Java compiler **208a** may take abstract

representation **206** as input and generate Java code **210** for execution by a target device comprising a Java runtime **212**. *Id.* [0050]:1-4. Java runtime **412** may execute Java code **210** to generate or display a GUI **214** on a Java-platform target device. *Id.* [0050]:4-6. An XGL-to-Flash compiler **208b** may take abstract representation **206** as input and generate Flash code **216** for execution by a target device comprising a Flash runtime **218**. *Id.* [0050]:6-9. Flash runtime **218** may execute Flash code **216** to generate or display a GUI **220** on a target device comprising a Flash platform. *Id.* [0050]:9-11. An XGL-to-DHTML (dynamic HTML) interpreter **208c** may take abstract representation **206** as input and generate DHTML statements (instructions) on the fly which are then interpreted by a DHTML runtime **222** to generate or display a GUI **224** on a target device comprising a DHTML platform. *Id.* [0050]:11-17.

56. FIG. 3, reproduced below, shows an example method **300** for creating a custom business application. *Id.* [0056]:1-2



57. Step **305** is to define a need for which an application may be utilized.

Id. FIG. 3. Once the user has defined the problem, the user may access the modeling environment **132** via the component manager (or “hub”). *Id.* [0056]:8-10.

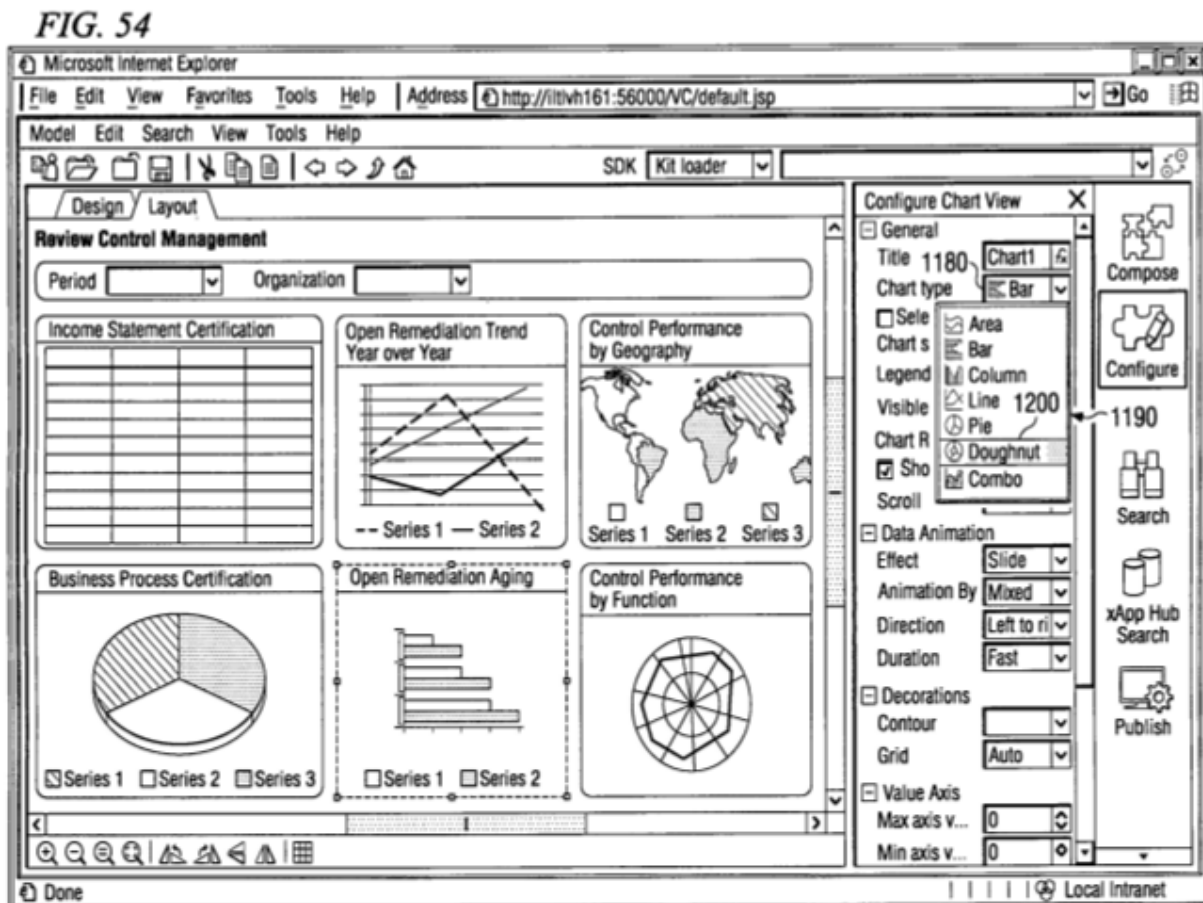
58. At step **310**, the user searches for a candidate application to satisfy the defined need by searching the hub, including a catalog of analytical xApps. *Id.* FIG. 3, [0057]:1-2. The xApps identified by a search are presented to a user via the corresponding user interface (UI) of the xApp. *Id.* [0057]:8-10. At step **320**, the user is able to select the xApp having a UI most closely resembling the desired UI of the new business application. *Id.* [0057]:12-15.

59. At step **330**, the user configures the xApp. *Id.* [0059]:1. Configuration of the selected xApp may involve searches of the hub for pre-constructed content, intuitive wizards, to-do lists, layout and editing tools, drag-and-drop toolbars, as well as other what-you-see-is-what-you-get (WYSIWYG) tools. *Id.* [0059]:29-34.

60. At step **340**, the user may encounter gaps between the intended or designed functionality of the new or modified application and the existing application. *Id.* [0060]:4-7.

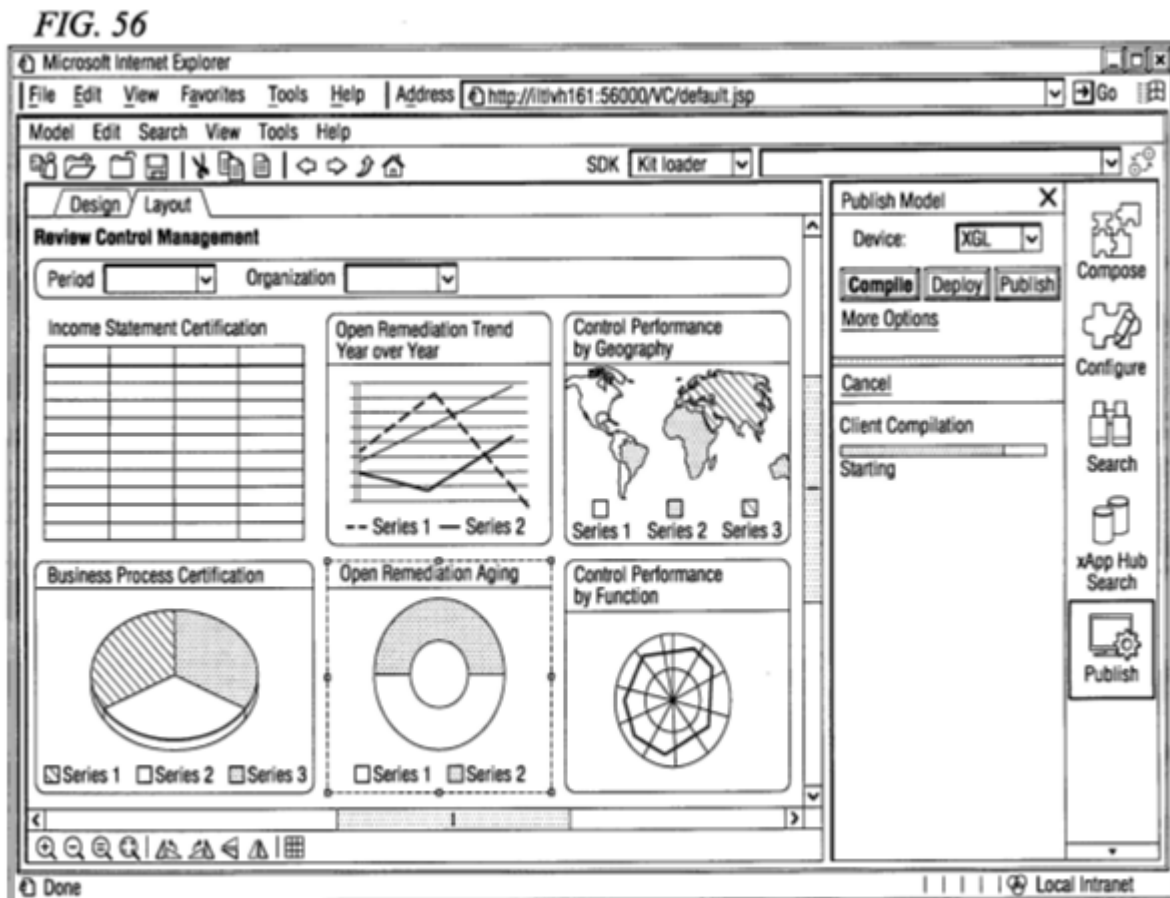
61. At step **350**, those gaps can be filled. *Id.* [0061]:1. Some gaps may be filled with WYSIWYG tools. *Id.* [0061]:1-3. For gaps beyond the capabilities of the user or the available modification tools (e.g., the WYSIWYG tools), the user may include a description of the intended functionality of the new application. *Id.* [0062]:4-7. An information technology professional may then configure the component. *Id.* [0062]:19-22.

62. FIG. 54, reproduced below, is a data presentation utilizing a user interface illustrating adaptation of a pre-constructed xApp into a custom application. *Id.* [0016]:1-3.



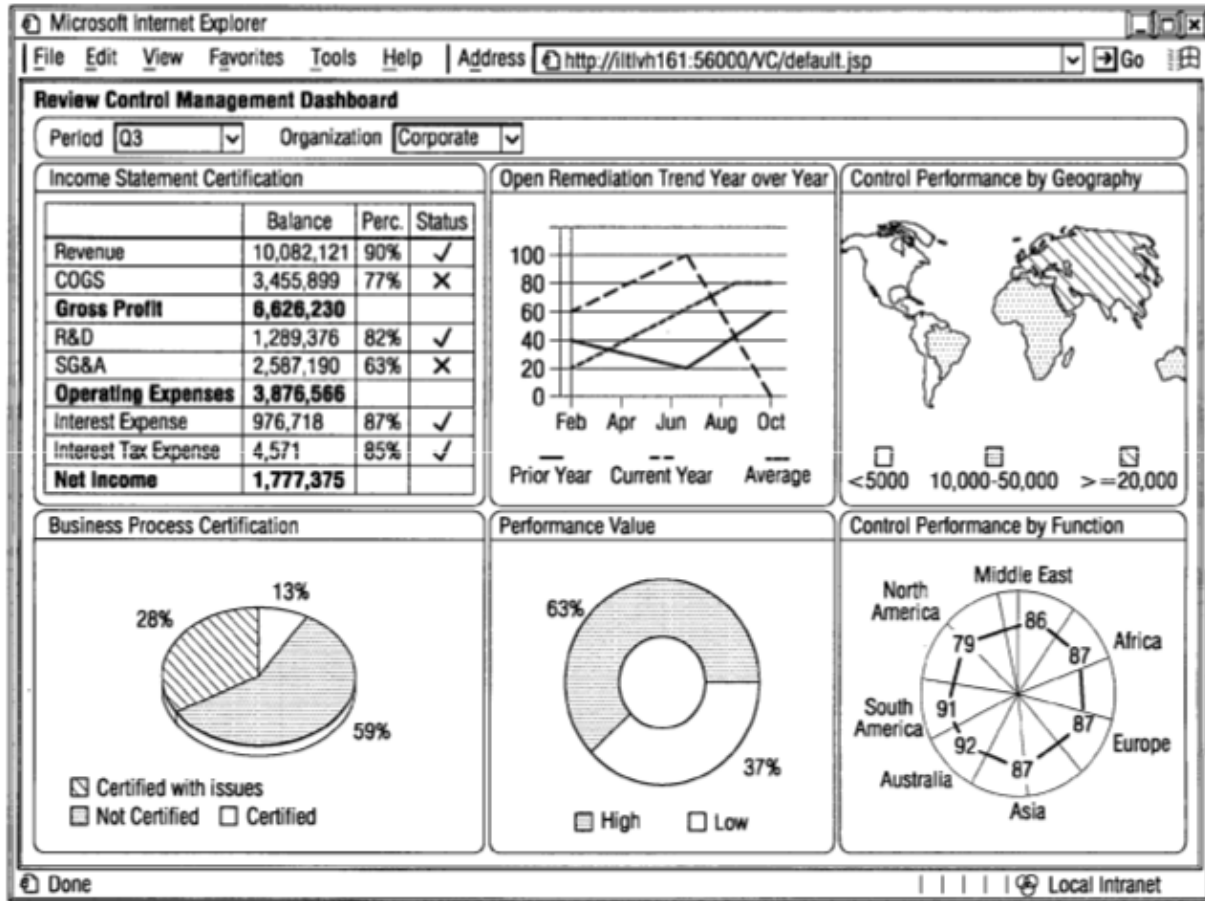
63. In particular, FIG. 54 illustrates the configuration of xApp 840. *Id.* [0071]:1-2. The chart type drop-down list 1180 is shown and numerous available graphical representations of chart types 1190 are shown. *Id.* [0071]:3-6. The user is able to change the chart type of xApp 840 by selecting the desired type 1190 from list 1180. *Id.* [0071]:6-8. A “Doughnut” chart type 1200 is selected. *Id.* [0071]:8-9.

64. In FIG. 56, reproduced below, the “Publish” button **1210** is selected, causing each of the xApps included in the new application to be executed or otherwise prototyped. *Id.* [0071]:10-13.



65. FIG. 57, reproduced below, shows the new or modified application after execution. *Id.* [0071]:13-14.

FIG. 57



2. QlikView Manuals Summary (EX1008 / EX1009)

66. Ground 4 of the Petition relies upon a reference made up of two manuals, QlikView Reference Manual v8.50, 1st ed., and QlikView Server Reference Manual v8.50, 1st ed. (collectively, “QlikView” or “the QlikView Manuals”), which Petitioner contends were published by July 8, 2008.

67. The QlikView manuals comprise (1) the QlikView Reference Manual for version 8.5 of QlikView (QlikView Manual, EX1008) and (2) the QlikView Server Reference Manual for Version 8.5 of QlikView (QlikView Server Manual,

EX1009), which are collectively referred to as QlikView. QlikView discloses a server-client system for data analysis. EX1009 at 0009. The “QlikView Server is the centerpiece of this technology.” *Id.* 0009. The QlikView Server provides a centrally managed QlikView document community that connects multiple users, client types, documents, and objects within a secure and safe environment. *Id.* 0009.

68. There are three types of QlikView Clients that interact with the QlikView Server: (1) the QlikView Developer, (2) the QlikView Professional, and (3) the QlikView Analyzer. EX1008 at 0016.

69. The QlikView Developer client is the full version intended for the development of QlikView documents. *Id.* 0016. A QlikView document is a file containing what is needed to analyze data. *Id.* 0073. The Qlik View document file contains (1) the data itself; (2) a script needed to update the QlikView file with new data from a data source; (3) layout information, including all the sheets, list boxes, charts, etc.; (4) document alerts, document bookmarks, and document reports; (5) access restriction information; and (6) a macro module. *Id.* 0073. The QlikView Developer is the only version to provide full access to the script. *Id.* 0016.

70. The QlikView Professional client is the version intended for the average user who needs to work with existing documents. *Id.* 0016. The QlikView Professional contains full capabilities for manipulating layout, but reloading of data

is normally only with an existing script. *Id.* 0016. Limited scripting capabilities are provided for use with local data. *Id.* 0016.

71. The QlikView Analyzer client is the low-end client that can be used to access QlikView documents on the QlikView Server. *Id.* 0016. The user may navigate the layout, make selections, and view results. *Id.* 0016. No modification of the layout is possible, however. *Id.* 0016. The QlikView Analyzer comes in the following versions: (1) an installed Windows client, (2) a plug-in to Internet Explorer, (3) a Java applet client, or (4) an AJAX Zero Footprint client. *Id.* 0016.

72. Versions of the QlikView clients are designed for different respective computing environments. The QlikView Developer, Professional, and Analyzer clients can be Microsoft Windows installed clients. EX1009 at 0009. These are referred to as “exe clients.” *Id.* 0009.

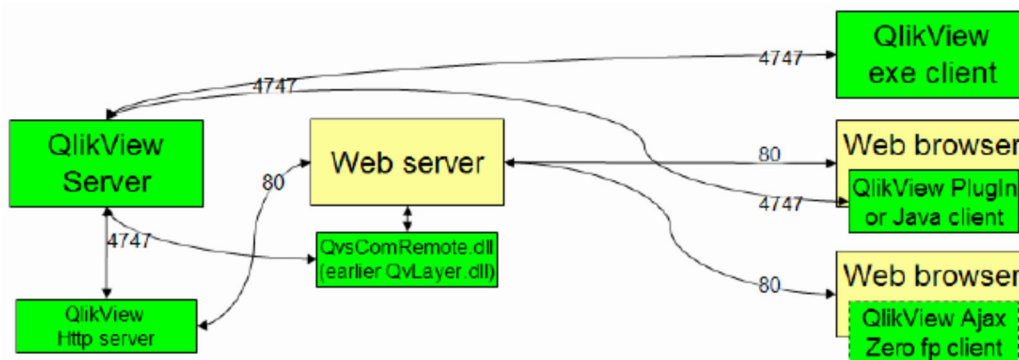
73. The QlikView Analyzer client also has a version that is a full image ActiveX plug-in for Microsoft Internet Explorer web browser. *Id.* 0123, 0125. There also is a QlikX Analyzer client that is an object only ActiveX plug-in for Internet Explorer. *Id.* 0123.

74. There is a version of the QlikView Analyzer that is a full image Java Client using Sun Java in a web browser. *Id.* 0123, 0125.

75. There is a version of the QlikView Analyzer that is Java Objects Client that is an object only client using Sun Java in a web browser. *Id.* 0123, 0125.

76. There is a version of the QlikView Analyzer that is an AJAX Zero-Footprint Client, which is an object only dynamic HTML client that uses AJAX architecture in a web browser. *Id.* 0123, 0125.

77. The figure reproduced below from the QlikView Server Manual shows how the QlikView clients communicate with the QlikView server.



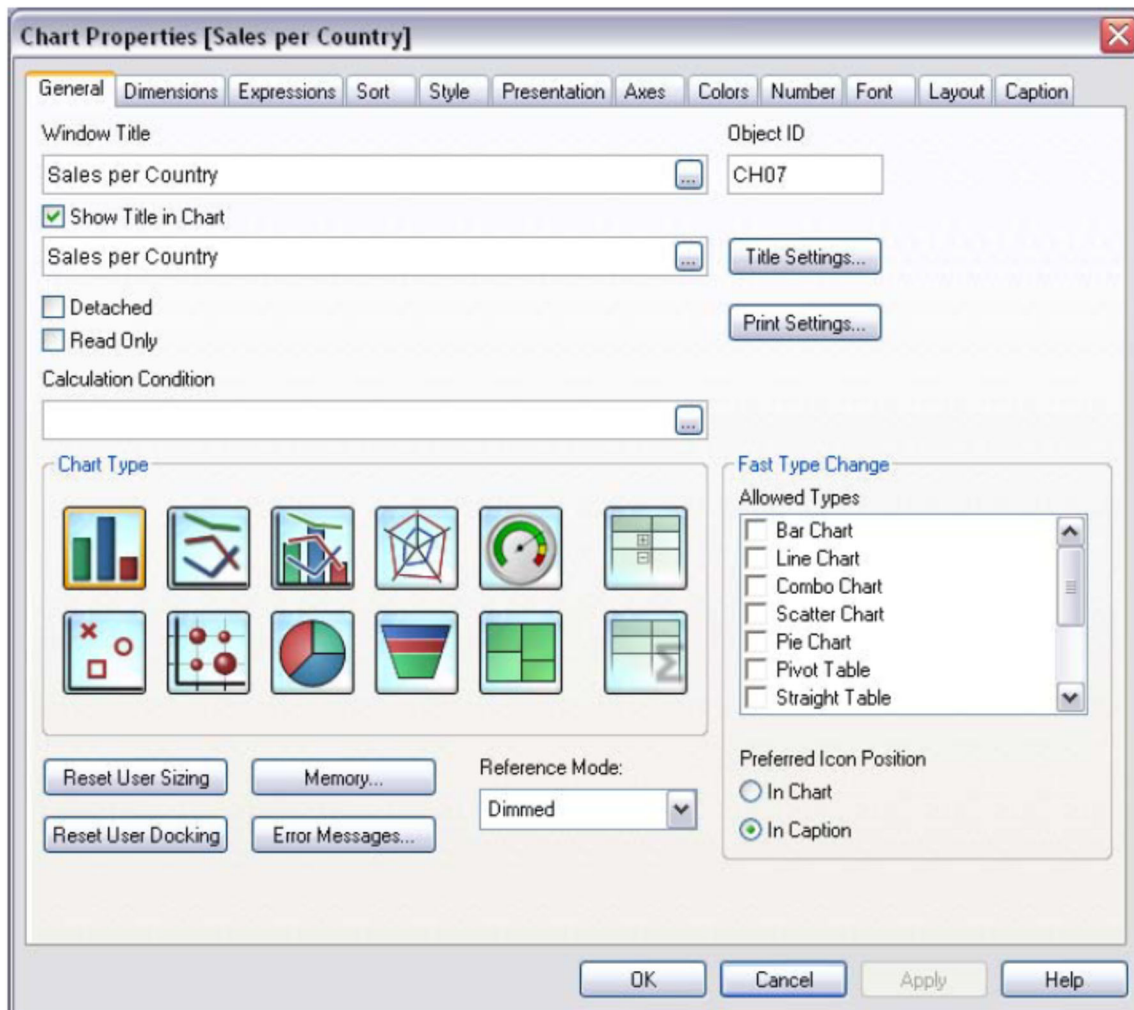
Id. 0098.

78. The Windows client communicates directly with the QlikView server. *Id.* 0098. The Java clients can communicate directly with the QlikView server, but they first must establish a connection with a Web Server serving the page containing the Java applet. *Id.* 0098. The AJAX clients must establish and maintain a connection to the QlikView Server through a Web server. *Id.* 0098.

79. Regardless of the configuration, at least one network communication path must exist between the QlikView Server and the Client. *Id.* 0096.

80. A user of the QlikView Developer client installed on Microsoft Windows can create charts and tables on the QlikView Server. EX1008 at 0016,

0073, and 0880. Those charts and tables include bar charts, line charts, combo charts, radar charts, scatter charts, grid charts, pie charts, funnel charts, block charts, gauge charts, pivot tables, and straight tables. *Id.* 0872-0873. The General page, reproduced below, of a chart wizard is where the titles and chart type can be set. *Id.* 0882.



Id. 0882.

81. Each of the bar, line, combo, grid, pie, funnel, block, and gauge charts has an Object Menu when the chart is active that allows the user to send values to a

Microsoft Excel program. *Id.* 0890, 0892, 0948, 0950, 0960, 0961, 1002, 1003, 1014, 1015, 1024, 1025, 1034, 1035, 1046, and 1047. What the user can export to Excel is the underlying data, which is a straight table equivalent to the chart. *Id.* 0892, 0950, 0961, 1003, 1015, 1025, 1035, and 1047. Excel is automatically launched if it is not already running. *Id.* 0892, 0950, 0961, 1003, 1015, 1025, 1035, and 1047. The table of data will appear in a new Excel worksheet. *Id.* 0892, 0950, 0961, 1003, 1015, 1025, 1035, and 1047.

82. The respective Object Menu for each of the radar and scatter charts does not have an export-of-data-to-Excel feature. *Id.* 0972-0974 and 0984-0986.

83. The pivot table and straight table each has an Object Menu when the respective table is active that allows the user to export the table to a Microsoft Excel program. *Id.* 1062, 1065, 1083, and 1085. Excel is automatically launched if it is not already running. *Id.* 1065 and 1085. The table will appear in a new Excel worksheet. *Id.* 1065 and 1085.

84. A QlikView client is required for the display and usage for an existing QlikView document, which is designated as a “.qvw file.” EX1009 at 0123. The QlikView server is responsible for opening, hosting, and calculating the documents. *Id.* 0123. A client is required for user interaction and presenting the document and its objects. *Id.* 0123. Client choices range from a fully installed QlikView Developer client to an AJAX Zero-Footprint client. *Id.* 0123. Any combination of client types

is allowed, as long as the proper licensing client access licenses (CALs) are available on the server license. *Id.* 0045 and 0123.

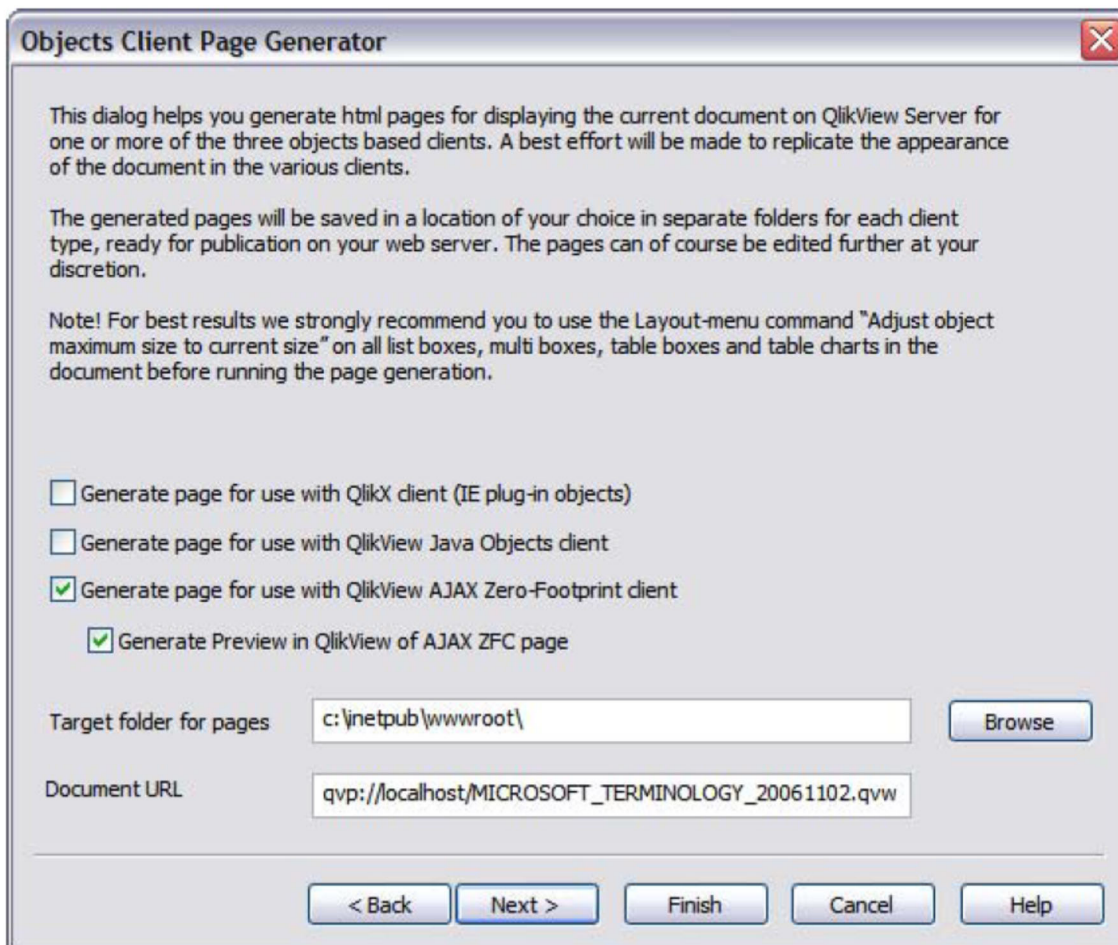
85. Any QlikView document may be displayed with any QlikView client, but additional HTML code must be created for the QlikView Object clients to display and interact with the objects with a particular document. *Id.* 0123. The QlikView Object clients are the Java Objects client, the QlikX client, and the AJAX client. *Id.* 0009.

86. In addition, certain considerations must be taken into account when deploying a QlikView document with the QlikView Server and the clients of the QlikView Server. *Id.* 0123. Regardless of which QlikView client is used, the following are some things that a user cannot do when working with a document opened through a QlikView client:

- The user cannot create new documents;
- The user cannot access or execute the script;
- The user cannot add sheets;
- The user cannot access sheet or sheet object properties of non-shared objects;
- The user cannot access or change the macro module;
- The user cannot save changes to the document, beyond shared objects.

Id. 0167.

87. The QlikView Objects Client HTML Page Generator dialog box is reproduced below.



EX1008 at 0807 (Fig. 87).

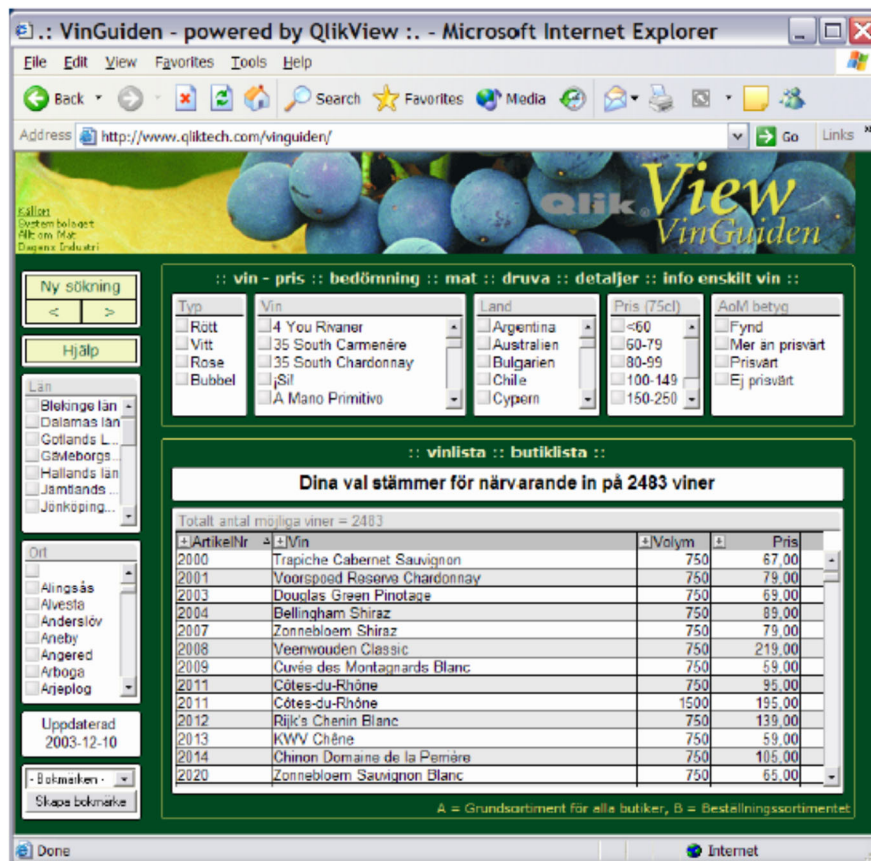
88. The QlikView Objects Client HTML Page Generator dialog box helps a user to generate html pages for displaying the current document on the QlikView Server for one or more of the three QlikView object-based clients (i.e., the Java Objects client, the QlikX client, and the AJAX Zero-Footprint client). *Id.* 0807. A

best effort will be made to replicate the appearance of the QlikView document in the various QlikView clients. *Id.* 0807.

89. The user can specify a target folder for the html pages where the generated html pages will be saved. *Id.* 0808. The html pages can be edited further using a third-party html editor. *Id.* 0807.

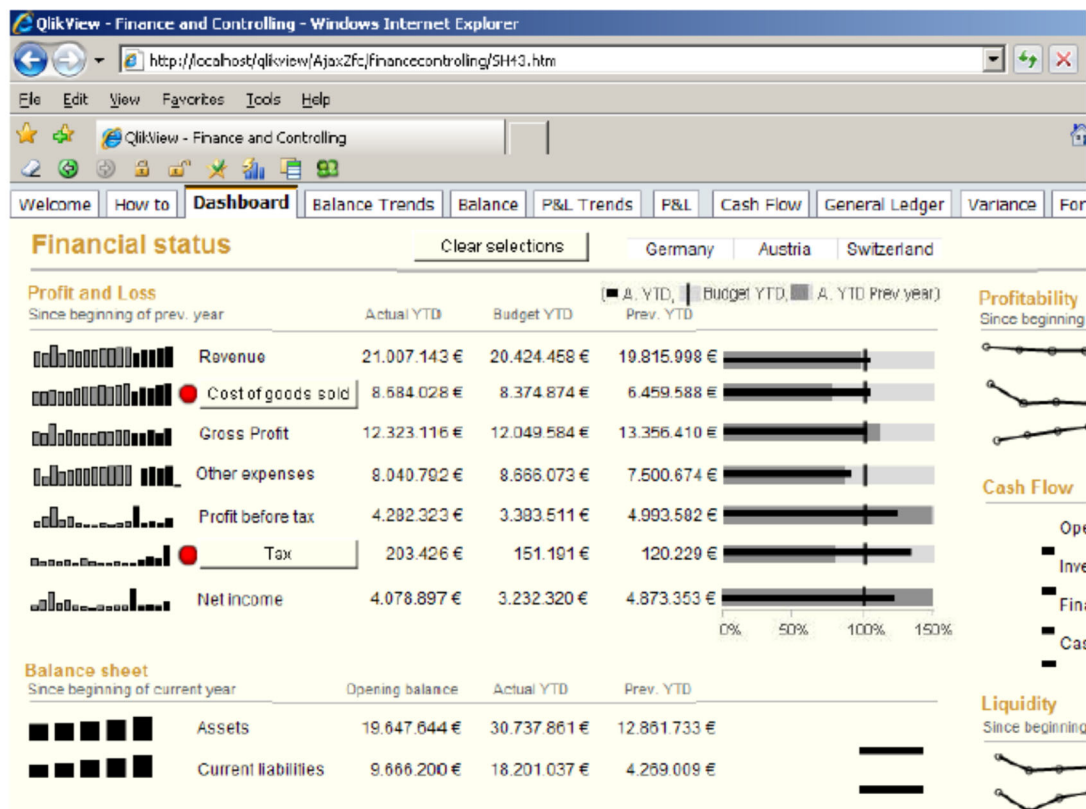
90. The Objects Client HTML Page Generator includes a box called “Document URL” where the user specifies the QlikView target document URL on the QlikView Server where the html pages are to be run. *Id.* 0808. This setting is necessary for the Java Objects and QlikX pages to work properly. *Id.* 0808.

91. The figure reproduced below is an example of a QlikView Objects client in Microsoft Internet Explorer.



EX1009 at 0133.

92. The URL of this page is <http://www.qliktech.com/vinguiden/>. *Id.* 133.
93. The QlikView Java Objects client consists of applets, one for each sheet object, that can be inserted at any position on an html page. *Id.* 0133. Web pages containing Java objects linked to a QlikView document may either be created through the QlikView Objects Client Page Generator or manually created. *Id.* 0133.
94. The figure reproduced below is an example of a QlikView AJAX client with the toolbar option.



Id. 0153

95. The QlikView AJAX Zero-Footprint Client (ZFC) is an object-based client environment built on the AJAX (Asynchronous JavaScript and XML) architecture. *Id.* 0153. The QlikView AJAX ZFC client requires no installation on the client computer. *Id.* 0153. Nevertheless, some HTML/ASP development is required to display and interact with objects from a QlikView document hosted by the QlikView server. *Id.* 0153.

3. Secondary References

a. Strong (EX1067)

96. Strong is a secondary reference cited in Grounds 1-3. Petition at 14. Strong *et al* (“Strong”) is U.S. Patent Publication No. 2006/0101064. Strong discloses a server platform and a datastore on the server platform for maintaining full resolution of copies of files shared between a plurality of sharing clients. EX1067, Abstract:2-6. A synchronization engine is provided on the server platform and is configured to send real-time updates to a plurality of sharing clients when at least one of the sharing clients updates or changes one of the files. *Id.* Abstract:6-10.

b. Jou (EX1007)

97. Jou is a secondary reference cited in Ground 2. Petition at 14. Jou, *et al* (“Jou”) is US Publication No. 2003/0071814, which was published on April 17, 2003.

98. Jou, entitled “Interactive Business Data Visualization System,” discloses an interactive system for visualizing business data organized according to a dimensional model, which allows data to be combined from more than one data source and be presented in the form of a graphical multi-metric data visualization. EX1007, Abstract:1-4. Jou discloses that data to be included in a visualization may be filtered, i.e., limited to the subset of data available from a given source. *Id.* [0038]:1-3. Jou discloses that the visualization method and system that allows

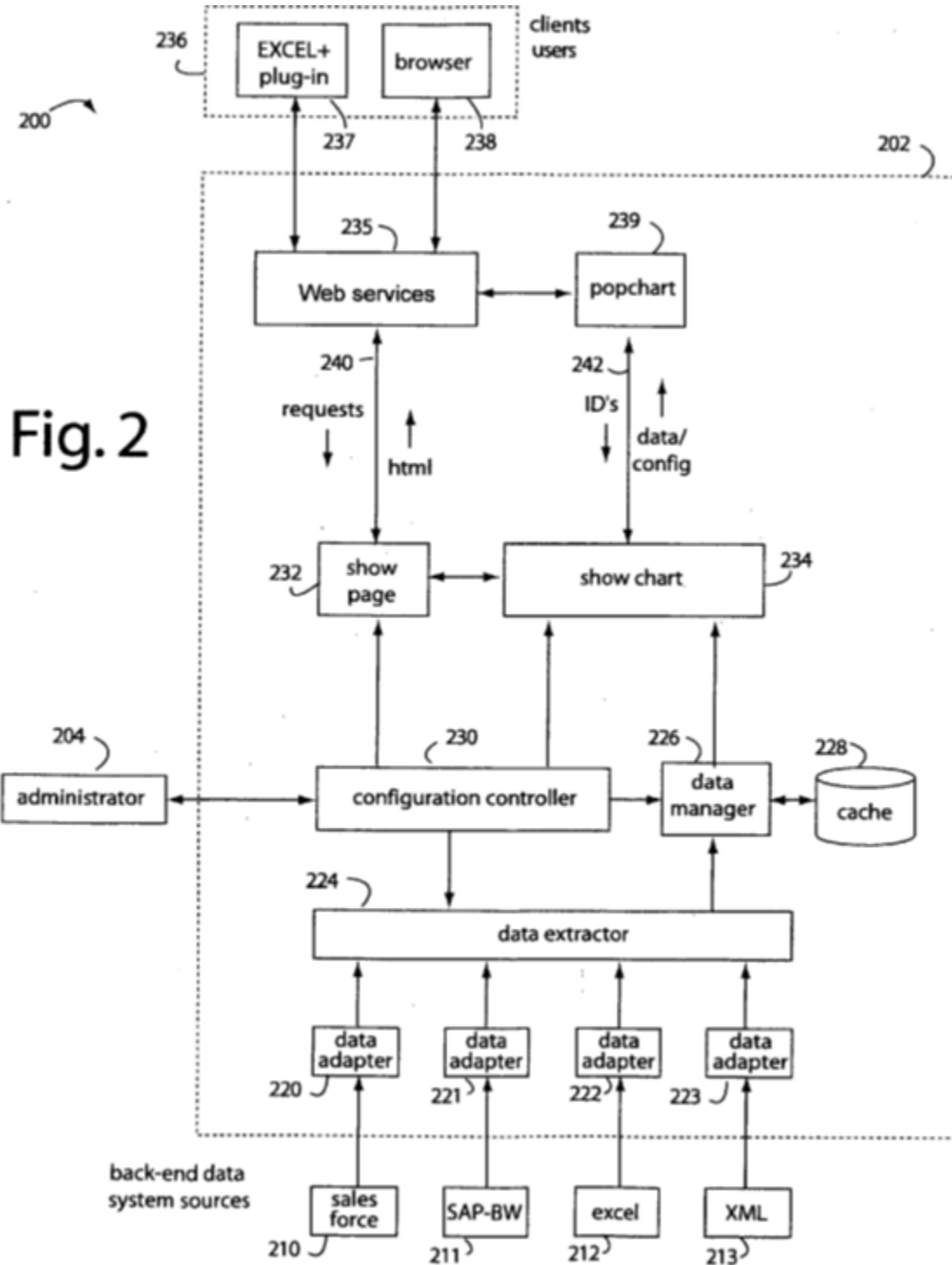
drilling on the dimension axis of the charts by moving either up or down the hierarchy of categories of a dimension (drilling up or drilling down) to obtain a more or less detailed view of the data. *Id.* [0044]:1-6. A user can obtain a closer area view of a map or layer (zooming in) or obtain a wider area view of a map or layer (zooming out). *Id.* [0049]:2-5.

c. Clark (EX1010)

99. Clark, *et al.* (“Clark”) is US Publication No. 2006/0112123, which was published on May 25, 2006. It appears as a secondary reference in Ground 3.

100. Clark discloses a spreadsheet user-interfaced web-based business data publishing system that allows users to input and visualize field data and analytical results with interactive charts through a Microsoft Excel user interface (UI). EX1010 at [0022]:1-5. A plug-in module for Excel enables a background, web-services connection over the Internet to a management sub-system that extracts, transforms, and publishes data. *Id.* [0022]:6-8.

101. FIG. 2, reproduced below, shows business data visualizer system **200**. *Id.* [0044]:1-3.



102. The Excel plug-in module 237 includes a publishing wizard to select Excel data and publish it through system 202, an extractor interface to select data

objects from system **202** and import them into Excel, and a synchronizer to update system **202** when the Excel data changes. *Id.* [0045]:1-5. The extractor interface allows access to SAP BW, Salesforce.com, and other sources. *Id.* [0045]:5-7.

103. A web services application programming interface (API) provides an Internet presence for users that have an Excel spreadsheet application and plug-in **237**, and a browser **238**. *Id.* [0046]:1-4.

104. A client connection **240** is used to receive requests for business intelligence. *Id.* [0048]:1-2. In response, an HTML message is sent that builds a webpage in the user's browser. *Id.* [0048]:2-4. The show-page generator **232** forwards requests from clients to the show chart **234**. *Id.* [0048]:4-5. This causes the data to be fetched by the data manager **226** and sent to POPCHART **239**. *Id.* [0048]:5-7. POPCHART **239**, in response, uses connection **242** to return the pointer ID's to the generated charts that is supplied back in the HTML messages. *Id.* [0048]:7-9. The URL addresses are then available for the user browser to link with the chart graphics on the Internet. *Id.* [0048]:9-11.

105. Business data is extracted from business applications, databases, and other sources. *Id.* [0049]:1-2. Data is transformed, merged, and formatted, using a menu-driven interface. *Id.* [0049]:2-3. The system **200** can publish standalone dashboards, portals, or web pages, as well as components to be integrated into groupware or enterprise portals. *Id.* [0049]:3-6.

d. Bales (EX1006)

106. Bales is a secondary reference cited in Ground 4. Petition 14. Bales, *et al* (“Bales”) is U.S. Publication No. 2007/0113194, which was published on May 17, 2007.

107. Bales, entitled “System and Method for Providing Drag and Drop Functionality in a Communities Framework,” discloses that a community accessible via a portal can be provided for maintaining user membership in a collaborative computing environment. EX1006 Abstract:1-3. Collaboration resources can be displayed on portal page. *Id.* Abstract:3-4. The users who are members of the community may share resources, such as documents, view resources, design and assign task lists, maintain a list of internet links, etc. *Id.* [0052]:15-18.

108. Drag and drop functionality enables a community member to drag and drop some resource into a target area, thereby causing a computer to execute an action upon the drop. *Id.* Abstract:4-7. Upon any given drop, a Javascript function could be called, a pageflow action could be submitted, or a form action could be called to perform the desired functionality. *Id.* [0158]:5-8. A drag and drop tag library enables a user to drag and drop various resources and portlets from one page element to another. *Id.* [0158]:2-5.

V. PERSON OF ORDINARY SKILL IN THE ART

109. I am informed and understand that in the field of patent law, a POSITA is a hypothetical person who is presumed to have known the relevant art at the time of the invention. I understand that the facts that may be considered in determining the level of ordinary skill in the art include: (a) the types of problems encountered in the art; (b) prior art solutions to those problems; (c) the rapidity with which innovations are made; (d) the sophistication of the technology at issue; and (e) the educational level of active workers in the field.

110. For the purposes of the IPR, I do not dispute Petitioner's suggested level of skill. They suggest that the following would be sufficient level of education and skill necessary to understand the technology at the time of invention: a B.S. degree in Computer Science, Computer Engineering, or equivalent experience relating to computing, as well as two to three additional years of academic or industry experience related to web application development and data visualization services. EX1003 ¶70. The Petitioner and its expert suggest that these academic and experiential parameters would allow a person with skill in the art to be familiar with client-side scripting technologies, such as JavaScript and/or ActionScript, and would have allowed that individual to have worked as part of a multidisciplinary team and drawn upon not only her own skills, but of others on the team, e.g., to solve a given problem. *Id.* I do not disagree.

111. Considering the proposed level of skill, I was at least a POSITA in the field of technology of the '000 Patent at the time of the invention and am qualified to offer opinions on the state of the art and what POSITAs would have known and understood in the 2009 timeframe.

VI. LEGAL PRINCIPLES

112. I am informed and understand that a patent claim is invalid as anticipated under 35 U.S.C. § 102 only if each and every element as set forth in the claim is found, either expressly or inherently, in a single prior art reference, and that the elements must be arranged as required by the claim.

113. I am informed and understand that a patent claim is invalid as obvious under 35 U.S.C. § 103 if the differences between the claimed invention and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art. I am informed and understand that a claimed invention composed of several elements is not proven obvious merely by demonstrating that each of its elements was known independently in the prior art. A patent challenger must identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements. In determining whether a claimed invention is obvious, each claim must be considered separately, and hindsight may not be used, but only what was known at the time of the invention.

114. I am informed and understand that in making a determination whether a given patent claim is obvious, one must take into account (1) the scope and content of the prior art; (2) the differences between the prior art and the claims; (3) the level of ordinary skill in the art; and (4) any objective evidence (called “secondary considerations”) that may have existed at the time of the invention and afterwards that shed light on the nonobviousness of the claimed invention, including: (a) whether the invention was commercially successful as a result of the merits of the claimed invention; (b) whether the invention satisfied a long-felt need; (c) whether others had tried and failed to make the invention; (d) whether others copied the invention; (e) whether the invention achieve unexpected results; (f) whether others in the field praised the invention; among others.

VII. CONSTRUCTION OF CLAIM TERMS

115. I have been informed and understand that to properly evaluate the ’000 Patent, the terms of the claims must first be interpreted.

116. I understand that neither party has proposed a specialized construction for the terms of the ’000 Patent in this IPR at this time. Accordingly, the opinions set forth in this declaration are based the plain and ordinary meaning of the claim terms set forth in the ’000 Patent. To the extent any specialized construction is presented or offered, I reserve the right to supplement the opinions set forth herein.

VIII. PETITIONER'S ASSERTED GROUNDS OF THE UNPATENTABILITY OF THE CHALLENGED CLAIMS

117. In my opinion, both Grounds of Invalidity presented by Petitioners fail to establish the unpatentability of the Challenged Claims. The independent claim of the '000 Patent teaches, among other things, that at least one interactive chart is automatically displayed on a second website using a data feed from a first website to a second website upon the dragging and dropping selection, and the Grounds asserted by Petitioner do not disclose or fairly teach the features of the independent claim, including the above feature.

118. Ground 1 of the Petition alleges that Rostoker, in view of Strong, renders obvious the '000 Patent's claims 1-4.

119. Ground 2 of the Petition alleges that Rostoker, in view of Strong, and further in view of Jou, renders obvious the '000 Patent's claims 1-4

120. Ground 3 of the Petition alleges that Rostoker, in view of Strong, and further in view of Clark, renders obvious the '000 Patent's claims 1-4

121. Ground 4 of the Petition alleges that QlikView, in view of Bales, renders obvious the '000 Patent's claims 1, 2, and 4

A. Ground 1 - Rostoker in View of Strong Does Not Render Obvious Claims 1-4

122. Ground 1 in the Petition relies on Rostoker in view of Strong. *See* Petition p.19–61. I disagree with Tableau's expert, Christopher Schmandt

(“Schmandt”), that this combination teaches or suggests every element in claims 1-4 the ’000 Patent.

1. Rostoker Does Not Render Obvious Claim 1

123. The ’000 patent relates to a system and method for generating and sharing interactive charts. EX1001, Abstract: 1-2. The interactive charts are generated in an online portal that allows users to customize the interactive features of the chart. *Id.* Abstract:2-4. The interactive charts can be embedded in other websites without the need to reprogram the other websites each time an interactive chart is embedded in those websites using a chart box tool. *Id.* 5:31-34. When the user drops the selected chart(s) **4512** onto chart box folder **4520**, the chart is automatically displayed in the chart box **4304** embedded on the user's website. *Id.* 16:41-44.

124. Rostoker differs markedly from the ’000 patent. Rostoker discloses using xApps and xApp components to create an analytical application or dashboard within the Rostoker system of developing custom business applications. EX1005 at [0021]:1-5, 7-10. The result of the method of Rostoker is having each of the xApps included in a new application to be executed or otherwise prototyped. *Id.* [0071]:10-13. The charts that are included in a new application are not interactive, however. Moreover, there is no disclosure in Rostoker of transmitting interactive charts to a second website for display.

125. Strong and Rostoker are not combinable, and even if combined, do not disclose or teach each and every claim element of claim 1. It is therefore my opinion that Strong does not cure the deficiencies of Rostoker.

a) Rostoker in view of Strong does not disclose “receiving a selection, on a first website, of a least one interactive chart from a plurality of interactive charts” (Claim 1)

126. Schmandt opines that Rostoker discloses “receiving a selection, on a first website, of a least one interactive chart from a plurality of interactive charts.” EX1003 ¶175.

127. Schmandt bases his opinion on “a first website” on his understanding that Rostoker discloses a system that includes a “storefront” or “hub,” also known as a “content provider,” that can be accessed in a standalone fashion or may be coupled with a web server, and is provided via a component manager that presents a plurality of data services. *Id.* ¶¶175-176. The content provider may provide or utilize a bank of xApps and xApp components that are displayed on what Schmandt opines to be the “first website.” *Id.* ¶¶176-177. Schmandt’s opinion on a “plurality” of charts stems from his understanding that Rostoker discloses xApps that are available on the “first website,” such as bar charts and line graphs. *Id.* ¶178.

128. Schmandt opines further that Rostoker also discloses “receiving a selection” because it is his understanding that Rostoker discloses a user’s ability to locate components on the hub and select pre-existing applications of the component

without modification or as a template to create an application that operates in a desired manner. *Id.* ¶179.

129. It is Schmandt’s opinion that Rostoker also discloses that its charts are “interactive charts” for four reasons: first, Rostoker discloses a “Configure Chart View” toolbar that allows a user to enable allegedly “interactive” features of a chart; second, Rostoker discloses a “new or modified application” after execution that, according to Schmandt, a POSITA would have understood to be interactive because of its ability to exhibit changed data when a selection was made from a drop-down list; third, Rosotker discloses triggers to cause the input or output of data to be associated with components, which a POSITA would have understood that something like the disclosed “Click on Cell” trigger would allow a user to change the information displayed in charts; and fourth, Rostoker discloses interactive buttons to, for example, cause a table included with the executed application to switch views. *Id.* ¶¶181-186. It is Schmandt’s opinion that these types of features taught by Rostoker are consistent with the ’000 Patent and support his opinion that Rostoker meets the relevant claim limitations of claim 1 of the ’000 Patent. *Id.* ¶¶187-188.

130. The ’000 Patent discloses an interactive chart as having interactive features that allow a user to interact with the chart to, for example, modify or change the user’s view of the chart, learn more about the chart data, and the like. EX1001

9:8-12. Examples of interactive features include a zoom feature, a data mouse-over pop-up window, a data hide/share feature, an audio playback feature, a drill down feature, and data gliding feature, and the like. *Id.* 9:12-15.

131. I disagree with Schmandt's characterization of what Rostoker teaches and it is my opinion that Rostoker does not teach or suggest the relevant elements of claim 1.

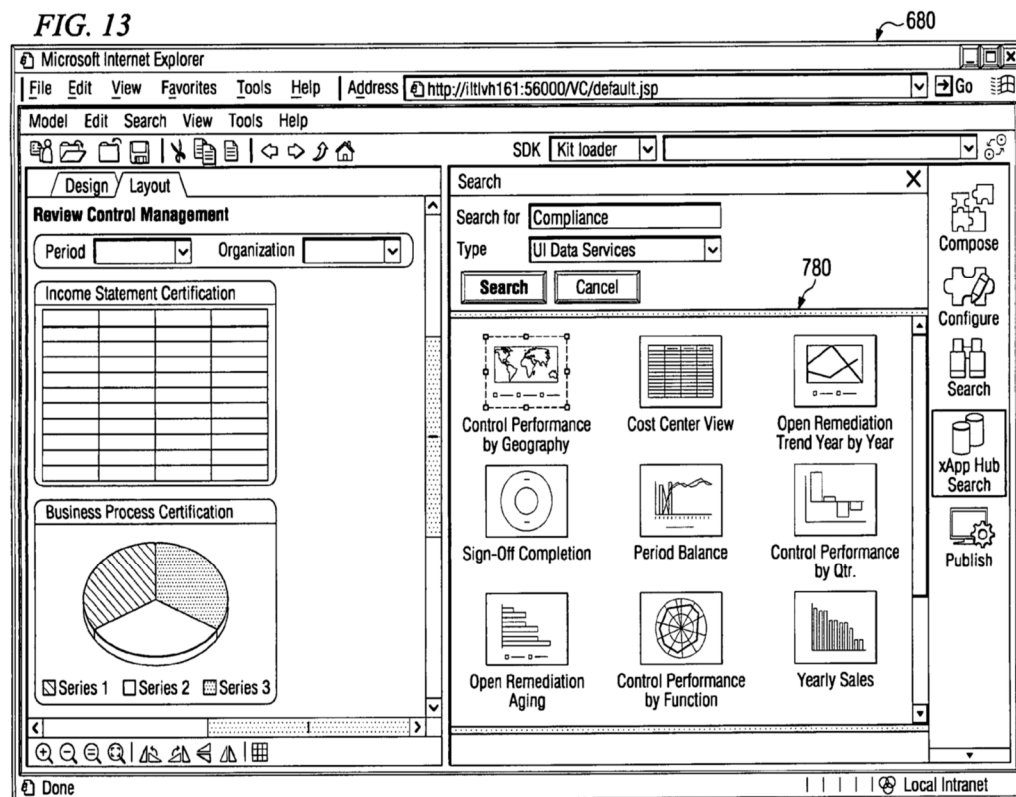
132. The '000 Patent discloses that an interactive chart can be a "flash object." EX1001 13:49-50. The '000 Patent describes one embodiment of "the interactive chart **300**" as "a flash file that contains code that a) renders the chart, b) obtains input from the user as per his desired action on this chart (i.e., interactivity), and c) re-renders the chart using the input as parameters." *Id.* 8:23-27. The interactive chart data is "stored within the flash file." *Id.* 8:27-28.

133. The '000 patent discloses that a user can select an interactive chart for display in chart box **4304** by, for example, dragging and dropping one or more of the charts **4512** onto the chart box folder **4520**. *Id.* 16:38-41. When the user drops the selected chart **4512** onto chart box folder **4520**, the chart is automatically displayed in the chart box **4304** embedded on a user's website (i.e., a second website). *Id.* 16:41-44.

134. In contrast, Rostoker does not disclose receiving a selection, on a first website, of at least one interactive chart from a plurality of interactive charts. FIG. 3

of Rostoker set forth the method of Rostoker of creating custom business application. EX1005 at [0056]:1-2. Rostoker discloses that a user can search for a candidate application to satisfy a defined need on component manager 130 (i.e., the hub), including searching a catalog of analytical xApps. *Id.* FIG. 3, [0057]:1-2. At step **310**, the user searches the hub, including a catalog of analytical xApps. *Id.* [0057]:1-2. At step **320** — called Identify a Candidate Application — the user is able to select the XApp having a User Interface (UI) most closely resembling the desired UI of the new business application. *Id.* FIG. 3, [0057]:12-15.

135. FIG. 13 of Rostoker, reproduced below, shows the results of a hub search.



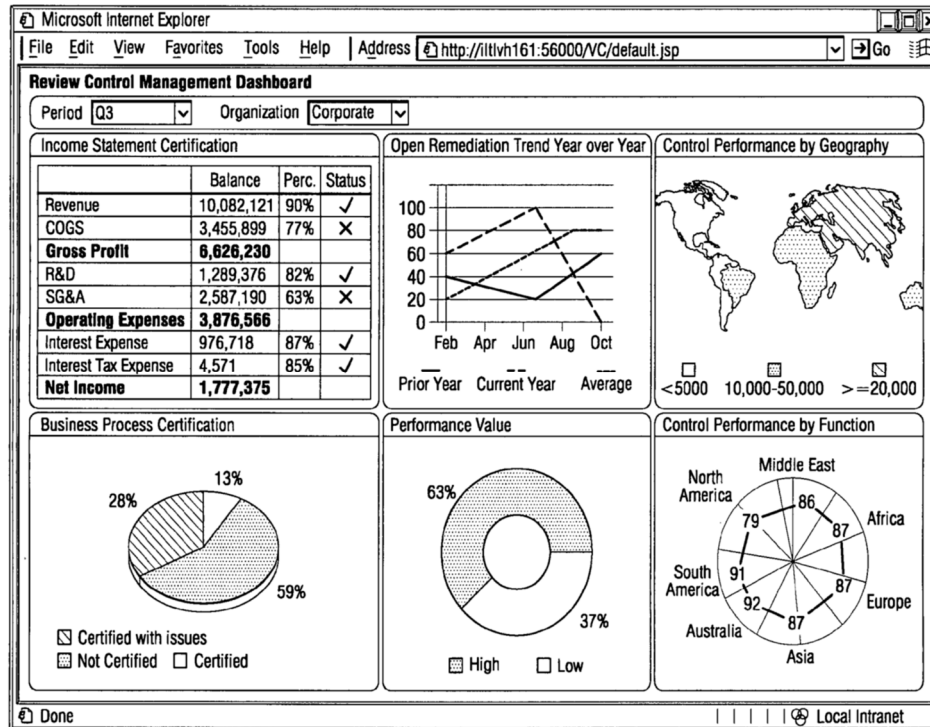
136. As can be seen in FIG. 13, the xApp Hub Search button is selected. *Id.* FIG. 13. FIG. 13 shows the workbench **680** with the xApps corresponding to the search criteria. *Id.* [0067]:7-8. The xApps are located in field **780**. *Id.* [0067]:8-9. A POSITA would understand that the charts shown in field **780** are static charts, not interactive charts.

137. The user configures the xApp at step **330** of FIG. 3. *Id.* [0059]:1. Configuration of the selected xApp may involve searches of the hub for pre-

constructed content, intuitive wizards, to-do lists, layout and editing tools, drag-and-drop toolbars, as well as other what-you-see-is-what-you-get (WYSIWYG) tools. *Id.* [0059]:29-34. That configuration can involve charts. *See, for example*, EX1005 FIG. 54.

138. Although the charts of Rostoker can be altered at the configuration step **330** (Rostoker FIG 3), a POSITA would understand that the charts become static — not interactive — when the publish button **1210** is selected. This is apparent from FIGS. 54-57 of Rostoker and the discussion of those figures. In FIG. 54, the user is able to change the chart type of xApp **840** by selecting the desired type **1190** from list **1180**. *Id.* [0071]:6-8. A “Doughnut” chart type **1200** is selected. *Id.* [0071]:8-9. FIG. 55 shows that the chart type of xApp **840** is changed to the selected chart type **1200**. *Id.* [0071]:9-10. In FIG. 56, the “Publish” button **1210** is selected, causing each of the xApps included in the new application to be executed or otherwise prototyped. *Id.* [0071]:10-13. The result is shown in FIG. 57, reproduced below, which shows the new or modified application after execution. *Id.* [0071]:13-14.

FIG. 57



139. FIG. 57 shows static charts, not interactive charts. FIG. 57 of Rostoker shows no controls that would allow a user to interact with the charts. In other words, the various tools and controls allowing one to manipulate and change the charts disappear once the charts are in the new or modified application, as shown in FIG. 57 or Rostoker.

140. Thus, although Rostoker shows that one can configure an xApp to make a desired chart, Rostoker teaches that the end result is a static chart — not an interactive chart — that becomes part of an application or dashboard within the system of Rostoker of developing a custom business application. Thus, Rostoker does not disclose the limitation of “receiving a selection, on a first website, of at

least one interactive chart from a plurality of interactive charts” because an interactive chart is not identified at step **320** of the method of Rostoker nor is an interactive chart generated by the system of Rostoker. Thus, in Rostoker, a selection is not received of at least one interactive chart from a plurality of interactive charts.

141. Schmandt is misguided in opining that an interactive chart is received by the system of Rostoker. Schmandt relies on the “Configure Chart View” toolbar of FIG. 53 of Rostoker, but he is confusing the configuration step **330** of Rostoker with the *end result*. The end result, as shown by FIG. 57, is the *generation of a static chart*, not an interactive chart.

142. Schmandt also relies on the Period and Organization drop-down controls on the Review Control Management Dashboard shown in FIG. 57. The reliance on this is misplaced, however. Although the Dashboard may allow changes to the Period and Organization, the charts are, nevertheless, *not interactive*. A POSITA would understand that the changing of the Period or Organization would result in the display of *entirely different static charts* associated with the newly selected Period or Organization, not a change in the configuration of the *presently shown* static charts.

143. Schmandt points to the “Click on Cell trigger” in FIG. 70. This reliance is misplaced, however, because there is confusion of the configuration step **330** of

Rostoker with the end result. A POSITA would understand that the end result after configuration is a static chart.

144. Schmandt also relies on the interactive button shown in FIGs 71 and 72. He is again confusing the configuration step **330** of Rostoker with the end result. FIGs. 71 and 72 are examples of adapting an xApp into a desired application. *Id.* [0072]1-2. FIG. 71 shows a new component being added (i.e., the button) by selection of the Add Element button 1390. *Id.* [0075]:3-4. A POSITA would understand that configuration of the added button is an example of altering the xApp to be used at the configuration step **330** and not making an otherwise static chart interactive after the publication selection is made.

145. The interactive features that Schmandt points to also do not indicate that interactive charts are generated by Rostoker. A POSITA would understand that those interactive features are available during *the configuration stage* **330** and not after the charts are part of the new or modified application after execution, as shown in FIG. 57.

b) Rostoker in view of Strong does not disclose a “displaying in response to the selection the at least one interactive chart embedded in a chart box on a second website, wherein the chart box is a web widget” (Claim 1)

146. Schmandt opines that Rostoker teaches “displaying in response to the selection the at least one interactive chart embedded in a chart box on a second website, wherein the chart box is a web widget.” EX1003 ¶189.

147. Schmandt reiterates that he believes that Rostoker teaches “receiving a selection, on a first website, of at least one interactive chart,” and once a chart is selected and added to a current application, Rostoker discloses a “Publish” function that allows a user to publish the modified application, causing the xApps in the new application to be executed. *Id.* ¶¶190-191.

148. Schmandt further opines that each selected allegedly “interactive chart” is displayed in a “chart box,” for example, the box labeled “Open Remediation Trend Year over Year” in FIG. 57. *Id.* ¶192. Schmandt understands Rostoker’s chart box to be the same chart box as described in the ’000 Patent because, in his opinion, Rostoker’s chart box is configured to be embedded on a website to display one or more interactive charts on that website, which, to Schmandt, mirrors the language of the ’000 Patent. *Id.* ¶193.

149. Regarding the chart box, Schmandt also opines that Rostoker discloses a chart box that is a “web widget.” *Id.* ¶194. This because, according to Schmandt,

Rostoker discloses that each alleged “chart box” is its own “xApp.” *Id.* Schmandt states that Rostoker teaches that a part of publishing the application and included xApps is that the application components are transformed to an XGL, which are then used to generate machine-executable runtime GUIs to be executed by a target device. *Id.* Schmandt states that the XGL representation may be used for generating representations of various different GUIs and supports various GUI features, and further discloses “an XGL-to-Java compiler” and “an XGL-to-Flash compiler,” to generate Java and Flash code for execution by a target device comprising a Java or Flash runtime. *Id.* ¶195.

150. It is Schmandt’s opinion that the ’000 Patent describes that a chart box may be a web widget without defining what a widget is. *Id.* ¶196. It is Schmandt’s opinion, then, that Rostoker describes a “widget” consistent with the description of the ’000 Patent, especially when considering the World Wide Web Consortium’s definition. *Id.* It is Schmandt’s opinion that a POSITA would have understood that Rostoker’s published xApps are widgets. *Id.*

151. Schmandt further opines that Rostoker discloses “a second website.” *Id.* ¶197. Schmandt opines that a POSITA would have understood Rostoker to teach display an interactive chart to a second website in response to generation of a chart because businesses, such as business 108 of Rostoker, often provide their own web services to make business applications accessible within the business’s local

network, a web service network that serves well as a common access environment for all the applications operating on it. *Id.* ¶199. Schmandt opines that Rostoker’s “Publish” function allows a user to “Deploy” an application to an enterprise network associated with the business and that the published application is accessible via local intranet, that may be a local enterprise network. *Id.* ¶200. It is Schmandt’s opinion that a POSITA would have motivated to allow business applications to be deployed to a separate website local to an enterprise to ensure published business applications are not accessible outside of the local enterprise network, and that the published application would be accessed and displayed on as second website provided by the enterprise network rather than by Rostoker’s provider **101**. *Id.* ¶201. Schmandt sees providing Rostoker’s published applications on a second website would have simply been a design choice resulting in the same function of displaying the published application within a web browser, and providing an enterprise application through a local web server would have acted to increase security. *Id.* ¶202. Therefore, Schmandt opines, providing published applications through a second website within the enterprise network would have been an obvious choice, which could have been enacted to increase security of who has access to those applications. *Id.* According to Schmandt, this satisfies “a second website.”

152. I disagree with Schmandt’s characterization of what Rostoker discloses. To begin, the ’000 Patent discloses that chart box **4304** is configured to be

embedded on a website to display one or more interactive charts on that website. EX1001 15:51-55. Charts are added to the chart box using a chart box tool provided by another website that allows users to generate, purchase or otherwise manipulate and select the interactive charts. *Id.* 15:55-58. When the user drops the selected chart(s) **4512** onto chart box folder **4520**, the chart is automatically displayed in the chart box 4304 embedded on the user's website. *Id.* 16:41-44.

153. Rostoker, on the other hand, does not disclose the displaying of an interactive chart on a second website. Rostoker discloses that selection of the “Publish” button **1210** of FIG. 57 causes each of the xApps included in the new application to be executed or otherwise prototyped. EX1005 [0071]:10-13. Rostoker discloses creating custom business applications within the Rostoker system. *Id.* [0002]:1-3. The system of Rostoker can enable the creation, adaption, configuration, or other development of an analytical application **135** or a dashboard by a non-technical user or semi-technical business analyst. *Id.* [0021]:7-10. But there is no disclosure of the displaying of an interactive chart on a second website.

154. Network interface **117** of Rostoker communicates with network **112**, which is part of the system for developing a business application. *Id.* [0012]:1-3, [0036]:7-9. Rostoker includes no disclosure of interface **117** being a network interface to a second website.

155. The reference to a Local Intranet in FIG. 57 does not disclose displaying an interactive chart on a second *website*. Internet Explorer is a *browser*. Schmandt's statement that a "POSA would have understood that businesses, such as a business **108** of Rostoker, often provide their own web services to make business accessible with the business's local network" (EX1003 ¶199) falls short of saying that an interactive chart would be displayed on a second *website*. Schmandt's further statement that a "POSA would have been motivated to allow business applications to be deployed to a separate website local to an enterprise to ensure published business applications are not accessible outside of the local enterprise network" (*Id.* ¶201) falls short of a specific motivation to have an interactive chart displayed on a second website.

156. Thus, Rostoker does *not* disclose, teach, or suggest the limitation of "displaying, in response to the selection the at least one interactive chart embedded in a chart box on a second website."

157. Moreover, it is my opinion that the chart box system of the '000 patent is fundamentally different from the Rostoker business application development system. There was no reason for one having ordinary skill in the art to start with the Rostoker system and modify it to obtain the claimed system of the '000 Patent. Schmadnt's statement that providing Rostoker's published application on a second

website would have been a mere design choice is both incorrect and based on impermissible hindsight from the '000 Patent disclosure.

158. There is no disclosure in Rostoker of a chart box on a second website. Claim 1 of the '000 patent states that the chart box is a web widget. EX1001 at claim 1. Rostoker does *not* disclose a web widget or a chart box that is a web widget.

159. It is my opinion that a POSITA would understand a web widget to be a web page or web application embedded as an element of a host web page, but is substantially independent of the host page, having limited or no interaction with the host. The '000 patent states that in one embodiment, the chart box **4304** is a flash widget. EX1001 16:1. A POSITA would understand that a flash widget is a small interactive element on a website or application that is built using Adobe Flash technology providing for dynamic animations, graphics, and user interactions within a confined space.

160. Schmandt is misguided in stating that the field entitled “Open Remediation Trend Year” in FIG. 57 of Rostoker is a chart box within the meaning of claim 1. EX1003 ¶192. To begin with, the “Open Remediation Trend Year” field is not on a second website. In FIG. 56 of Rostoker, the “Publish” button **1210** is selected, causing each of the xApps included in the new application to be executed or otherwise prototyped. EX1005 [0071]:10-13. The result is shown in FIG. 57 which shows the new or modified application after execution. *Id.* [0071]:13-14.

There is no disclosure, however, in Rostoker, that the static chart fields, including the “Open Remediation Trend Year” field, shown in FIG. 57 of Rostoker are on a second website.

161. Instead, a POSITA would understand that the “Open Remediation Trend Year” field of FIG. 57 of Rostoker is merely a field displaying a static chart as displayed by an Internet Explorer browser. Thus, a POSITA would understand that the “Open Remediation Trend Year” field of FIG. 57 is not a web widget, nor are the other fields of FIG. 57. The word “widget” does not appear anywhere in Rostoker. Moreover, the “Open Remediation Trend Year” field is displaying a static chart, not an interactive chart. A POSITA would understand that the “Open Remediation Trend Year” field of FIG. 57 of Rostoker is not a web application embedded as an element of a host web page but is substantially independent of the host page, having limited or no interaction with the host.

162. Furthermore, Schmandt’s reliance on the reference in paragraph [0071] of Rostoker to “each of the xApps included in the new application” is misplaced. *See, e.g.*, EX1003 ¶191. Rostoker says that “[i]n FIG.56, the “Publish” button **1210** is selected, causing each of the xApps included in the new application to be executed or otherwise prototyped.” EX1005 [0071]:10-13. But a POSITA would understand that that xApps are not chart boxes or web widgets. Instead, xApps are described by Rostoker in the context of the content provider **101** providing or utilizing a bank of

easily searchable xApps and xApp components (services/queries with prebuilt UIs) that can be recomposed/adapted to customer, such as illustrated business **108**, needs. *Id.* [0021]:1-5. Furthermore, FIG. 57 of Rostoker shows the new or modified application *after execution*. *Id.* [0071]:13-14.

163. There is no support in Rostoker for Schmandt's statement that FIG. 56 shows that as part of publishing the application and included xApps, the applications are transformed to XGL (executable GUI language) representations. EX1003 ¶194. Schmandt points to paragraph [0042] of Rostoker for support, but paragraph [0042] provides no support for that statement, nor does paragraph refer to FIG. 56 or a 'Publish' button. Paragraph [0042] of Rostoker merely explains that the modeling environment **132** of Rostoker may implement a generic, declaration, and executable GUI language, generally described as XGL. EX1005 [0042]:1-3.

164. Additionally, Schmandt's reliance on the disclosure of an XGL-to-Java compiler and an XGL-to-flash compiler is equally misplaced. EX1003 ¶195; EX1005 [0050]:1-11. A POSITA would understand that referencing those compilers provides no support for the position that Rostoker discloses a chart box that is a web widget. Instead, those compilers are merely examples of how XGL-compliant code generators may ensure that the appearance and behavior of the generated user interfaces is preserved across a plurality of target GUI frameworks, while accommodating the differences in the intrinsic characteristics of each and also

accommodating the different levels of capability of target devices. EX1005
[0049]:23-28.

c) Rostoker in view of Strong does not disclose a “wherein the at least one interactive chart is generated on a generation interface configured to allow a user to generate the interactive chart with a chart template from a chart template store” (claim 1)

165. It is Schmandt’s opinion that Rostoker teaches this limitation: “wherein the at least one interactive chart is generated on a generation interface configured to allow a user to generate the interactive chart with a chart template from a chart template store.” EX1003 ¶204. This conclusion has already been determined to be incorrect based on the following reasons. As discussed above, Rostoker does not disclose the generation of an interactive chart. Although the charts of Rostoker can be altered at the configuration step **330** (Rostoker FIG 3), a POSITA would understand that the charts become static — not interactive — when the publish button **1210** is selected. Rostoker thus teaches that the end result is a static chart — not an interactive chart — that becomes part of an application or dashboard within the system of Rostoker of developing a custom business application. Given that Rostoker does not generate an interactive chart, it follows that Rostoker does not disclose a generation interface configured to allow a use to generate an interactive chart with a chart template from a chart template store.

d) Rostoker in view of Strong does not disclose “wherein the at least one interactive chart, when displayed on the second website in the absence of the generation interface, enables a user to a) render the chart, b) obtain input from a user and c) rerender the chart using the input thereby enabling the interactive chart to retain interactivity” (claim 1)

166. It is Schmandt’s opinion that Rostoker teaches this element: “wherein the at least one interactive chart, when displayed on the second website in the absence of the generation interface, enables a user to a) render the chart, b) obtain input from a user and c) rerender the chart using the input thereby enabling the interactive chart to retain interactivity.” EX1003 ¶212. This conclusion has already been determined to be incorrect based on the following reasons.

167. As discussed above, Rostoker does not disclose displaying an interactive chart on a second website. Rostoker discloses creating custom business applications within the Rostoker system (EX1005 [0002]:1-3), but there is no disclosure of displaying of interactive charts on a second website.

168. As discussed above, Rostoker does not disclose the generation of an interactive chart. Although Rostoker shows that one can configure an xApp to make a desired chart, Rostoker teaches that the end result is a static chart — not an interactive chart — that becomes part of an application or dashboard within the system of Rostoker of developing a custom business application.

169. Given that Rostoker does not disclose a second website and, given that Rostoker does not generate an interactive chart, it follows that Rostoker does not disclose, teach, or suggest the limitation of “wherein the at least one interactive chart, when displayed on the second website in the absence of the generation interface, enables a user to a) render the chart, b) obtain input from a user and c) rerender the chart using the input thereby enabling the interactive chart to retain interactivity.” In short, there is no second website and no interactive chart on a second website.

170. As discussed above, Schmandt’s position that xApps as Java or Flash objects teach displaying interactive charts on a second website lacks merit.

e) Rostoker in view of Strong does not disclose “wherein the selection is made by dragging and dropping the at least one interactive chart from the plurality of charts into the chart box folder connected to the chart box such that retrieve code for data feed displays the at least one interactive chart on the first website” (claim 1)

171. It is Schmandt’s opinion that Rostocker teaches: “wherein the selection is made by dragging and dropping the at least one interactive chart from the plurality of charts into the chart box folder connected to the chart box such that retrieve code for data feed displays the at least one interactive chart on the first website.” EX1003 ¶219. It is my opinion that it does not.

172. Schmandt opines that Rostoker discloses “wherein the selection is made by dragging and dropping the at least one interactive chart from the plurality

of charts” because Rostoker teaches a hub or storefront from which a user may select a pre-existing application or component, and that a user may conduct a search of the hub contents and select a component, and then drag and drop that component into an application. *Id.* ¶¶220-221. Schmandt further opines that Rostoker teaches a dragging and dropping “into a chart box folder connect to the chart box” because Rostoker discloses what Schmandt opines to be a “chart box folder” associated with the application, and that the chart box folder contains what Schmandt opines to be “interactive charts” that are added to the folder when they are dragged and dropped there. *Id.* ¶¶222-223. Based on this analysis, Schmandt opines that a POSITA would understand that the alleged chart box folder of Rostoker is connect to the alleged chart box because, when published and executed, the application will display the charts contained in the alleged chart box folder within the chart box in the executed application.

173. Schmandt opines further that Rostoker teaches “such that retrieve code for data feed displays the at least one interactive chart on the first website” because, according to Schmandt, Rostoker disclose that its charts can be associated with “data services,” and those data services may stored in one more logical or physical locations, and which may comprise of one table or file or a plurality of tables or files stored on one computer or across a plurality of computers in any appropriate format. *Id.* ¶¶225-226. Schmandt also states that data services may be stored in a local

memory of server. *Id.* ¶226. Schmandt opines that Rostoker’s alleged “interactive charts” retrieve and display data from the associated data service, and a POSITA would understand that Rostokers alleged interactive charts contain retrieve code for a data feed, which, according to Schmandt, means code for retrieving real-time data from the data service, which is then used to display the at least one interactive chart. *Id.* ¶228. Schmandt opines that the alleged “retrieve code” is executed when the user executes the publication by, for example, using Rostoker’s “Publish” button. *Id.* This, according to Schmandt, sufficiently teaches the relevant element, and therefore, Rostoker teaches all of the relevant claim 1 element language. *Id.* ¶229.

174. I disagree with Schmandt’s analysis and ultimate conclusion for the reasons to foll. Turning first to the chart box: as set forth earlier in claim 1, it is “a chart box on a second website, wherein the chart box is a web widget.” As previously discussed, Rostoker does not disclose a second website, a chart box, or a web widget. Indeed, the word “widget” appears nowhere in Rostoker. Given that there is *no* chart box in Rostoker, it follows that Rostoker also does not disclose a chart box folder connected to the chart box as required by the claim language.

175. Furthermore, Rostoker does not disclose, teach, or suggest retrieve code for data feed displays. The phrases “retrieve code” and “data feed” do not appear anywhere in Rostoker. In short, Rostoker is completely silent regarding retrieve code for data feed displays. This is not surprising, however, given that Rostoker does not

disclose, teach, or suggest a chart box, a chart box folder, a web widget, or a display of interactive chart on a second website. This simply reinforces the significant differences between Rostoker and the claimed invention of the '000 Patent.

176. Also, as previously discussed, Rostoker does not disclose the generation of an interactive chart, so there is no selection of an interactive chart from a plurality of charts. Given that there is no interactive chart and no selection of an interactive chart, there is also no disclosure in Rostoker of dragging and dropping an interactive chart. As discussed above, the process of Rostoker generates and displays a *static* chart, not an interactive chart.

177. Consequently, Schmandt's opinions lack merit. When Schmandt points to what he calls a "chart box" and a "chart box folder," Schmandt loses sight of the limitations of claim 1 of the '000 Patent that the chart box is a chart box *on a second website*, wherein the chart box is a web widget. What Schmandt calls chart boxes are *not* on a second web site. Similarly, what Schmandt calls a chart box folder is *not* connected to a chart box *on a second website*.

178. Schmandt is misguided in relying on data services **140** and local memory **120** of Rostoker for support for retrieve code for a data feed. EX1003 ¶226. A POSITA would understand that a retrieve code for a data feed refers to a specific set of instructions, usually in the form of an application programming interface (API) call or a programming function, that is used to access and download data from a data

feed source, typically specifying parameters like the feed uniform resource locator (URL), authentication credentials, and desired data format to retrieve the relevant information. Rostoker simply lacks disclosure of retrieve code for a data feed. Data services **140** and local memory **120** do not make up for Rostoker's total lack of disclosure of a retrieve code for a data feed.

f) Rostoker in view of Strong does not disclose “wherein the selection is made by dragging and dropping the at least one interactive chart from the plurality of charts into the chart box folder connected to the chart box such that retrieve code for data feed displays the at least one interactive chart on the first website” (claim 1)

179. Schmandt opines that the combination of Rostoker and Strong discloses: “wherein the selection is made by dragging and dropping the at least one interactive chart from the plurality of charts into the chart box folder connected to the chart box such that retrieve code for data feed displays the at least one interactive chart on the first website.” EX1003 ¶230. I disagree that this combination teaches this limitation.

180. Schmandt opines that while Rostoker discloses “wherein the selection is made by dragging and dropping the at least one interactive chart from the plurality of charts into a chart box folder,” and that “upon the dragging and dropping selection,” the application may be published and deployed to “the second website,” e.g., a website provided by a business's enterprise network, Rostoker does *not*

expressly disclose that at least one interactive chart is “automatically displayed” on the second website “upon the dragging and dropping selection.” *Id.* ¶231. It is Schmandt’s opinion, however, that a POSITA would have been motivated to combine Rostoker and Strong because Rostoker teaches, according to Schmandt, automatically publishing applications upon modification (e.g., selecting a new chart) that would reduce the burden on developers to publish updated applications, and ensure that users of Rostoker’s application are always viewing the latest version, and Strong builds on this by teaching automatically distributing data objects when a modification to the data object is made. *Id.*

181. Schmandt states that Strong discloses techniques for synchronizing a data object amongst clients, which means, when a change/update is made to a data object, the data object is automatically published to sharing clients. *Id.* ¶232.

182. Even though Schmandt attempts to suggest that Strong makes up for Rostoker’s deficiencies (*Id.* ¶¶232-242), it is my opinion that Rostoker is *too* deficient to begin with and it is a shoddy foundation to build on with Strong. For the following reasons, I disagree with Schmandt’s opinion that Strong and Rostoker teach the claim language of the ’000 Patent.

183. As previously discussed, Rostoker fails to disclose a number of elements necessary to meet the relevant claim language here. Rostoker does not disclose that an interactive chart is displayed on a second website; it does not

disclose a data feed from a first website to a second website; it does not disclose a data feed (and the phrase “data feed” does not appear anywhere in Rostoker); and it does not disclose a second website.

184. Schmandt admits that Rostoker does not expressly disclose that at least one interactive chart is automatically displayed on the second website upon the dragging and dropping selection. But Rostoker lacks too many elements for Strong to be able to fill in any gaps.

185. Strong discloses a server platform and a datastore on the server platform for maintaining full resolution of copies of files shared between a plurality of sharing clients. EX1067 Abstract:2-6. A synchronization engine is provided on the server platform and is configured to send real-time updates to a plurality of sharing clients when at least one of the sharing clients updates or changes one of the files. *Id.* Abstract:6-10.

186. Here, the field of endeavor is sharing and updating charts on a second webpage. POSA would not have been motivated to combine Rostoker with Strong because those references are not directed to the same technical problem. Strong discloses the synchronization of files. EX1067 [0006]:5-9. There is no discussion of charts in Strong. Rostoker discloses software for developing custom business applications in a service-oriented architecture. EX1005 [0002]:1-3. Rostoker does not teach, suggest, or disclose a need for synchronization as part of the Rostoker

system. Because Rostoker does not disclose a second website, there was no need to synchronize between a first website and a second website. Indeed, the words “synchronization” or “synchronize” are not used anywhere in Rostoker. Strong discloses the synchronization of files. There is no discussion of charts in Strong. There is no mention of xApps in Strong. Further, Strong does not disclose dragging and dropping as a method of causing any system to synchronize. A POSA simply would not look to Strong to improve Rostoker.

187. For all that is missing in Strong, there was no reason for a POSITA to start with the Rostoker system and modify it to include the Strong file synchronization feature. Because Rostoker does not disclose a second website, there was no need to synchronize between a first website and a second website.

188. Moreover, there are not sufficient teachings in either Rostoker or Strong as to how to modify Rostoker to include the file synchronization feature of Strong. Rostoker discloses the use of xApps. Strong discloses the synchronization of files (EX1067 [0006]:5-9) and does not disclose dragging and dropping. It would be impermissible hindsight, based on the disclosure of the '000 Patent, to combine Rostoker and Strong. In addition, even if Rostoker and Strong were combined, the combination would not disclose, teach, or suggest that an interactive chart is displayed on a second website. Strong's synchronization engine is directed to synchronizing files and not updating charts that are displayed on a second website.

189. Schmandt's opinions regarding a combination of Rostoker and Strong lack merit. To the contrary of what Schmandt suggests, there would have been no motivation for a POSITA to apply the Strong synchronization technique given that a combination of Rostoker and Strong would not disclose the displaying of an interactive chart on a second website. Petitioner's argument that a combination would have been nothing more than using a known technique to improve a similar device — relying on the fact that both Rostoker and Strong disclose a server (EX1003 ¶237) — ignores the differences between Rostoker and Strong systems. Rostoker discloses the use of xApps. Strong discloses the synchronization of files and does not disclose dragging and dropping. Strong does not disclose any process by which to drag or drop information to cause synchronization.

2. Rostoker in View of Strong Does Not Render Obvious Claim 2

190. Schmandt opines that Rostoker, alone or in view of Strong, teaches “wherein the web widget is a flash widget.” EX1003 ¶244. Because Schmandt has failed to show that Rostoker in view of Strong renders independent claim 1 of the '000 Patent obvious, he necessarily fails to show that Rostoker in view of Strong teaches claim 2 given that claim 2 depends from claim 1.

191. As discussed above, a POSITA would understand that a flash widget is a small interactive element on a website or application that is built using Adobe Flash technology providing for dynamic animations, graphics, and user interactions within

a confined space. As discussed above, Rostoker does not disclose a web widget or a flash widget

3. Rostoker in View of Strong Does Not Render Obvious Claim 3

192. Schmandt opines that Rostoker, alone or in view of Strong, teaches “displaying one or more of the plurality of interactive charts in the chart box on the second website.” EX1003 ¶245. Because Schmandt has failed to show that Rostoker in view of Strong renders independent claim 1 of the ’000 Patent obvious, he necessarily fails to show that Rostoker in view of Strong teaches claim 3 given that claim 3 depends from claim 1.

193. As discussed above, Rostoker does not disclose displaying an interactive chart on a second website. Rostoker also does not disclose displaying one or more of the plurality of interactive charts in the chart box on a second website.

4. Rostoker in View of Strong Does Not Render Obvious Claim 4

194. Schmandt opines that Rostoker, alone or in view of Strong, teaches “displaying a plurality of interactive charts embedded in a plurality of chart boxes on the second website.” EX1003 ¶246. Because Schmandt has failed to show that Rostoker in view of Strong renders independent claim 1 of the ’000 Patent obvious, he necessarily fails to show that Rostoker in view of Strong teaches claim 4 given that claim 4 depends from claim 1.

195. As discussed above, Rostoker does not disclose displaying an interactive chart on a second website. Rostoker also does not disclose displaying a plurality of interactive charts embedded in a plurality of chart boxes on a second website.

B. Ground 2 - Rostoker and Strong in View of Jou Does Not Render Obvious Claims 1-4

196. Ground 2 in the Petition relies on Rostoker and Strong in view of Jou. *See* Petition at 61–64. I disagree with Schmandt that the combination teaches or suggests every element in claims 1-4 of the '000 Patent. In addition to relying on Strong's disclosure of synchronization of files, Petitioner relies on Jou's disclosure of interactive features to combine with Rostoker's disclosure of a static chart. Pet. p.61-64. However, a POSA would not have considered Jou in connection with Rostoker and Strong, and even if one did, this combination would not satisfy each and every claim limitation of claims 1-4.

197. Schmandt concedes that Rostoker does not expressly disclose “interactive” features as described in the '000 Patent but suggests that Jou discloses the necessary interactive features to cover Rostoker's deficiencies. EX1003 ¶248.

198. Schmandt states that Jou, like Rostoker, provides an interactive system for visualizing business data, and that Jou discloses a large variety of predefined charts with which a user can interact using a mouse and keyboard. *Id.* ¶249.

Schmandt further states that Jou's charts include multiple interactive features. *Id.* ¶¶250-251. It is Schmandt's opinion that the "interactive" features disclosed in Jou are consistent with those described in the '000 Patent, and Jou expressly discloses "at least one interactive chart," "wherein the at least one interactive chart, when displayed . . . in the absence of the generation interface, enables a user to a) render the chart, b) obtain input from a user and c) rerender the chart using the input thereby enabling the interactive chart to retain interactivity." *Id.* ¶252. It is his opinion that a POSITA would have been motivated to incorporate Jou's interactive features into a Rostoker/Strong system to enable users to better visualize and explore business data. *Id.* ¶253. It is also Schmandt's opinion that a POSITA would have understood that the interactive features of Jou, incorporated into Rostoker and Strong, would have supported Rostoker's goal of providing real-time dashboards. *Id.* Schmandt opines further that a POSITA would have a reasonable expectation of success combining Jou into Rostoker/Strong because Flash and Java would enable the types of interactions discussed in Jou and it was well known at the time that these technologies supported interactivity and dynamic modification of graphical objects. *Id.* ¶254. For these reasons, Schmandt opined that a POSITA would have successfully combined the abovementioned references to yield predictable results. *Id.*

199. I disagree that Jou would cover the deficiencies of Rostoker and Strong. As I have discussed above, although Rostoker discloses a configuration stage on an xApp, Rostoker teaches that the end result is a static chart — not an interactive chart — that becomes part of an application or dashboard within the system of Rostoker of developing a custom business application. Also as discussed above, Rostoker does not disclose displaying an interactive chart or generating an interactive chart on a generation interface.

200. To reiterate, Strong discloses that a synchronization engine is provided on a server platform and is configured to send real-time updates to a plurality of sharing clients when at least one of the sharing clients updates or changes one of the files. EX1067 at Abstract:6-10.

201. Jou, on the other hand, discloses an interactive system for visualizing business data organized according to a dimensional model, which allows data to be combined from more than one data source and be presented in the form of a graphical multi-metric data visualization. EX1007 at Abstract:1-4. Jou discloses that data to be included in a visualization may be filtered, i.e., limited to the subset of data available from a given source. *Id.* [0038]:1-3. Jou discloses that the visualization method and system that allows drilling on the dimension axis of the charts by moving either up or down the hierarchy of categories of a dimension (drilling up or drilling down) to obtain a more or less detailed view of the data. *Id.* [0044]:1-6. A user can

obtain a closer area view of a map or layer (zooming in) or obtain a wider area view of a map or layer (zooming out). *Id.* [0049]:2-5.

202. As discussed above in previous sections, Schmandt's opinions regarding a combination of Rostoker and Strong lack merit. In addition, there would have been no reason for a POSA to further combine these references with Jou. Petitioner must set forth reasons why Jou should be combined with both Rostoker and Strong. Petitioner argue a "POSA would have been motivated to incorporate Jou's additional "*interactive*" features into Rostoker-Strong's system;" however, no reasons to combine Jou and Strong are discussed in the Petition. Pet. p.61-64. Thus, Petitioner's argument for a three-way motivation to combine is insufficient. Even without Jou, the charts of Rostoker could be altered at the configuration step **330** (EX1005 FIG 3). The resulting charts are static. There are not sufficient teachings in either Rostoker, Strong, or Jou as to what mechanism would permit the static charts of Rostoker to include the Jou features once the method of Rostoker in view of Strong exits the configuration step **330**. There was no reasonable expectation of success in modifying Rostoker in view of Strong to include the Jou features once the method of Rostoker in view of Strong exits configuration step **330** given the lack of disclosure in Rostoker, Strong, and Jou. Further, Petitioner does not address how or why Strong's synchronization features would interact with Jou's teaches of interactivity. Nor does Petitioner explain how the combination arrives at the claimed

invention. It would involve impermissible hindsight, based on the disclosure of the '000 Patent, to combine Rostoker, Strong, and Jou.

203. Additionally, even if Rostoker, Strong, and Jou were combined, the combination is missing multiple claim elements. The combination does not satisfy transmission of an interactive chart to a second website for display. Thus, even if Jou's features are combined into a Rostoker-Strong system, the "wherein the at least one interactive chart, when displayed on the second website in the absence of the generation interface, enables a user to a) render the chart, b) obtain input from a user and c) rerender the chart using the input thereby enabling the interactive chart to retain interactivity" limitation is not met because any supposed interactive chart would still reside on the Rostoker-Strong system, not in absence of the generation interface." Further, synchronizing file types of Strong does not satisfy the "retrieve code for data feed displays the at least one interactive chart on the first website" or "using a data feed from the first website to the second website upon the dragging and dropping selection" limitations.

204. Because Schmandt has failed to show that Rostoker and Strong in view of Jou renders independent claim 1 of the '000 patent obvious, he necessarily fails to show that Rostoker and Strong in view of Jou teaches claims 2-4 given that those claims each depend from claim 1.

C. Ground 3 - Rostoker and Strong in View of Clark Does Not Render Obvious Claims 1-4

205. Ground 3 in the Petition relies on Rostoker alone or in view of Strong, and Rostoker/Strong in view of Clark. *See* Petition at 65–68. I disagree with Schmandt that these combinations teach or suggest every element in claims 1-4 of the '000 Patent.

206. Schmandt opines that Clark provides for an interactive chart being displayed on a second website, and if Rostoker and Clark, taken in combination, do not expressly disclose the same, then Clark covers that deficiency. EX1003 ¶257. Schmandt states that Clark provides a system that generates charts allowing users to build them with a drag-and-drop interface. *Id.* ¶258. According to Schmandt, Clark is similar to Rostoker because it provides a web-based interface for creating and publishing business dashboards for display within a web browser. *Id.* ¶259.

207. Schmandt understands Clark's language that recites "The system **200** can publish standalone dashboards, portals, or web pages, as well as components to be integrated into groupware or enterprise portals," to mean that an "enterprise portal" equates to the '000 Patent's teaching of "a second website." *Id.* ¶260. It is Schmandt's opinion that a POSITA would have understood Clark's enterprise portal to be a website, and he cites to a Microsoft computer dictionary that defines portal as a "Web site that serves as a gateway to the internet." *Id.*

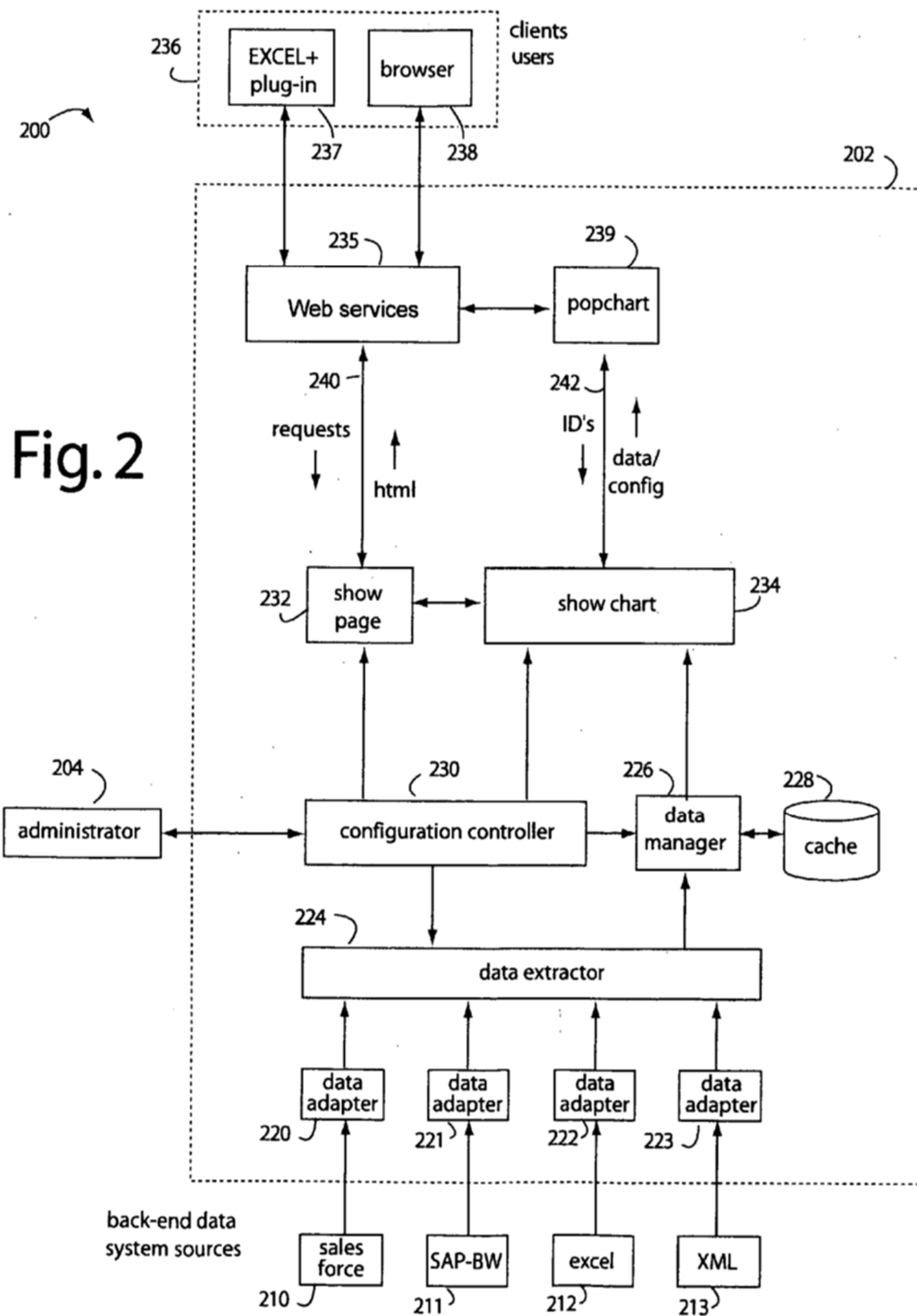
208. Schmandt further states that Clark describes an “enterprise portal” that resides on a company’s “intranet” and is separate from the “web-based” interface for creating and publishing business dashboards, and it is this distinction that Schmandt cites as a reason for his belief that Clark teaches publishing and displaying an interactive chart on a second website. *Id.* ¶261.

209. According to Schmandt, because Clark teaches publishing and displaying an interactive chart on a second website, a POSITA would have been motivated to combine Clark with Rostoker so that Clark’s techniques could enable a business to “internally host and present, through a business’s enterprise network (e.g., a local intranet), business applications created using Rostoker-Strong’s system.” *Id.* ¶262. Schmandt opines that a POSITA would have had a reasonable expectation of success incorporating Clark with Rostoker because both teach published content for execution in a Flash runtime, and Rostoker already discloses a “Publish” function similar to Clark’s web-based solution for publishing business dashboards. *Id.* ¶263. Schmandt opines further that techniques for providing business applications through enterprise servers were well known at the time of the ’000 Patent, so a POSITA would not have experienced any unreasonable technical hurdles combining Clark’s publishing techniques with a Rostoker/Strong system. *Id.* ¶264.

210. In contrast, it is my opinion that Clark actually fails to cure the deficiency of a combination of Rostoker and Strong of not disclosing displaying an interactive chart embedded in a chart box on a second website. For the following reasons, I disagree with Schmandt's characterization of a Clark/Rostoker combination.

211. Clark discloses a spreadsheet user-interfaced web-based business data publishing system that allows users to input and visualize field data and analytical results with interactive charts through a Microsoft Excel user interface (UI). EX1010 at [0022]:1-5. A plug-in module for Excel enables a background, web-services connection over the Internet to a management sub-system that extracts, transforms, and publishes data. *Id.* [0022]:6-8.

212. FIG. 2, reproduced below, shows business data visualizer system 200. *Id.* [0044]:1-3.



213. A plug-in module for Excel enables a background, web-services connection over the Internet to a management sub-system that extracts, transforms, and publishes data. *Id.* [0022]:6-8. The Excel plug-in module **237** includes a publishing wizard to select Excel data and publish it through system **202**, an extractor interface to select data objects from system **202** and import them into Excel, and a synchronizer to update system **202** when the Excel data changes. *Id.* [0045]:1-5. The extractor interface allows access to SAP BW, Salesforce.com, and other sources. *Id.* [0045]:5-7. System **202** is a server **202** that is controlled by a systems administrator. *Id.* [0044]:3-5.

214. A web services application programming interface (API) **235** provides an Internet presence for users that have an Excel spreadsheet application and plug-in in **237**, and a browser **238**. *Id.* [0046]:1-4.

215. A client connection **240** is used to receive requests for business intelligence. *Id.* [0048]:1-2. In response, an HTML message is sent that builds a webpage in the user's browser. *Id.* [0048]:2-4. The show-page generator **232** forwards requests from clients to the show chart **234**. *Id.* [0048]:4-5. This causes the data to be fetched by the data manager **226** and sent to POPCHART **239**. *Id.* [0048]:5-7. POPCHART **239**, in response, uses connection **242** to return the pointer ID's to the generated charts that is supplied back in the HTML messages. *Id.*

[0048]:7-9. The URL addresses are then available for the user browser to link with the chart graphics on the Internet. *Id.* [0048]:9-11.

216. A POSITA would understand that the disclosure of Clark that the URL addresses are available for the user browser to link with the chart graphics on the Internet means that the chart graphics are available from the server **202** via the web services API **235**. A POSITA would understand that server **202** is where the chart graphics are generated, that the user of the Excel spreadsheet would access those charts via browser **238**, and that there is no displaying of an interactive chart embedded in a chart box on a second website — indeed, Clark does not disclose a chart box at all. A POSITA would therefore understand that the chart graphics are available on server **202** and viewable via browser **238**.

217. The fact that there is no displaying of an interactive chart embedded in a chart box on a second website is also supported by the discussion of FIG. 3, reproduced below:

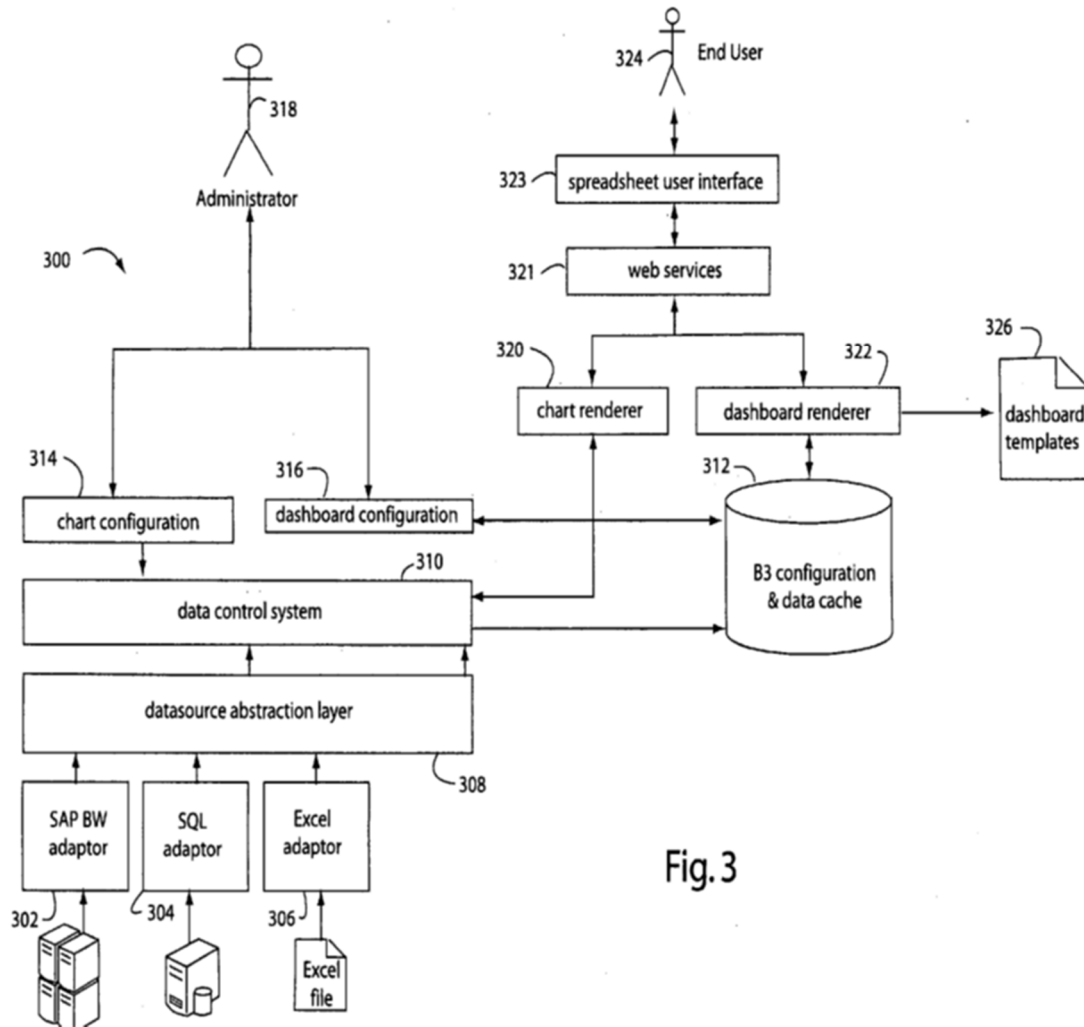


Fig. 3

Clark discloses that a chart renderer **320** receives the configured chart data and creates a graphic in a webpage. *Id.* [0056]:15-16. A web services API **321** interacts over the Web with a plurality of users. *Id.* [0056]:16-17. A POSITA would understand that there is no displaying of an interactive chart embedded in a chart box on a second website given that the chart is viewable via web services API **321**.

218. Schmandt is misguided in opining that Clark's reference to an enterprise portal means that there is publishing and displaying of interactive charts

on a second website. Clark states that the “system **200** can publish standalone dashboards, portals, or web pages, as well as components to be integrated into groupware or enterprise portals.” *Id.* [0049]:3-6. Clark also refers to “[p]ublishing — create web pages, dashboards, and portals, or publish content to groupware and external portals.” *Id.* [117]:5-6. However, the cited passages do not disclose displaying of an interactive chart embedded in a chart box on a second website, or displaying of an interactive chart embedded in a chart box on a second website. Nor would a POSA would understand them to teach these limitations. There is no disclosure in Clark of any specifics regarding how the interaction with enterprise portals and external portals would be structured.

219. Additionally, there is no support in Clark for Schmandt’s statement that “Clark describes this ‘enterprise portal’ which resides, for example, ‘on [a] company’s intranet,’ separate from the web-based’ interface for ‘creating and publishing business dashboards.’” EX1003 ¶261. Schmandt cites paragraphs [0052] and [0137] of Clark for alleged support for that statement, but those paragraphs provide no support for that the enterprise portal is separate from the web-based interface of Clark. Nor is there any support in all of Clark for that statement. Clark, in paragraph [0052], simply says that the “B3 system **200** web-based embodiments of the present invention are useful in creating and publishing business dashboards.” EX1010 [0052]:1-3. Clark in paragraph [0137] simply says that “[i]t could also be

published on the company's intranet to enhance collaboration between employees.”

Id. [0137]:10-11. The “it” referenced in Clark refers to a “user interface,” *not* a “dashboard,” given that the phrase “user interface” is in the preceding sentence while “dashboard” is three sentences away. A POSITA would understand that there is *absolutely no support* for Petitioner's position that the enterprise portal is separate from the web-based interface of Clark. Thus, there is no support for Petitioner's position that Clark's reference to an enterprise portal means that there is publishing and displaying of interactive charts on a second website. Thus, Clark's “enterprise portal” does not teach publishing and displaying of interactive charts on a second website.

220. As discussed above, Schmandt's opinions regarding a combination of Rostoker and Strong lack merit. In addition, there is no disclosure in Clark that would act as a foundation to alter a combined system of Rostoker and Strong to alleviate the deficiency of Rostoker and Strong of not disclosing displaying an interactive chart embedded in a chart box on a second website.

221. Further, a POSA would not have been motivated to combine Clark with Rostokor and Strong. There is no reason for a POSITA to start with a combined system of Rostoker and Strong and modify that system according to Clark. Rostoker discloses a system for providing a compilation of composite applications (“xApps”) and xApp components. EX1005 at [0004]:1-5. Strong discloses a synchronization

engine for files. *Id.* Abstract:6-10. In contrast, Clark discloses an Excel-based system with a plug-in module. EX1010 at [0022]:1-8. Furthermore, there would have been no reasonable expectation of success in modifying a combined system of Rostoker and Strong with Clark. As noted above, Clark lacks specifics regarding enterprise portals and external portals so there is no guidance in Clark, Rostoker, or Strong as to how to combine the references. In any event, it would involve impermissible hindsight, based on the disclosure of the '000 Patent, to combine Rostoker, Strong, and Clark.

222. It is my opinion, then, that even if Rostoker, Strong, and Clark were combined, the combination would not disclose displaying an interactive chart embedded in a chart box on a second website.

223. Because Schmandt has failed to show that Rostoker and Strong in view of Clark renders independent claim 1 of the '000 Patent obvious, it also necessarily fails to show that Rostoker and Strong in view of Clark teaches claims 2-4 given that those claims each depend from claim 1.

D. Ground 4 - The QlikView Manuals in View of Bales Do Not Render Obvious Claims 1, 3, and 4

224. Ground 4 in the Petition relies on QlikView in view of Bales, and. *See* Petition at 68-96. I disagree with Schmandt that this combination teaches or suggests every element in claims 1, 2, and 4 of the '000 Patent.

1. QlikView in View of Bales Do Not Render Obvious Claim 1

225. The '000 Patent relates to a system and method for generating and sharing interactive charts. EX1001 at Abstract:1-2. The interactive charts are “generated in an online portal” that allows users to “customize the interactive features of the chart.” *Id.* Abstract:2-4. The interactive charts can be embedded in other websites without the need to reprogram the other websites each time an interactive chart is embedded in those websites using a chart box tool. *Id.* 5:41-45.

226. The QlikView Manuals teach away from the '000 patent. For the QlikView system, the chart is always hosted by the server and the QlikView clients displaying a chart are connected to the QlikView server. EX1009 at 0098. There is no disclosure in the QlikView Manuals of displaying an interactive chart embedded in a chart box on a second website.

227. Bales does not cure the deficiencies of the QlikView Manuals.

a. The QlikView Manuals in View of Bales Do Not Disclose a “displaying, in response to the selection the at least one interactive chart embedded in a chart box on a second website, wherein the chart box is a web widget” (Claim 1)

228. It is Schmandt’s opinion that, in response to the selection of an interactive chart, QlikView displays the chart embedded in a chart box on a second website. EX1003 ¶301. He bases this opinion on the language of QlikView that claims that the QlikView Objects Clients are based on the concepts of placing

individual sheet objects from a QlikView document in an HTML environment. *Id.*

¶301. Schmandt suggests that the second website in the QlikView context is different from the first website because it is accessed by a different client at a different URL. *Id.* ¶302.

229. Turning to the chart box as a “web widget,” Shmandt opines that the chart box disclosed by QlikView is a “web widget” as disclosed by the ’000 Patent because embed code for the chart box is pasted into the second website’s HTML code. *Id.* ¶303. Schmandt states that QlikView objects are embedded into a second website using HTML and a server-side script and that the client webpage is connected to the QlikView document on the QlikView Server via a “setDocument” command. *Id.* Since each chart has a unique identifier, the user can reference the identifier within the HTML to embed the chart within the web page, and, as a result, the user can use the “addObject” command and the chart identifier to embed the chart in the webpage. *Id.* Schmandt also states that chart boxes are also defined within a Java applet and a POSITA would have understood a Java applet to be a “web widget.” *Id.* ¶306.

230. Schmandt further states that QlikView also discloses a “master applet” to handle communications between the QlikView Server and the QlikView Objects because, instead of each Object communicating with the Server, the “master applet” handles the communications, connecting Server, file, and Objects. *Id.* ¶307.

231. It is Schmandt's opinion that the published charts remain interactive, and a POSITA would have understood that the QlikView Manuals disclose interactive charts that are interactive in the chart box on the second website as recited in claim 1 of the '000 Patent; the POSITA would have also known that QlikView was actively being used on different web applications. *Id.* ¶309. Furthermore, Schmandt states that the table charts support receiving input from the user and that a table chart further reacts (i.e., is interactive) based on the user input. *Id.* ¶310. Schmandt states that the allegedly online interactive chart includes the ability to undo, redo, or clear selections, and also a "cycle" button to view data in different ways, in addition to what Schmandt suggests to be "[a]dditional interactive chart features." *Id.* ¶¶311, 313.

232. Schmandt opines that charts published to an AJAX client also remain interactive because once published, the AJAX client is configured to receive user input and update the user interface without refreshing the browser. *Id.* ¶314.

233. I disagree with Schmandt's characterization of what QlikView discloses here. The QlikView Manuals do not disclose embedding an interactive chart in a chart box on a second website, nor do the QlikView Manuals disclose displaying an interactive chart embedded in a chart box on a second website. A QlikView chart is generated *on* the QlikView server and is viewed by a QlikView

client *connected* to the QlikView server. The QlikView chart is *not* embedded in a chart box on a second website.

234. The QlikView Manuals disclose a server-client system for data analysis. EX1009 at 0009. The “QlikView Server is the centerpiece of this technology.” *Id.* 0009. The QlikView Server provides a centrally managed QlikView document community that connects multiple users, client types, documents, and objects within a secure and safe environment. *Id.* 0009.

235. The QlikView server is responsible for opening, hosting, and calculating the documents. *Id.* 0123. A client is required for user interaction and presenting the document and its objects. *Id.* 0123. A QlikView client is required for the display and usage for an existing QlikView document, which is designated as a “.qvw file.”

236. There are three types of QlikView Clients that interact with the QlikView Server: (1) the QlikView Developer, (2) the QlikView Professional, and (3) the QlikView Analyzer. EX1008 at 0016.

237. The QlikView Developer client is the full version intended for the development of QlikView documents. *Id.* 0016. A QlikView document is a file containing what is needed to analyze data. *Id.* 0073. The Qlik View document file contains (1) the data itself; (2) a script needed to update the QlikView file with new data from a data source; (3) layout information, including all the sheets, list boxes,

charts, etc.; (4) document alerts, document bookmarks, and document reports; (5) access restriction information; and (6) a macro module. *Id.* 0073. The QlikView Developer is the only version to provide full access to the script. *Id.* 0016.

238. A user of the QlikView Developer client can create charts and tables on the QlikView Server. EX1008 at 0016, 0073, and 0880. Those charts and tables include bar charts, line charts, combo charts, radar charts, scatter charts, grid charts, pie charts, funnel charts, block charts, gauge charts, pivot tables, and straight tables. *Id.* 0872-0873.

239. The QlikView Analyzer client is the low-end client that can be used to access QlikView documents on the QlikView Server. *Id.* 0016. The user may navigate the layout, make selections, and view results. *Id.* 0016. No modification of the layout is possible, however. *Id.* 0016. The QlikView Analyzer comes in the following versions: (1) an installed Windows client, (2) a plug-in to Internet Explorer, (3) a Java applet client, or (4) an AJAX Zero Footprint Client (ZFC). *Id.* 0016.

240. Versions of the QlikView clients are designed for different respective computing environments. The QlikView Developer, Professional, and Analyzer clients can be Microsoft Windows installed clients. EX1009 at 0009. These are referred to as “exe clients.” *Id.* 0009.

241. The QlikView Analyzer client also has a version that is a full image ActiveX plug-in for Microsoft Internet Explorer web browser. *Id.* 0123, 0125. There also is a QlikX Analyzer client that is an object only ActiveX plug-in for Internet Explorer. *Id.* 0123.

242. There is a version of the QlikView Analyzer that is a full image Java Client using Sun Java in a web browser. *Id.*

243. There is a version of the QlikView Analyzer that is Java Objects Client that is an object only client using Sun Java in a web browser. *Id.*

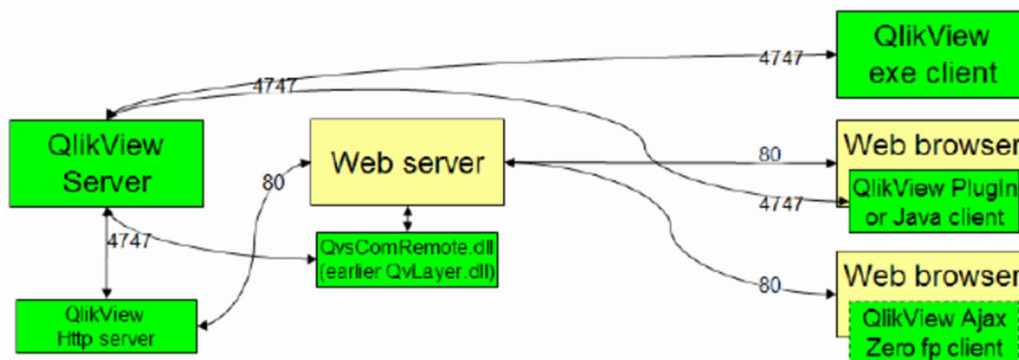
244. There is a version of the QlikView Analyzer that is an AJAX Zero-Footprint Client, which is an object only dynamic HTML client that uses AJAX architecture in a web browser. *Id.*

245. Any QlikView document may be displayed with any QlikView client, but additional HTML code must be created for the QlikView Object clients to display and interact with the objects with a particular document. *Id.* 0123. The QlikView Object clients are the Java Objects client, the QlikX client, and the AJAX client. *Id.* 0009.

246. To summarize the above, the QlikView Developer client is used to create (i.e., generate) charts on the QlikView server by accessing the QlikView server. The QlikView server hosts those documents. Those documents that are

created are accessed and viewed by the QlikView Analyzer clients, of which there are different versions.

247. The figure reproduced below from the QlikView Server Manual shows how the QlikView clients communicate with the QlikView server.



Id. 0098.

248. The Microsoft Windows client communicates directly with the QlikView server. *Id.* 0098. That communication is done by using the Qlik View Protocol (QVP) and, typically, port 4747. *Id.* 0098. The QlikView Developer, Professional, and Analyzer clients can be Microsoft Windows installed clients. *Id.* 0009. These are referred to as “exe clients.” *Id.* 0009. Thus, the QlikView exe client shown in the above network diagram is a Windows client.

249. Another Windows QlikView Analyzer client is a full image ActiveX plug-in for Microsoft Internet Explorer web browser. *Id.* 0123, 0125. There also is a Windows QlikX Analyzer client that is an object only ActiveX plug-in for Internet Explorer web browser. *Id.* 0123. A POSITA would understand that those two plug-

ins are represented by the QlikView Plugin for a Web browser shown in the above network diagram.

250. The Java clients run in a browser window. *Id.* 0097. The Java clients can communicate directly with the QlikView server, but they first must establish a connection with a Web Server serving the page containing the Java applet. *Id.* 0098. A POSA would understand that such a Java client is shown in the above network diagram as associated with a Web browser.

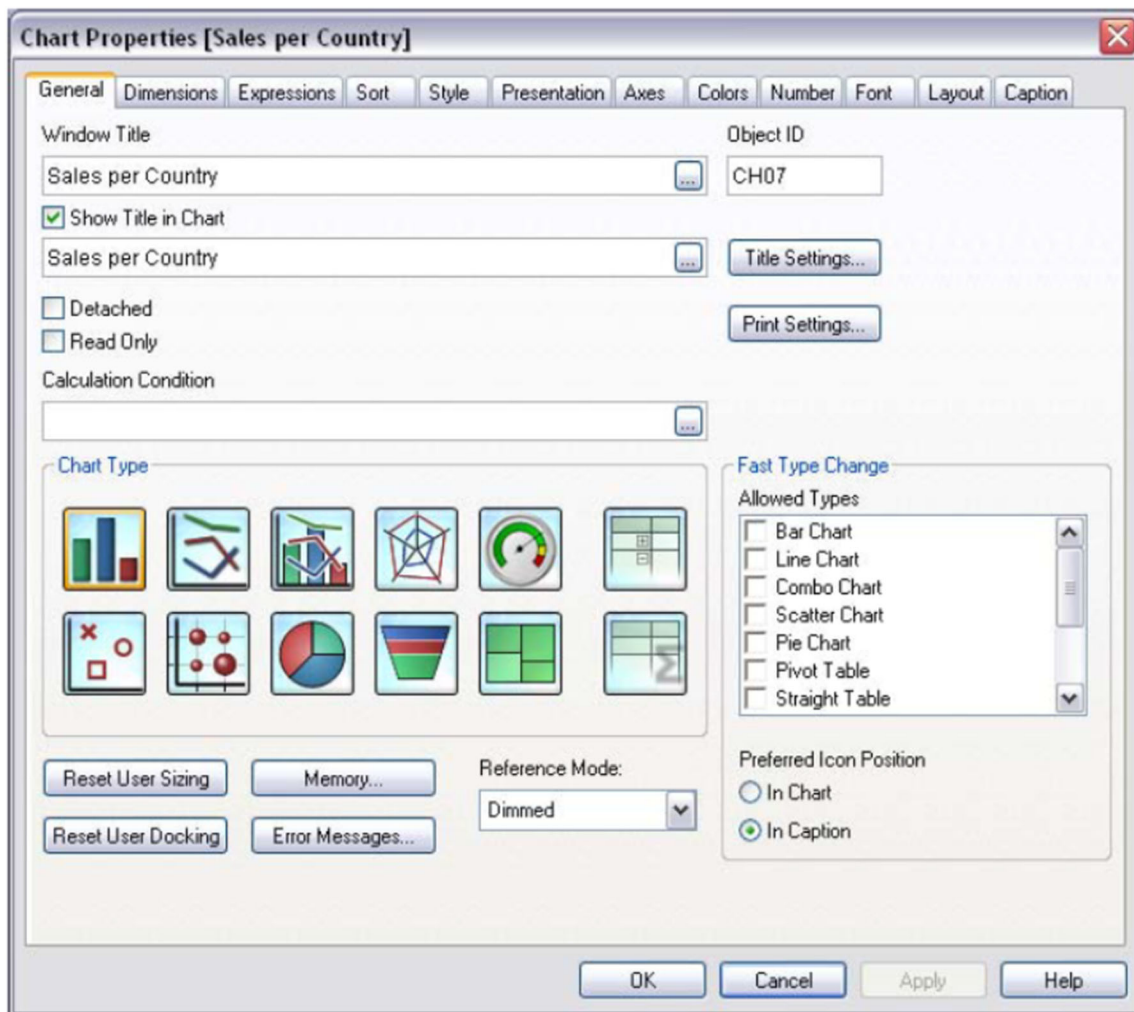
251. An AJAX Zero-Footprint Client (ZFC) must establish and maintain a connection to the QlikView Server through a Web server. *Id.* 0098. The AJAX ZFC client is an object-only dynamic HTML client utilizing AJAX architecture in a web browser. *Id.* 0123. A POSA would understand that the AJAX ZFC client is shown in the above network diagram as “QlikView AJAX Zero fp client” and associated with a Web browser.

252. Regardless of the configuration, at least one network communication path must exist between the QlikView Server and the Client. *Id.* 0096. Thus, the QlikView clients must establish and maintain a connection to the QlikView server to display and interact with the QlikView documents that are hosted on the QlikView server. That connection is either a direct connection or — in the case of the Java clients — an indirect connection via a Web server. This makes sense because the QlikView Server provides a centrally managed QlikView document community that

connects multiple users, client types, documents, and objects within a secure and safe environment. *Id.* 0009. It follows, however, that if the connection (direct or indirect) to the QlikView server is not established and maintained, none of the QlikView clients, including the QlikView Analyzer clients, can display and interact with the QlikView documents that the QlikView Developer created on the QlikView server.

253. A POSITA would understand that the Web server displayed in the above figure is just a conduit between the QlikView server and the QlikView clients. That conduit provides a network communication path between the QlikView server and the QlikView clients.

254. Thus, the QlikView Manuals do not disclose embedding an interactive chart in a chart box on a second website nor displaying an interactive chart embedded in a chart box on a second website. A user of the QlikView Developer client installed on Microsoft Windows can create charts and tables on the QlikView Server. EX1008 at 0016, 0073, and 0880. The General page, reproduced below, of a chart wizard is where the titles and chart type can be set. *Id.* 0882.

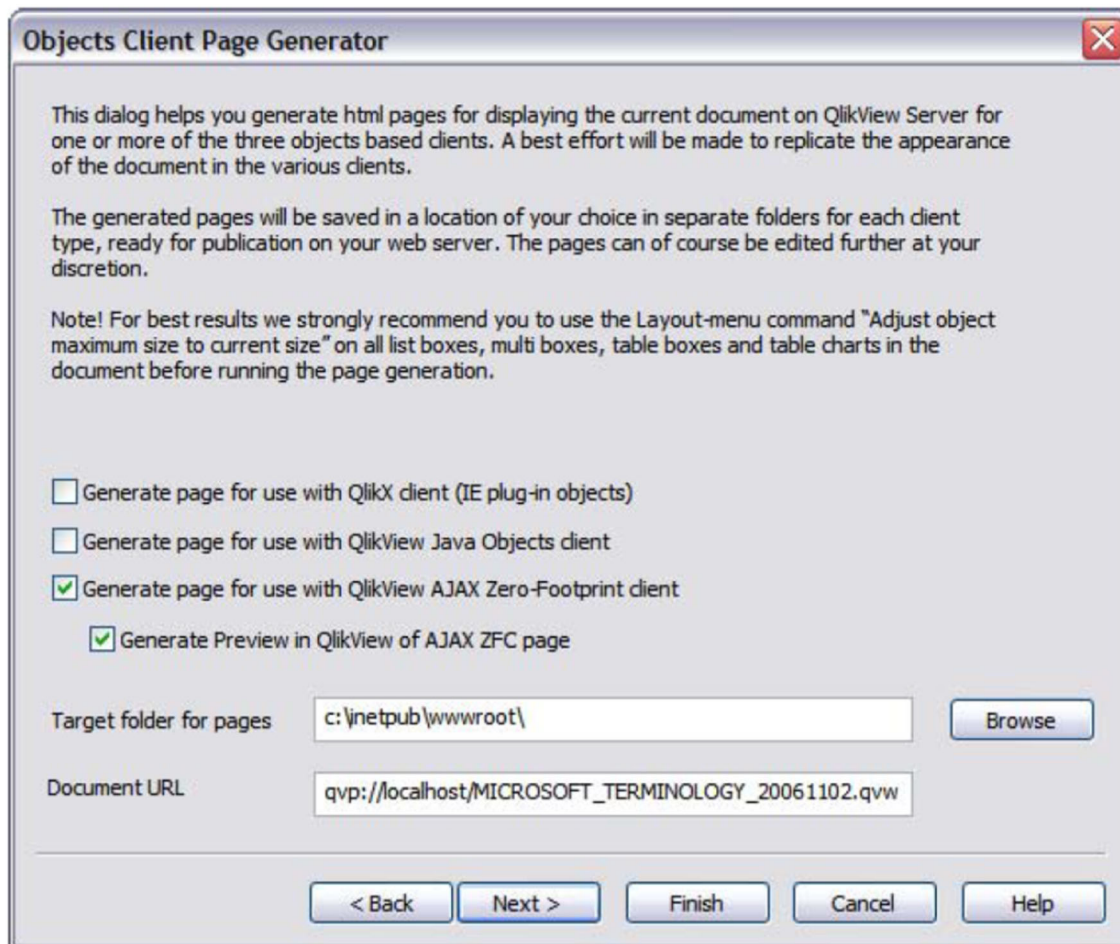


Id. 0882.

255. The QlikView server is responsible for opening, hosting, and calculating the document. EX1009 at 0123. A POSITA would understand that the QlikView clients view the charts that reside on the QlikView server either by interacting directly with the QlikView Server (in the case of the QlikView exe clients) or via a Web browser. A POSITA would understand that the QlikView Manuals do not disclose embedding an interactive chart in a chart box on a second

website nor displaying an interactive chart embedded in a chart box on a second website. A browser is *not* a second website. A POSITA would understand that the Web browsers shown and described in the QlikView Manuals are for interacting with the QlikView Server and for viewing documents that *reside on* the QlikView Server.

256. Further evidence that the QlikView Manuals do not disclose embedding an interactive chart in a chart box on a second website nor displaying an interactive chart embedded in a chart box on a second website can be found in the discussion of the QlikView Objects Client HTML Page Generator Dialog box. The QlikView Manuals' descriptions of the QlikView Objects Client HTML Page Generator Dialog box establish that the QlikView Manuals do not disclose or teach embedding an interactive chart in a chart box on a second website or displaying an interactive chart embedded in a chart box on a second website. The QlikView Objects Client HTML Page Generator dialog box, reproduced below, helps a user to generate html pages for displaying the current document on the QlikView Server for one or more of the three QlikView object-based clients (i.e., the Java Objects client, the QlikX client, and the AJAX Zero-Footprint client). EX1008 at 0807.



EX1008 at 0807 (Fig. 87).

257. The user can specify a target folder for the html pages where the generated html pages will be saved. *Id.* 0808. The html pages can be edited further using a third-party html editor. *Id.* 0807.

258. The Objects Client HTML Page Generator includes a box called “Document URL” where the user specifies the QlikView target document URL on the QlikView Server where the html pages are to be run. *Id.* 0808. This setting is necessary for the Java Objects and QlikX pages to work properly. *Id.* 0808. A

POSITA would understand that means that the web pages viewable by the QlikView object clients are built on the QlikView Server, reside on the QlikView server, and run on the QlikView server. The URL provides the user of a QlikView Client browser with a mechanism to locate those web pages.

259. This specification of a QlikView target document URL on the QlikView Server provides further evidence that there is no disclosure in the QlikView Manuals of embedding an interactive chart in a chart box on a second website or displaying an interactive chart embedded in a chart box on a second website. A POSITA would understand that the QlikView charts that are generated on the QlikView Server remain on the QlikView server for display. For the QlikView clients to be able to view and interact with QlikView charts, a connection to the QlikView server — either direct or indirect — must always be present. A POSITA would understand that breaking the connection between QlikView server and a QlikView client would prevent a user of QlikView client from interacting with a chart.

260. Schmandt is misguided in opining that the QlikView Manuals disclose displaying a chart embedded in a chart box on a second website. A POSITA would understand that what the QlikView Manuals disclose is that the charts that are generated on the QlikView server and that the QlikView Manuals do not disclose embedding an interactive chart in a chart box on a second website nor displaying an

interactive chart embedded in a chart box on a second website. Instead, some types of QlikView clients communicate directly with the QlikView Server to view the chart residing on the QlikView Server while other types of QlikView clients employ a Web browser to view the chart residing on the QlikView Server. EX1009 ¶0098. A POSITA would know that using a Web browser to view a chart on the QlikView server is not displaying an interactive chart embedded in a chart box on a second website.

261. The system the QlikView Manuals disclose regarding QlikView clients using browsers is similar to the Google online service disclosed in the Background of the Invention section of the '000 patent (EX1001 at 1:32-48), which is distinguishable from the claimed invention of the '000 patent.

262. Schmandt is also mistaken in arguing that a second website is different from a first website because it uses a different web client and a different URL, with the Petitioner pointing to a comparison of EX1009 at 0133 (“http://qliktech.com/vinguiden”) with *Id.* 0129 and 0139 (“http://localhost/QvJava...” and “http://localhost/QvPlugin...”). EX1003 at ¶302. Schmandt’s opinion is misguided because he is comparing a QlikView server URL with local hosting on a QlikView server, which shows that there is no support for the position that there is a second website. This is not a second website. QlikTech International AB is the name of the company. EX1009 at 0001. A POSITA would

have understood that “http://qliktech.com/vinguiden” is a URL for the QlikView server with a web page “vinguiden.” (See *Id.* 0087, disclosing “qvp://www.qliktech.com/AcmeStores.qvw”). The cited URLs “http://localhost/QvJava...” and http://localhost/QvPlugin... are to local hosting, which a POSITA would understand to mean not accessing the web. Petitioner is also confusing a web page with a website. A POSITA would understand that a single forward slash in a URL references a web page of a website and that a web page is not a website. The local hosting examples pointed to by the Petitioner both refer to “localhost” and do not reference different websites — indeed, there is not a reference to a website at all.

263. Schmandt’s opinion that on the second website the charts remain interactive is incorrect. As explained above, there is no second website and there is either a direct connection to the QlikView Server in some configurations or communication with QlikView Server via a browser on a QlikView Client for other configurations.

264. Thus, the Petitioner has failed to show that the QlikView Manuals disclose embedding an interactive chart in a chart box on a second website or displaying an interactive chart embedded in a chart box on a second website.

265. Bales does not cure the deficiencies of the QlikView Manuals.

- b. The QlikView Manuals in View of Bales do not disclose “wherein the one interactive chart, when displayed on the second website in the absence of the generation interface, enables a user to a) render the chart, b) obtain input from the user, and c) rerender the chart using the input thereby enabling the interactive chart to retain interactivity” (Claim 1)**

266. Schmandt opines that QlikView discloses: “wherein the at least one interactive chart, when displayed on the second website in the absence of the generation interface, enables a user to a) render the chart, b) obtain input from a user and c) rerender the chart using the input thereby enabling the interactive chart to retain interactivity.” EX1003 ¶¶325-332.

267. I disagree with Schmandt’s opinion here. As previously discussed, the QlikView Manuals do not disclose embedding an interactive chart in a chart box on a second website, nor do the QlikView Manuals disclose displaying an interactive chart embedded in a chart box on a second website.

268. The main reason I disagree with Schmandt is that the QlikView Manuals do not disclose a second website. It follows that the QlikView Manuals do not disclose, teach, or suggest the limitation of “wherein the one interactive chart, when displayed on the second website in the absence of the generation interface, enables a user to a) render the chart, b) obtain input from the user, and c) rerender the chart using the input thereby enabling the interactive chart to retain interactivity.”

269. Bales does not cure the deficiencies of the QlikView Manuals

c. The QlikView Manuals in View of Bales do not disclose “wherein the selection is made by dragging and dropping the at least one interactive chart from the plurality of charts into a chart box folder connected to the chart box such that retrieve code for data feed displays the at least one interactive chart on the first website” (Claim 1)

270. The chart box, as set forth earlier in claim 1, is “a chart box on a second website.” As discussed above, the QlikView Manuals do not disclose a second website. Given that there is no chart box in the QlikView Manuals, the QlikView Manuals also do not disclose a chart box folder connected to the chart box.

271. Schmandt admits that the QlikView Manuals do not explicitly disclose making a selection by dragging and dropping the interactive chart into the chart box folder. EX1003 ¶339. Schmandt also admits that the QlikView Manuals do not explicitly disclose retrieve code for data feed that displays the at least one interactive chart on the first website. *Id.* Instead, Petitioner points to Bales.

272. Bales discloses that a community accessible via a portal can be provided for maintaining user membership in a collaborative computing environment. EX1006 at Abstract:1-3. Collaboration resources can be displayed on portal page. *Id.* Abstract:3-4.

273. Drag and drop functionality enables a community member to drag and drop some resource into a target area, thereby causing a computer to

execute an action upon the drop. *Id.* Abstract:4-7. Upon any given drop, a Javascript function could be called, a pageflow action could be submitted, or a form action could be called to perform the desired functionality. *Id.* [0158]:5-8. A drag and drop tag library enables a user to drag and drop various resources and portlets from one page element to another. *Id.* [0158]:2-5.

274. FIG. 1 of Bales, reproduced below, illustrates the framework of the communities. *Id.* [0054]:1-3.

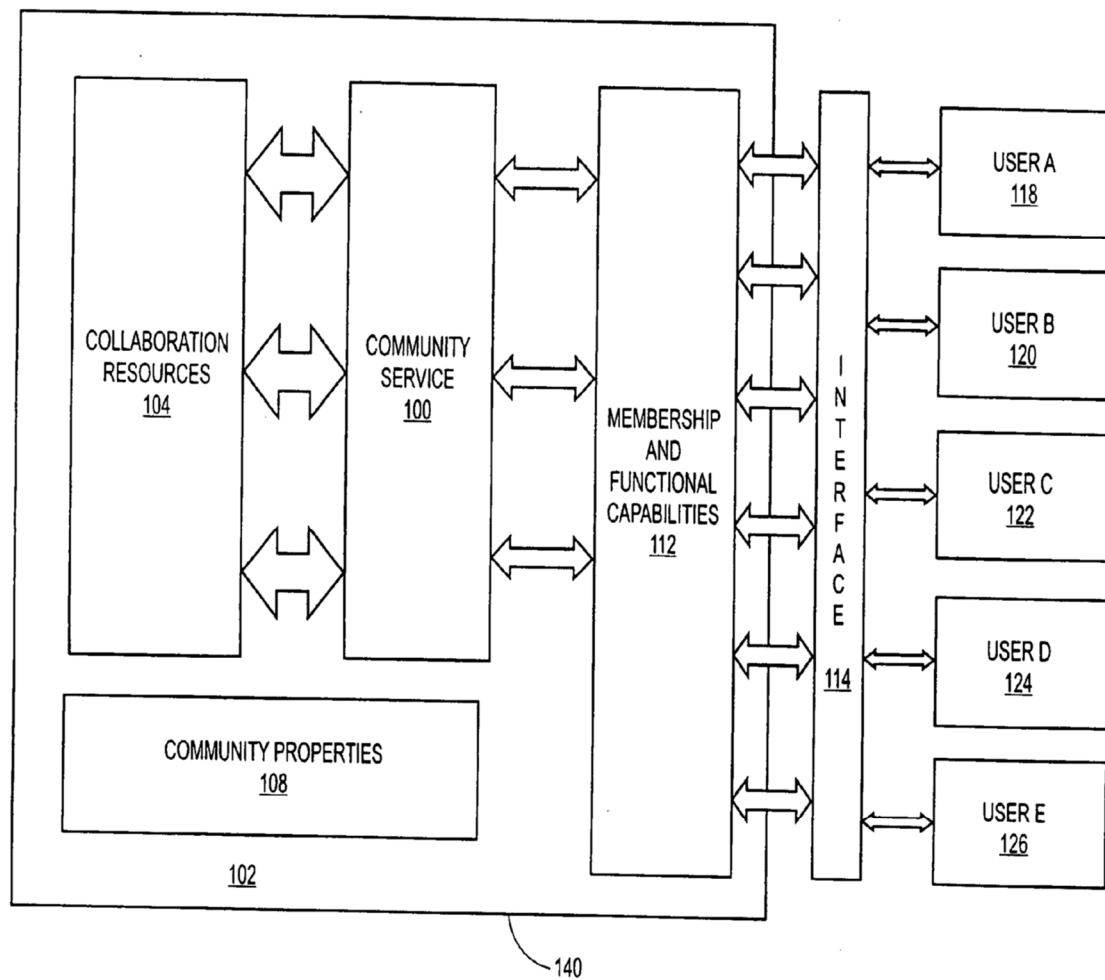


FIG. 1

275. Various users **118**, **120**, **122**, **124**, and **126** may access and make use of the community **140** through interface 114. *Id.* [0056]:1-3. The interface **114** can be a graphical user interface (GUI) rendered on a display device. *Id.* [0056]:3-4.

276. A POSITA would not have been motivated to combine the QlikView Manuals with Bales because those references are not directed to the same technical problem. Bales is directed to providing customizable drag and drop functionality for

displayed resources in a communities framework. *Id.* [0018]:1-4. The QlikView Manuals, on the other hand, disclose a server-client system for data analysis. EX1009 at 0009.

277. There was no reason for a POSITA to start with the QlikView Server-Client system and modify it based on Bales to include the Bales features. Even without Bales, the QlikView Manuals describe a Chart Wizard, so a POSITA would understand there would be no need to combine the QlikView system with the drag and drop system of Bales. With no need for drag and drop given the Chart Wizard, a POSITA would understand that it follows that there would be no need for the dynamic drag and drop system of Bales.

278. Schmandt is misguided in relying on the disclosure of the QlikView Manuals that one of the major design goals for the QlikView 8 system is to enhance user collaboration during the QlikView experience. EX1003 ¶269. A POSITA would understand that the statement is in fact touting the advantages of the QlikView 8 system (which includes a Chart Wizard) and not a call for further changes. That design goal also lacks specificity and therefore would not point a POSITA to the Bales system.

279. Schmandt's argument that a POSITA would have been motivated to use Bale's drag and drop approach to reduce server workload (EX1003 at ¶274) also lacks merit because a POSITA would have understood that switching to the drag and

drop system would have meant giving up the advantages of the Chart Wizard. For example, in describing the Quick Chart Wizard, the QlikView Manuals state that that the Quick Chart feature has been developed for the user who wants to create a simple chart in a quick and easy way without bothering about the great number of different setting and options available. EX1008 at 0216.

280. Moreover, a POSITA would understand there are not sufficient teachings in either the QlikView Manuals or in Bales as to how to implement the Bales drag and drop feature in the QlikView system. There was no reasonable expectation of success in modifying the QlikView System to include the Bales drag and drop feature given the lack of disclosure in both the QlikView Manuals and Bales. Furthermore, it would involve impermissible hindsight, based on the disclosure of the '000 Patent, to combine the QlikView Manuals and Bales.

281. In addition, even if the QlikView Manuals and Bales were combined, the combination would not disclose, teach, or suggest the limitation of claim 1 of “a chart box folder connected to the chart box.” As previously discussed in other sections, the QlikView Manuals do not disclose a chart box on a second website. Schmandt’s opinion about the alleged “connector code” at ¶337 is off base. The sample Java Objects code that Schmandt points to in the QlikView Server Manual is in a section 16.4 entitled “Applying QlikView Java Objects to a web page.” EX1009 at 0135-136. Schmandt fails to understand that a POSITA would understand

that the web page referred to would be a web page on the QlikView Server, not on a second website. Schmandt's position is undercut by the statement in that section of the QlikView Server Manual that there is a connection to "the right QlikView document (qvw file) on the server...." *Id.* 0135. The "Connector Code" Schmandt references on pages 0148-0149 of the QlikView Server Manual is part of a complete HTML page for displaying one list box and one chart with QlikX. *Id.* 0147. QlikX is Windows Analyzer client that is an object only ActiveX plug-in for Internet Explorer web browser. *Id.* 0123. A POSITA would understand that the Internet Explorer web browser would be used by a user of QlikView Client to view a web page on the QlikView Server, as explained above. With respect to Schmandt's reference to "Java applets" on pages 0130 and 0135 of the QlikView Server Manual (EX1009), a POSITA would understand, based on the discussion above, that a chart generated on the QlikView server is hosted on the QlikView Server and is not sent to a second website.

282. Bales likewise does not disclose a chart box on a second website. Bales discloses that the drag and drop tag library provides for the ability of a user to drag and drop various resources and portlets from one page element to another. EX1006 at [0158]:2-5. Although Bales discloses that when a community member drops the draggable resource onto a drop zone, a dynamic content call can be made to a remote

server for updating the drop zone area of the user interface with an HTML fragment (*Id.* [0168]:19-24), there is no disclosure in Bales of a chart box on a second website.

d. The QlikView Manuals in view of Bales do not disclose “wherein the at least one interactive chart is automatically displayed on the second website using a data feed from the first website to the second website upon the dragging and dropping selection” (Claim 1)

283. As discussed above, the QlikView Manuals do not disclose a second website. Therefore, the QlikView Manuals do not disclose that at least one interactive chart is automatically displayed on the second website using a data feed from the first website to the second website.

284. As discussed above, a POSITA would not have been motivated to combine the QlikView Manuals with Bales because those references are not directed to the same technical problem. There was no reason for a POSITA to start with the QlikView Server-Client system and modify it based on Bales to include the Bales features. Further, as discussed above, a POSITA would understand there are not sufficient teachings in either the QlikView Manuals or in Bales as to how to implement the Bales drag and drop feature in the QlikView system. There was no reasonable expectation of success in modifying the QlikView System to include the Bales drag and drop feature given the lack of disclosure in both the QlikView Manuals and Bales.

285. In addition, even if the QlikView Manuals and Bales were combined, the combination would not disclose, teach, or suggest that at least one interactive chart is automatically displayed on the second website using a data feed from the first website to the second website upon the dragging and dropping selection. As discussed above, the QlikView Manuals do not disclose a second website. Schmandt's reliance on the AJAX is misplaced. The QlikView Manuals refute Dr Schmandt's position by disclosing that the QlikView AJAX ZFC requires no installation on the client computer, but some HTML/ASP development is required to display and interact with objects from a QlikView document hosted by QlikView Server." EX1009 at 0155 (emphasis added). A POSITA would understand the user of the QlikView client would be using the web browser on the user's QlikView client viewing a web page on the QlikView Server. A POSITA would understand that the Dynamic HTML would work by manipulating and modifying the structure and content of the web page on the QlikView Server that the user is viewing after the web page has loaded, allowing for interactive elements and changes to the page without needing to reload the entire page. User feedback occurs when the user clicks on the QlikView Server web page via the client browser. Therefore, the QlikView Manuals do not disclose that at least one interactive chart is automatically displayed on the second website using a data feed from the first website to the second website.

286. The “dragging and dropping selection” referred to in claim 1 is to be interpreted by referring to the preceding portions of claim 1 that indicate that the dragging and dropping is into a chart box folder connected to a chart box and that the chart box is on a second website. Bales does not disclose a chart box on a second website. Bales discloses that the drag and drop tag library provides for the ability of a user to drag and drop various resources and portlets from one page element to another. EX1006 at [0158]:2-5. Although Bales discloses that when a community member drops the draggable resource onto a drop zone, a dynamic content call can be made to a remote server for updating the drop zone area of the user interface with an HTML fragment (*Id.* [0168]:19-24), there is no disclosure in Bales of a chart box on a second website.

2. The Quick View Manuals in View of Bales Do Not Render Obvious Claim 3

287. Schmandt opines that QlikView in view of Bales recites “displaying one or more of the plurality of interactive charts in the chart box on the second website,” and provides the example that QlikView displays a chart embedded in a chart box on a second website. EX1003 ¶¶356-357.

288. Because Schmandt has failed to show that the QlikView Manuals in view of Bales render independent claim 1 of the ’000 patent obvious, he necessarily

fails to show that the QlikView Manuals in view of Bales teach claim 3 given that claim 3 depends from claim 1.

289. As discussed above, the QlikView Manuals do not disclose displaying an interactive chart embedded in a chart box on a second website. The QlikView Manuals also do not disclose displaying one or more of the plurality of interactive charts in the chart box on a second website.

3. The Quick View Manuals in View of Bales Do Not Render Obvious Claim 4

290. Schmandt opines that QlikView in view of Bales recites “displaying a plurality of interactive charts embedded in a plurality of chart boxes on the second website,” and provides the example that QlikView displays an interactive chart embedded in a chart box on a second website. EX1003 ¶¶359-360.

291. Because Schmandt has failed to show that the QlikView Manuals in view of Bales render independent claim 1 of the '000 Patent obvious, he necessarily fails to show that the QlikView Manuals in view of Bales teach claim 4 given that claim 4 depends from claim 1.

292. As discussed above, the QlikView Manuals do not disclose displaying an interactive chart embedded in a chart box on a second website. The QlikView Manuals also do not disclose displaying a plurality of interactive charts embedded in a plurality of chart boxes on a second website.

I hereby declare that all statements of my knowledge made in this declaration are true and that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: 2/18/2025

A handwritten signature in black ink, appearing to read "Jeff Miller", written over a horizontal line.

Jeffrey Miller

APPENDIX A



Jeffrey Miller, Ph.D.

Dean, College of Engineering and Computational Sciences
Professor of Computer Science
Southern Utah University
jmillersigmacoding.com 213-359-6856

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Education History

- **Ph.D. in Computer Science, August 2007**
University of Southern California
 - Successfully defended dissertation on April 27, 2007, with topic “Algorithms and Data Structures for the Real-Time Processing of Traffic Data” under the advisement of Professor Ellis Horowitz, Professor Petros Ioannou, and Professor Ming-Deh Huang. ISBN: 978-0-549-30120-2
<https://www.proquest.com/openview/a88dd85abb94187f0d1e41d808f98af9/1?pq-origsite=gscholar&cbl=18750>
- **Master of Science in Computer Science, December 2002**
University of Southern California
 - Emphasis in Systems and Software Engineering
- **Bachelor of Science in Computer Engineering and Computer Science, May 2002**
University of Southern California
 - Graduated cum laude

Employment History

Academic Employment History

Dean, College of Engineering and Computational Sciences, July 2022-present

Professor with tenure, Computer Science, July 2022-present

Southern Utah University – Cedar City, Utah, July 2022-present

- Administrative

Academic Year	2021/2022	2022/2023	2023/2024	2024/2025
# Major Students	1,456	1,522	1,634	1,738
# Seats Filled	15,074	15,801	17,472	18,250
# Student Credit Hours	46,287	48,678	54,253	57,360
# New Faculty	3	6	8	8
# Promoted Faculty	1	3	3	6
# Academic Programs	45	46	48	76
# AS, BS, MS Degrees Earned	188	241	267	
# Proposals / # Grants Received	7/2	20/5	18/7	
Grant Funding Received	\$31,250	\$458,990	\$885,458	
Fundraising	\$159k	\$1.7M	\$1.4M	\$6M*

** Anonymous pledges for new engineering building*

NOTE: I started as the Dean at SUU in July 2022, which is at the start of the 2022/2023 academic year. The 2021/2022 numbers are prior to my employment at SUU.

- Responsible for all operations of the College of Engineering and Computational Sciences, consisting of 60 full-time faculty, 1,700 major students, 76 academic programs (31 certificates, 10 Associate degrees, 9 minors, 22 Bachelor degrees, 4 Master degrees)
- Number of students majoring in degree programs in the College increased 19.4% since I started
- Number of students taking classes in the College increased 21.1% since I started
- Hired 22 new faculty in three years (36.7% increase) while losing only two, giving a 97% retention rate
- Oversaw the promotion of 14 faculty to advanced ranks
- Construction Management achieved full six-year ABET accreditation in 2022/2023, and Civil Engineering achieved full six-year ABET accreditation in 2023/2024
- Departments and programs within the College
 - Aviation (Aviation Maintenance Technician, Aviation Administration and Leadership, Fixed-Wing Pilot, Rotor-Wing Pilot)
 - Computer Science and Cybersecurity (Computer Science, Information Systems, Cybersecurity, Financial Technology, Software Development, Artificial Intelligence and Machine Learning)
 - Engineering (Civil Engineering, Electrical Engineering, Mechanical Engineering, Construction Management, and Engineering Technology)
 - Mathematics (Theoretical Mathematics, Mathematics Education, Data Science)
- Facilitated the college convocation ceremony annually
- Increased the number of graduates by 79 in two years, which is a 42% increase
- Increased the number of programs offered from 45 to 76 in three years (a 68.9% increase), including Bachelor's degree programs in Data Science, Financial Technology, Electrical Engineering, and Software Development, and Master's degree programs in Computer Science, Software Development, and Artificial Intelligence and Machine Learning
- Created a College Industry Advisory Board with leaders from local and national companies who hire SUU alumni and have an interest in the success of our programs
- Research
 - Principle Investigator for Department of Labor Closing the Skills Gap Grant entitled "Building Apprenticeship Systems in Cybersecurity," jointly working with five other

institutions in the northwest United States to train 3200 cybersecurity apprentices. Total funding of \$5,766,971

- Co-Principal Investigator for National Science Foundation Enabling Partnerships to Increase Innovation Capacity (EPIIC) Grant entitled, "Fostering Unity and Teamwork for Rural Excellence (FUTURE)," jointly working with two other institutions (Athens State University and Georgia College & State University). Total funding of \$375,000
- Teaching
 - CS 4800 – Computer Science Capstone Project
 -
- Service
 - New Engineering Building Committee Chair, 2023-present
 - SUU Strategic Enrollment Planning Committee, 2023-2024
 - SUU STEM Advisory Board, 2022-present
 - President's Leadership Council, 2022-present
 - Director of Development Search Committee Member, 2024
 - College of Engineering and Computational Sciences Business Manager Search Committee Chair, 2023, 2024
 - College of Engineering and Computational Sciences Retention and Recruitment Coordinator Search Committee Chair, 2023
 - Utah System of Higher Education (USHE) New Leadership Academy (NLA) for Senior Leaders, 2022-2023
- Professional Development
 - CITI Program Responsible Conduct of Research for Administrators, December 11, 2024
 - Cybersecurity, November 28, 2024
 - Freedom of Speech, Academic Freedom, and Political Advocacy, November 28, 2024
 - Active Shooter Module, August 5, 2024
 - Abusive Conduct Training, August 5, 2024
 - Federal Work Study 2024-2025, July 10, 2024
 - Title IX and Sexual Harassment Prevention for Employees, July 3, 2024
 - General Ethics in the Workplace, July 3, 2024
 - FERPA: Confidentiality of Records, July 2, 2024
 - Preventing Child Abuse: Keeping Kids Safe, May 31, 2024
 - Preventing Child Abuse: A Guide for Adults Working with Youth, May 31, 2024
 - Campus Security Authorities: Roles and Responsibilities, February 5, 2024
 - Family Educational Rights and Privacy Act (FERPA), August 28, 2023
 - Title IX and Sexual Harassment Prevention for Employees, July 23, 2023
 - Preventing Child Abuse: Keeping Kids Safe, Prevent Child Abuse Utah, May 4, 2023
 - Campus Security Authorities: Roles and Responsibilities, February 4, 2023
 - Ministry Safe Child Sexual Abuse Awareness Training, November 21, 2022
 - SUU Legal Issues Seminar for University Leaders, November 15, 2022
 - Title IX and Sexual Harassment, May 28, 2022
 - Title IX and Sexual Harassment Prevention for Employees, May 28, 2022
 - Family Educational Rights and Privacy Act (FERPA), July 7, 2022

Professor of Computer Science and Information Technology Practice, May 2020-June 2023

Department Chair, Information Technology Program, July 2019-June 2022

Associate Professor of Computer Science Practice, August 2013-May 2020

Associate Professor of Information Technology Practice, July 2019-May 2020

University of Southern California – Los Angeles, California, August 2013-June 2023

- Research in K12 STEM education, undergraduate and graduate computer science education, and intelligent transportation systems
- Administrative
 - Department Chair, Information Technology Program, 2019-present (<http://itp.usc.edu>)
 - Responsible for overall operation, budget, curriculum, and administration of the program consisting of 18 full-time faculty, 30 part-time faculty, 5 full-time staff, over 200 student workers each semester, 17 degree-granting minor programs, and 2 degree-granting interdisciplinary major programs
 - Supported seven full-time and one part-time faculty member in getting promoted to subsequent ranks in three years
 - Communicate with the dean's office on new initiatives, faculty concerns, new programs, curriculum, budget, and other administrative issues
 - Manage \$5.0M annual budget
 - Increased the number of students to 4,700 and the student credit hours to over 14,000 (23.6%) in my first year and another 28% increase in second year
 - Increased the number of faculty by more than 25%
 - Oversaw project proposal (ITP Lasting Impact Project) process to distribute \$250k to projects that would have long-term effects on ITP constituents
 - Added five new minors – Cloud Computing, Technical Game Art, Education and Computing, Applied Artificial Intelligence, and Law and Technology
 - Hired three additional staff members – a second student services advisor to help support over 2,000 students each semester, a faculty affairs coordinator, and an administrative assistant
 - Instituted automated application and hiring process for class TAs, for which we hire over 200 per semester
 - Coordinated the design and move to a new building to centralize the staff and faculty
 - Led all faculty retreats and meetings throughout the academic year and coordinated social activities for the program staff, faculty, and students
 - Participated in monthly department chair meetings with the dean
 - Founding Director, CS@SC Camps, 2015-present (<http://summercamps.usc.edu>)
 - The CS@SC Camps have exposed over 7,500 K12 students to computer science and robotics between 2015-2022
 - In 2019, there were over 1,000 students who attended the week-long program.
 - In 2020, we transitioned to fully remote camp sessions for 10 weeks and had over 1,300 K12 students attend.
 - In 2021, we had over 1,500 students attend remote camps and began offering in-person campus again
 - In 2022, we had over 2,000 students attend remote and in-person camps
 - I have raised nearly \$1M for the camps since 2015 and am responsible for the budget.
 - Over 100 USC students have been hired as TAs for the program.
 - The camps operate year-round since 2018 with fall, spring, and summer sessions.
 - Events (other than the camps)
 - Incorporating Computer Science in K8 Curricula. *Calvary Christian Retreat*, Malibu, California, USA, October 9, 2015
 - CS@SC Summer Camp Reunion, STEM Spotlight on the Department of Computer Science, November 3, 2015
 - Hour of Code for CS@SC Summer Camp Applicants, December 7, 2015
 - CS@SC Summer Camp Fundraiser, Rancho Santa Fe, California, January 23, 2016
 - Viterbi Alumni Spotlight Series Panelist, February 18, 2016
 - CS@SC Summer Camps Kickoff Event, April 14, 2016
 - CS@SC HackSC Jr., November 20, 2016, March 31, 2018

- CS@SC Hour of Code, December 7, 2016
 - Panelist, Creating a USC K-12 Ecosystem to Advance Diversity, Equity, and Inclusion, January 18, 2019
 - Panelist, Motivating Students to Get Involved in STEM, along with Megan Smith, Coach Kathy Kemper, and Derek Richardson, August 7, 2021
 - CS@SC Awards Ceremony, August 7, 2021
- Teaching
 - Courses Taught
 - Introduction to Python Programming (ITP 115)
 - Accelerated Programming in Python (ITP 116)
 - Introduction to Programming (CSCI 103L)
 - Principles of Software Development (CSCI 201L)
 - Capstone: Design and Construction of Large Software Systems (CSCI 401/477ab)
 - Directed Research (CSCI 490)
 - Analysis of Algorithms (CSCI 570)
 - Courses Authored
 - Capstone: Design and Construction of Large Software Systems (CSCI 401)
 - Applied Python (ITP 216)
- Service

Computer Science Department Service

Viterbi School of Engineering Service

- ABET Point-of-Contact, 2014-present
 - 6-year accreditation received in spring 2016 for Computer Engineering/Computer Science (CECS) and Computer Science (CSCI) programs
 - Accreditation visit occurred in fall 2021
- Scholarship Interviewer for First Year Students, 2021
- Computer Science Teaching Faculty Reappointment Committee, 2021, 2022
- CSCI 201 Fall 2019 Improvement Committee, fall 2019
- Computer Science Teaching Faculty Monthly Meeting Coordinator, 2014-2018
- Computer Science Industry Affiliate Committee Member, 2017
- Computer Science Teaching Faculty Promotion Committee, 2015, 2016, 2017
- Computer Science Annual Retreat Teaching Faculty Breakout Leader, 2014- 2016
- Computer Science Annual Retreat Panelist on 3-unit to 4-unit conversion, 2016
- Computer Science Annual Retreat Presenter on Outreach in Computer Science, 2016
- Computer Science Department Admit Calling Campaign Committee, 2016, 2018
- Faculty Advisor, Upsilon Pi Epsilon Computer Science Honor Society, 2014
- Computer Science Faculty Voting Sub-Committee, 2015
- Computer Science Teaching Faculty Annual Evaluation Committee, 2015
- Computer Science Teaching Faculty Hiring Committee, 2014, 2015, 2016, 2018
- Computer Science Teaching Faculty Promotion Committee, 2015, 2016
- USC Computer Science Department Retreat, September 20-21, 2014
- USC ACM Professor Luncheon Series, October 19, 2016
- Computer Science Joint Appointment Committee, October 2016.
- Hosted Guest Lecturer Richard Anfang, Wall Street CIO, March 10, 2017.
- Viterbi Undergraduate Scholarship Committee, 2021
- Code for Christ Student Group Advisor, 2019-present
- Viterbi Chief Technology Officer Search Committee, 2019-2020
- USC VexU Robotics Team Advisor, 2014-present
 - VexU World Qualifying Team, 2016, 2018, 2019, 2022
 - VexU Excellence Award Winner at World Competition, 2019
- igniteCS Student Group Advisor, 2017-present
- HackSC Student Group Advisor, 2017-present
- HackSC Jr. Student Group Advisor, 2017-present
- Division of Engineering Education Committee Member, 2015-2017
- Division of Engineering Continuous Improvement Committee, 2015-2017
- Viterbi Undergraduate Experience Retreat, August 12, 2016

- ITP Teaching Faculty Promotion Committee, 2016
- ITP Teaching Faculty Hiring Outside Reviewer, 2017, 2018
- Fall 2015 Academic Career Mentoring Panel, October 28, 2015
- University Trojan Family Weekend – Viterbi Breakfast with the Dean, October 23, 2015
- Mentor, Viterbi Student-Alumni Mentoring Program (VSAMP), 2015-2016
- Master's Degree Early Start Welcome Lunch, July 9, 2015
- Viterbi Robotics Open House VexU Showcase, April 7, 2015, April 14, 2016, April 7, 2017
- Explore USC, Parent Luncheon, April 11, 2019, February 20, 2020, February 27, 2020
- Explore USC, On-Campus Admitted Student Reception, April 26, 2014, April 9, 2015, February 27, 2020
- Viterbi Capstone and Senior Design Retreat Speaker, August 18, 2015.

Outside Service

- Please see [Professional Services](#) section below.
- Teaching Faculty Promotion Committee, Dr. Keith Redmill, The Ohio State University, 2017.
- Professional Development
 - Information Security 101, November 17, 2021
 - Harassment Prevention for Managers, October 20, 2021
 - Health, Hygiene, and Safety for Employees, August 13, 2021
 - Workday: Invoices and Payments for Payment Voucher Initiators, July 9, 2021
 - Workday: Requisitions, July 9, 2021
 - Workday: Procurement Card Transaction Verification, July 6, 2021
 - Workday Financial Management Overview, Parts 1 and 2, July 5, 2021
 - Health, Hygiene, and Safety for Employees, July 16, 2020.
 - TrojanSecure Lyceum: Information Security 101 (COVID-19), May 11, 2020.
 - Mandated Reporter/Protecting Minors, April 10, 2020.
 - Wage and Hour Policy Training, November 26, 2019.
 - Corporate Cards: Procurement Cardholders, November 12, 2019.
 - Harassment Prevention for Managers, October 19, 2019.
 - USC eMarket: Shopping and Requisitions, July 31, 2019.
 - USC eMarket: Requisition Approvals, July 30, 2019.
 - USC eMarket: Invoice Exception Approvals, July 30, 2019.
 - Minor Training Courses – Duty to Report Mandated Reporter, It Happened to Me, Meet Sam, June 14-15, 2019.
 - Minor Training Courses – Duty to Report Mandated Reporter, It Happened to Me, Meet Sam, May 26, 2018.
 - Harassment Prevention and Campus Sexual Violence Elimination Act (SaVE) Training, October 9, 2017.
 - CSforAll Inland Summit, Riverside, California, December 7, 2016.
 - Course Design for Student Success: Minimizing Cheating, USC Center for Excellence in Teaching, November 11, 2016.
 - USC SANS Securing Human Awareness Training, USC's Online Cybersecurity Training, March 24, 2016.
 - USC Center for Excellence in Teaching Faculty Forum, "Effective Group Work," October 30, 2015.
 - Harassment Prevention and Campus Sexual Violence Elimination Act (SaVE) Training, June 29, 2015.
 - United Educators SM-101-H How Teachers and Other Educators Can Protect Our Children – Higher Ed Version, April 28, 2015.
 - United Educators SM-201 A Manager's Guide to Prevention and Response, April 28, 2015.
 - Engaged Learning Retreat, USC Viterbi School of Engineering Division of Engineering Education, August 21, 2014.
 - Improve Your Teaching Effectiveness – Flipping the Classroom, Mark Redekopp, January 24, 2014.

Department Chair, Bachelor of Science in Engineering Department (Computer, Electrical, and Mechanical Engineering), February 2011-November 2011

Associate Professor with tenure, Computer Science and Engineering, July 2011-August 2013

Assistant Professor, Computer Systems Engineering, August 2007-June 2011

University of Alaska Anchorage – Anchorage, Alaska, August 2007-August 2013

- Teaching
 - Courses Taught
 - Programming in Java (CS110)
 - Introduction to Computer Systems (CSE102)
 - Introduction to C Programming for Engineers (CSE294A/205) – online and traditional
 - Object-Oriented C++ Programming for Engineers (CSE 294B/215)
 - Engineering Systems Administration (CSE394B)
 - Digital Circuits Design (CSE342/394D)
 - Computer Networking for Engineers (CSE394F/355)
 - Design of Computer Systems Engineering (CSE438)
 - VLSI Circuit Design (CSE442)
 - Network Security (CSE465/CSCE465) – online and traditional
 - Independent Study (CSE497)
 - Elements of Electrical Engineering (ES309)
 - Authored introduction to computer systems, introductory programming, object-oriented programming, systems administration, digital circuits, computer networking, operating systems, FPGA, and VLSI classes for engineering students focused on applied applications in various engineering disciplines
- Administrative
 - Founding Director, Engineering Summer Academies, 2010-2013
 - The Engineering Summer Academies exposed over 1,200 K12 students to, engineering, computer science, and robotics between 2010-2013
 - In 2010, there were over 100 students who attended the week-long program.
 - In 2013, there were over 500 students who attended the week-long program, spread over five weeks
- Service
 - Led Computer Systems Engineering department as point-of-contact in preparing ABET documents for securing accreditation, which we received in 2008, 2010, and 2012
 - IEEEExtreme Programming Competition Proctor for UAA programming teams in 2012
 - Started and facilitated Faculty Research Series where each faculty member in the engineering school presents research to the rest of the faculty during the semester, 2009
 - Hosted Prof. Javier Sanchez Medina from Canary Islands giving a talk on ITS technologies in September 2012.
 - Hosted Prof. Mohan Trivedi from UC San Diego giving a talk on ITS technologies, 2012.
 - Hosted Alaska Department of Transportation 511 Training Event in March 2010
 - Hosted Apple iPhone Development Training Event in April 2010
 - Coordinated end-of-semester Engineering Competition for all School of Engineering students in December 2010
 - University and School of Engineering Committees
 - School of Engineering Executive Committee, August 2011-November 2011
 - School of Engineering Facilities Committee Chair, August 2011-November 2011, responsible for being the point-of-contact for the school on a new building and space usage in existing facilities
 - Chair of School of Engineering Web Site Steering Committee, 2009-2013
 - Computer Systems Engineering Advising Committee, 2007-2013
 - Computer Systems Engineering Equipment Committee, 2007-2011
 - School of Engineering Computer Committee, 2007-2011
 - Computer Systems and Electrical Engineering Faculty Search Committee, 2008
 - Computer Systems and Electrical Engineering Faculty Search Committee, 2009

- United Academic Board Academic Computing Distance Learning and Instructional Technology Committee, 2008-2009
- United Academic Board General Education Requirements Committee, 2008-2009
- Institutional Learning Outcomes and Assessment Task Force, 2008-2009
- Research, Scholarship, and Creative Activity Review and Evaluation Team, 2010
- Chair of Computer Science and Engineering Promotion and Tenure Guidelines Committee, 2013
- Computer Science and Engineering Outstanding Graduate Award Committee, 2013

Online Adjunct Professor, Information Technology Program

American Public/Military University System – December 2009-August 2013

- Teaching
 - Facilitated online education for APUS/AMUS (mostly active or retired military) students around the world
 - Courses Taught
 - Application Development (ENTD 411)
 - Systems Engineering (ENTD 412)
 - Enterprise Development using ASP.NET (ENTD 462)
 - Enterprise Development using C# (ENTD 463)
 - Enterprise Development using .NET (ENTD 464)
 - Enterprise Development using J2EE (ENTD 481)
 - Relational Database Concepts (INFO 221)
 - Local Area Network Technologies (ISSC 340)
 - Introduction to Networking (ISSC 341)

Adjunct Professor, Department of Computer Science

California State University, Los Angeles – Los Angeles, California, February 2002-August 2007

- Teaching
 - Courses Taught
 - Introduction to Web Site Development (CS120)
 - Introduction to SQL and Databases (CS122)
 - Introduction to Programming (CS201)
 - Introduction to Object-Oriented Programming (CS202)
 - Programming with Data Structures (CS203)
 - C Programming (CS242)
 - Computer Ethics in the Information Age (CS301)
 - Algorithm Design and Analysis (CS312)
 - Web and Internet Programming (CS320)
 - Introduction to Automata Theory (CS386)
 - Java for C++ Programmers (CS454 – Special Topics)
 - Enterprise Architecture (CS454 – Special Topics, now CS420)
 - Compilers (CS488)
 - Undergraduate Computer Science Wrap-Up Course (CS490)
 - Directed Study (CS499)
 - Led a team of undergraduate students in directed research (CS499) in the design and implementation of a compiler project to be used for the programs in the compiler class (CS488)
 - Aided in preparing course documents for ABET accreditation in 2006
 - Voted 2002 Professor of the Year by the students in the Computer Science department – 1st adjunct lecturer ever to be given this award
 - Authored CS420 class on enterprise web architecture, covering RMI, CORBA, Web Services, and different MVC architectures, including Spring and Struts

Industry Employment History

Founder

Sigma Coding, LLC – Diamond Bar, California, July 2016-December 2020

- Started a business to teach robotics and computer programming to kids 5-17 years old
- Grew the business to 12 locations at schools, community centers, and an office, teaching a total of over 2,500 kids
- Converted the company to a non-profit and sold company to UCode, Inc.

Senior Solutions Strategist

Pangomedia, Inc. – Anchorage, Alaska, May 2009-August 2010

- Architected high level solutions for clients, working with the development team to see the project from conception through completion
- Identified clients and projects, including ongoing software development projects, IT consulting placement, and fixed-cost projects
- Solicited business by being an active and participating member of the Alaska business community, performing build/buy analyses, and responding to requests for proposals (RFP)

Senior Programmer / Analyst

Resource Data, Inc. – Anchorage, Alaska, April 2008-October 2008

- Consulted at Chenega Federal Systems, working on the Joint Supply Management Module project for the US Department of Defense concerning fuel and ammunition inventory tracking
- Utilized Struts, Spring, Java, J2EE, JDBC, Hibernate, Ajax, and Web Services in the SCRUM software development methodology
- Re-architected the system as new requirements forced a redesign of the application
- Acted as a team lead for four developers and one database administrator

Independent Consultant, May 2005-May 2015

- Created Alaska 511 iPhone app for the Alaska Department of Transportation, displaying real-time traffic conditions and cameras to users. The app is downloadable for free in the App Store.
- Performed small to mid-size programming tasks for different companies using predominantly Java, HTML, JavaScript, CMSs, and Flash
- Automated the drafting of legal documents for a law firm involved with estate planning, including creation of diagrams, flow charts, and Microsoft Word generation
- Migrated a Microsoft Access application to a multi-user web-based application
- Created a socket-based Flash chat application with multiple simultaneous users supporting multiple agents over a Java-based chat server

Founder / Chief Executive Officer

Imaginary Technology, LLC – Burbank, California, August 2005-April 2006

- Started a company that created handheld and standalone point of sale systems for the restaurant industry
- Worked with restaurant owners and potential clients to determine the requirements for the point-of-sale system
- Managed a team of 5 developers to implement the requirements and install the system
- Responsible for buying hardware, hiring personnel, obtaining investment money, selling the system, and working with owners to improve the system

Application Specialist – Technical Lead / Senior Architect

21st Century Insurance – Woodland Hills, California, February 2005-May 2005

- Worked as a lead and architect on a team responsible for all online payments of insurance policy premiums, including eCheck and direct-debit payments
- Coded in Java on a Websphere-based application using Struts
- Wrote a J2EE tool to allow customer service representatives to see all the billing history of a customer and all activity that has ever occurred on a customer's policy

Director of Engineering

inQ, Inc. – Agoura Hills, California, July 2004-February 2005

- Responsible for the personnel of the IT department and grew the development/QA team from two to six within the first six months
- Managed a team of four programmers and two QA engineers on a multi-threaded chat and outbound call application to up-sell online customers of client web sites
- Communicated with clients and partners on all technical issues related to interfacing our application with theirs
- Implemented a complete software development process for use by all departments of the company to interact with the IT department for any requests

Technical Consultant

SBC – Smartpages.com – Pasadena, California, July 2003-July 2004

- Managed a team of 12 programmers on an ongoing project to fix all issues with the production site and reported to the client weekly on the status of the issues
- Responsible for improving and implementing technical processes for the development team
- Created and initiated coding standards, then enforced the standards by performing code inspections on all modified code checked in to the version management software
- Involved in design of documentation templates and other process improvement strategies to aid in increasing the CMM level of the team from CMM Level 2 to CMM Level 3 in 2005
- Led team in initiating unit testing (using JUnit) and customized exception handling to reduce the number of bugs and the severity of bugs discovered by the quality assurance team

Graduate Research Assistant

Information Sciences Institute (ISI) – Marina Del Rey, California, May 2002-July 2003

- Used PHP4.0 running on Red Hat Linux 7.1 to create a tree structure for browsing the objects of a specified LDAP server
- Created a Service Data Browser using Java Swing to display the service data returned as a web service SOAP message from different providers in different formats, including raw XML, a tree structure, and a status bar
- Designed an interface to allow other programmers to create their own Visualizers to display the service data however they would like in the Service Data Browser
- Created a web-based interface using JSP and JavaBeans to browse specific service data using web services and display the data in a user-friendly tree-based format

Principal Software Engineer

Corticon Technologies, Inc. – Culver City, California, June 2001-May 2002

- Worked as a technical lead on an 8-member project to design and develop an application to automate business rule generation
- Researched augmented decision tables to design efficient algorithms for optimization of business rules, such as expand, collapse (based on an algorithm designed by Dr. Richard N. Shiffman of Yale University), ambiguity checking, and completeness checking
- Helped to design a parser/compiler for creating Java files from business rule statements that could be used with any plug-in architecture
- Technologies included Weblogic, ILOG, JUnit, Ant, and XML (W3C and JDOM)

Programming Consultant

Dacor – Pasadena, California, January 2001-June 2001

- Developed B2B e-commerce site using JSPs, Servlets, JavaBeans, JDBC, and XML that allowed distributors and retailers to automate the ordering of their products –
- Created middleware application using Java to connect a SQL Server database to an existing Legacy system database
- Requested software and database applications to purchase that would best suit the company's growing needs

Systems Administrator / Programmer

Busybox.com – Century City, California, February 2000-January 2001

- Designed and maintained www.bushybox.com (corporate site) and promo.bushybox.com (promotions site), using HTML, JavaScript, JSP, Servlets, JDBC, and JavaBeans
- Installed necessary components for web applications, including servlet containers, video streaming software, and web servers on Windows NT Server 4.0
- Installed, configured, and developed with IBM Websphere Application Server and Allaire JRun Application Server, using IBM VisualAge for Java and Websphere Studio
- Completed IBM WebSphere Application Server 3.5 certification training and IBM Visual Age for Java certification training

Advanced Java Instructor / Teaching Assistant

Learning Tree University – Chatsworth, California, December 1999-March 2001

- Taught beginning and advanced Java concepts to classes of corporate students that consisted of programmers and managers
- Topics included: AWT, Swing, Networking, File I/O, Web Servers, Servlets, JSP, Reflection, Multi-threaded Applications, Design Patterns, JDBC, XML

Volunteer Experience

Board of Directors, Red Hills Southern Baptist Church

Director (2023-2026), Vice Chair (2023-2026)

Head Coach, Surf Soccer Club

Girls Under 6 (2023, 2024), Boys Under 6 (2023), Boys Under 5 (2024)

Head Coach and Referee, American Youth Soccer Organization (AYSO)

Boys Under 6 (2023, 2024), Girls Under 6 (2014, 2022, 2023), Girls Under 7 (2015), Girls Under 8 (2024). Girls Under 10 (2017, 2018)

Girl Scout Troop Cookie Chair

Girl Scouts of Greater Los Angeles (GSGLA) (Daisy, Brownie, Junior), 2015-2021

School Site Council Parent Member

Quail Summit Elementary School – Diamond Bar, California, 2016-2017, 2017-2018

Treasurer, 2nd Grade

Quail Summit Elementary School – Diamond Bar, California, 2016- 2017

Room Parent

2nd Grade Class – Quail Summit Elementary School – Diamond Bar, California, 2016-2017

1st Grade Class – Rio Vista Elementary School – Toluca Lake, California, 2015-2016

PTA Web Master

Rio Vista Elementary School – Toluca Lake, California, 2015- 2016

School Counseling Advisory Committee

SUCCESS Academy – Cedar City, Utah, 2024-2025

National Baseball Hall of Fame Inductee

Inducted as a Youth Baseball Umpire – Cooperstown, New York, 1999

Expert Witness Service

Total Cases – 47

Breakdown of Cases

- Plaintiff (23), Defendant (24)
- Patent (18), Trade Secret (10), Contract (6), Education (5), Tax Assessment (4), Injury (3), Copyright (2), Software Theft (5)
- Primary Expert (45), Assistant (2)

Experience

- Trial Testimony (in-person) – 2
- Trial Testimony (telephonically) – 5
- Depositions – 17
- Declarations/Expert Reports – 56

47	<i>UWorld, LLC v USMLE Galaxy, LLC, 2024</i> Representing: USMLE Galaxy, LLC (Defendants) Law Firm: Bell Nunnally & Martin, LLP Role: I was retained as an expert witness on alleged software theft. Status: The case is pending.	Software Theft 1 Exp Report 1 Declaration
46	<i>ES3 Minerals, LLC v Nicholas Kreines, et al, 2024</i> Representing: Nicholas Kreines, et al (Defendants) Law Firm: Lloyd Gosselink Rochelle & Townsend, P.C. Role: I was retained as an expert witness on alleged software theft. Status: The case is pending.	Software Theft 1 Deposition
45	<i>iCharts LLC v Tableau Software, LLC, 2024</i> Representing: iCharts LLC (Plaintiff) Law Firm: Womble Bond Dickinson (US) LLP Role: I was retained as an expert witness on a patent infringement case concerning interactive charts. Status: The case is pending.	Patent 1 Declaration
44	<i>Geotab USA, Inc. and Geotab, Inc. v Fleet Connect Solutions LLC, 2024</i> Representing: Geotab USA, Inc. and Geotab, Inc. (Plaintiff) Law Firm: Wolf, Greenfield & Sacks, P.C. Role: I was retained as a non-testifying expert for a patent invalidity through inter partes review for a patent involving communication for tracking of freight. Status: The case is pending.	Patent
43	<i>Sheelds Cyber Ltd. v NXP USA, 2024</i> Representing: NXP USA (Defendant) Law Firm: Blue Peak Law Group LLP Role: I was retained as the expert witness for a patent invalidity and non-infringement case concerning security in vehicular intranetworking. Status: The case is pending.	Patent
42	<i>Interactive Communications International, Inc. v Blackhawk Network, Inc., 2024</i> Representing: Blackhawk Network, Inc. (defendant/patent owner) Law Firm: Baker & Hostetler LLP Role: I was retained as the expert witness for a patent validity case concerning lottery point-of-sale (POS) systems. The patents were challenged as inter partes review (IPR). Status: The case is pending.	Patent 2 Exp Report 1 Deposition

41	<i>Gratuity Solutions, LLC and Gratuity, LLC v Toast, Inc., 2023</i> Representing: Toast, Inc. (defendant) Law Firm: Goodwin Procter LLP Role: I was retained as the expert witness in a patent infringement case involving point-of-sale systems. Status: The case is pending.	Patent 1 Declaration 1 Deposition
40	<i>Mad Mobile v Meijer Great Lakes Ltd Partnership, 2023</i> Representing: Mad Mobile (plaintiff) Law Firm: Cooley, Inc. Role: I was retained as the expert witness in an arbitration case involving trade secrets, copyrights, and potential breach of contract of point-of-sale system software. Status: The arbitration has been completed with a net judgment in favor of Mad Mobile and a settlement on other items.	Trade Secret Copyright Contract 1 Declaration 2 Exp Report 1 Deposition 1 Testimony (in-person)
39	<i>DevIntent, LLC v HeroDevs, Inc., 2023</i> Representing: HeroDevs, Inc. (defendant) Law Firm: Parr Brown Gee & Loveless Role: I was retained as the expert witness in a case involving claims of trade secret theft by the defendant. Status: The case was settled.	Trade Secret
38	<i>Cambridge Mobile Telematics, Inc. v Sfara, Inc., 2023</i> <i>Cambridge Mobile Telematics, Inc. v Zendrive, Inc., 2023</i> Representing: Cambridge Mobile Telematics, Inc. (plaintiff) Law Firm: Goodwin Procter LLP Role: I was retained as the expert witness for a patent infringement case concerning automated vehicle crash technologies. Status: The case is pending.	Patent 2 Declarations
37	<i>3Shape A/S v Medit Corp., 2023</i> Representing: Medit Corp. (defendant) Law Firm: Bracewell LLP Role: I was retained as the expert witness for a patent infringement case concerning intra-oral 3D scanning. Status: The case was settled.	Patent 1 Exp Report 1 Deposition
36	<i>S3G Technology, Inc. v Nordstrom, Inc., 2023</i> Representing: Nordstrom, Inc. (defendant) Law Firm: Bracewell LLP Role: I was retained as the expert witness for a patent infringement case concerning automated modification of application software. Status: The case was settled.	Patent
35	<i>Stragent, LLC, v Volvo Car USA, LLC 2023</i> Representing: Stragent, LLC (plaintiff) Law Firm: O'Kelly & O'Rourke, LLC Role: I was retained as the expert witness for the invalidity case concerning patents on software and network architectures used in vehicles. Status: The case is pending.	Patent 1 Exp Report 1 Deposition
34	<i>Robotic Vision Technologies, Inc. v ABB, Inc., 2022</i> Representing: Robotic Vision Technologies, Inc. (plaintiff) Law Firm: Sterne Kessler Goldstein Fox Role: I was retained as the testifying expert witness among a team of experts involving claims of trade secret theft of source code by defendant and patent infringement concerning computer vision technologies in manufacturing. Status: The case is pending.	Trade Secret Patent

33	<i>Omega Patents, LLC v Geotab USA, Inc. and Geotab, Inc., 2022</i> Representing: Geotab USA, Inc. and Geotab, Inc. (defendant) Law Firm: Wolf, Greenfield & Sacks, P.C. Role: I was retained as the expert witness for a patent infringement case concerning multi-vehicle compatible tracking devices. Status: The IPR was instituted, and all claims invalidated.	Patent 3 Declarations 1 Deposition
32	<i>LBT IP II LLC v Uber Technologies, Inc., 2022</i> Representing: LBT IP II LLC (plaintiff) Law Firm: Alston & Bird LLP Role: I was retained as the expert witness for a patent infringement and invalidity case concerning tracking and reporting the location of devices. Status: The status is unknown.	Patent 1 Declaration
31	<i>Emery Galambos dba Software Technology v Don Parer, Sonultra Corporation, Techniscan Medical Imaging, and DOES 1 through 10, 2022</i> Representing: Emery Galambos (plaintiff) Law Firm: Vegh IP Legal Role: I was retained as the expert witness for a contract case concerning software produced by plaintiff for medical imaging devices. Status: The case was settled.	Contract
30	<i>MicroPairing Technologies LLC v General Motors LLC, 2022</i> Representing: General Motors LLC (defendant) Law Firm: Eversheds and Sutherland Role: I was retained as the expert witness for a patent infringement case with seven patents generally concerning software facilitating intra-vehicle communication, AUTOSAR, and audio systems. Status: The status is unknown.	Patent
29	<i>Roadsync, Inc. v Relay Payments, Inc., Spencer Barkoff, James Ryan Droege, and Does 1-10, 2022</i> Representing: Roadsync, Inc. (plaintiff) Law Firm: Morrison & Foerster Role: I was retained as the expert witness in a case involving claims of trade secret theft by the defendant. Status: The status is unknown because the case was moved to a different law firm who retained another expert.	Trade Secret
28	<i>PayRange Inc. v Kiosoft Technologies and TechTrex, Inc., 2022</i> Representing: PayRange, Inc. (plaintiff) Law Firm: Wilson Sonsini Goodrich & Rosati Role: I was retained as the expert witness for patent infringement and invalidity cases concerning patents related to mobile payment processing systems. Status: The case was settled.	Patent 2 Exp Report 1 Declaration 1 Deposition
27	<i>BMW of North America, LLC v Stragent, LLC, 2021</i> <i>Daimler v Stragent, LLC, 2021</i> Representing: Stragent, LLC (defendant) Law Firm: O'Kelly & O'Rourke, LLC Role: I was retained as the expert witness for the IPR case concerning patents on software and network architectures used in vehicles. Status: The cases were settled.	Patent 1 Declaration 2 Depositions
26	<i>Healthcare Information LLC v RARE Technologies LLC, 2021</i> Representing: RARE Technologies LLC (defendant) Law Firm: Frost Brown Todd LLC Role: I was retained as the expert witness in a case involving claims of trade secret theft by the defendant. Status: The case was settled.	Trade Secret

25	<i>Karma Automotive, LLC v Lordstown Motors Corp., 2021</i> Representing: Lordstown Motors Corp. (defendant) Law Firm: Baker & Hostetler LLP Role: I was retained as the expert witness in a case involving claims of trade secret theft by the defendant. Status: The case was settled.	Trade Secret Software Theft 1 Declaration 1 Exp Report 1 Deposition
24	<i>CartoDB v Parity Digital, 2021</i> Representing: Parity Digital (defendant) Law Firm: Peter Brown & Associates, PLLC Role: I was retained as the expert witness in a case involving a breach of contract in a software development project. Status: The case was settled.	Contract 1 Exp Report
23	<i>Dirtt Environment Solutions Inc. v Falkbuilt, 2021</i> Representing: Dirtt Environmental Solutions Inc. (plaintiff) Law Firm: Akerman LLP Role: I was retained as the expert witness in a patent infringement case regarding augmented reality. Status: The case was settled.	Patent
22	<i>Little Pizza King v Massachusetts Commissioner of Revenue, 2020-2021</i> Representing: Massachusetts Commissioner of Revenue (defendant) Law Firm: internal attorneys with the Massachusetts Department of Revenue Role: I was retained as the expert witness in a case involving tax assessment based on orders reported by a point-of-sale system. Status: The case was settled.	Tax Assess 1 Exp Report
21	<i>Tesla, Inc. v Guangzhi Cao, 2020</i> Representing: Tesla, Inc. (plaintiff) Law Firm: Norton Law Firm, PC Role: I was retained as the expert witness in a trade secret case where the plaintiff was claiming the defendant stole source code for autonomous vehicles to use with a subsequent employer. Status: The case was settled.	Trade Secret Software Theft
20	<i>Emily Head v University of Texas at Arlington, 2020</i> Representing: Emily Head (plaintiff) Law Firm: Gorman Law Firm, pllc Role: I was retained as the expert witness in a case where a student was accused of hiring an outside person to complete an online exam for a class. I testified telephonically in the university hearing. Status: The case was decided in favor of the university and is under appeal. Status unknown.	Education 1 Testimony (telephonic)
19	<i>US Auto Parts Network, Inc. v Massachusetts Commissioner of Revenue, 2020</i> Representing: Massachusetts Commissioner of Revenue (defendant) Law Firm: internal attorneys with the Massachusetts Department of Revenue Role: I was retained as the expert witness in a case involving tax assessment based on online sales that occurred in Massachusetts. Status: The case was decided in favor of US Auto Parts.	Tax Assess 1 Declaration
18	<i>Mo Mir v Rasier, LLC, 2020</i> Representing: Mo Mir (plaintiff) Law Firm: Law Offices of Burg and Brock, Inc. Role: I was retained as the expert witness in a case where the plaintiff was claiming he was en route to pick up an Uber customer when a traffic collision occurred, so the collision should be covered by the Rasier, LLC insurance. Status: The status is unknown.	Injury

17	<i>Nisa Ilsin v Rice University, 2019</i> Representing: Nisa Ilsin (plaintiff) Law Firm: Gorman Law Firm, pllc Role: I was retained as the expert witness in a case where a student was accused of cheating by a professor at Rice University. The professor used Moss to identify unauthorized collaboration between the plaintiff and two other students. I testified telephonically in the university hearing in the matter. Status: The case was resolved in favor of Nisa Ilsin.	Education 1 Testimony (telephonic)
16	<i>CoTank, LLC v Massachusetts Commissioner of Revenue, 2019</i> Representing: Massachusetts Commissioner of Revenue (defendant) Law Firm: internal attorneys with the Massachusetts Department of Revenue Role: I was retained as the expert witness in a case involving point-of-sale system software to see if it was incorrectly calculating revenue and taxes. Status: The case was settled.	Tax Assess 1 Deposition 1 Testimony (in-person)
15	<i>Andrew Kuhn v Cook Inc., 2019</i> Representing: Cook, Inc. (defendant) Law Firm: Saxton and Stump Role: I was retained as the expert witness in a case involving improper following of procedures in a hospital related to functionality built into an electronic health records system. Status: The case was settled.	Injury 1 Exp Report
14	<i>Delaila v Progressive Fueling, 2019</i> Representing: Delaila (plaintiff) Law Firm: Law Offices of John D. Wilson Role: I was retained as the expert witness in a case involving a point-of-sale system that appeared to be approving credit card transactions but not communicating with the payment processor. Status: The case was settled.	Contract
13	<i>Michael Bowen v UT Austin, 2019</i> Representing: Michael Bowen (plaintiff) Law Firm: Gorman Law Firm, pllc Role: I was retained as the expert witness in a case where a student was accused of cheating by a professor at UT Austin. The professor used Moss to identify potential locations of copying of code from an Internet source. I testified telephonically in the university hearing in the matter. Status: The case was resolved in favor of Michael Bowen.	Education 1 Testimony (telephonic)
12	<i>WeRide v ZZIX, Inc., 2019</i> Representing: ZZIX, Inc. (defendant) Law Firm: Greenberg Traurig, LLP Role: I was retained as the expert witness in a trade secret dispute concerning copying of vehicular vision artificial intelligence software by the defendant. Status: The case was settled.	Trade Secret Software Theft 1 Declaration
11	<i>Contemporary Services Corporation (CSC) v Landmark Event Staffing Services, Inc., 2019</i> Representing: Contemporary Services Corporation (plaintiff) Law Firm: Fulwider Patton, LLP Role: I was retained as the expert witness in a trade secret dispute concerning software and other proprietary information produced by the plaintiff. Status: The case was settled.	Trade Secret 1 Deposition

10	<i>Ryan Shafiei v UT Austin, 2019</i> Representing: Ryan Shafiei (plaintiff) Law Firm: Gorman Law Firm, PLLC Role: I was retained as the expert witness in a case where a student was accused of cheating by a professor at UT Austin. The student retained an attorney and was fighting the cheating accusation. I analyzed the information provided by the professor, including k-index and temporal coordination, to disprove the cheating claim. I testified telephonically in the university hearing in the matter. Status: The case was settled.	Education 1 Testimony (telephonic)
9	<i>Massachusetts Department of Revenue v Sugarcane Restaurant, 2018</i> Representing: Massachusetts Department of Revenue (plaintiff) Law Firm: internal attorneys with the Massachusetts Department of Revenue Role: I was retained as the expert witness in a case involving point-of-sale system software to see if it was incorrectly calculating revenue and taxes. Status: The case was settled.	Tax Assess
8	<i>Priyanka Reddy and Suniith Daggubati v UT Austin, 2018</i> Representing: Priyanka Reddy and Suniith Daggubati (plaintiff) Law Firm: Law Office of Donald Henslee Role: I was retained as the expert witness in a case where two students were accused of cheating by a professor at UT Austin. The students retained an attorney and were fighting the cheating accusation. I analyzed the information provided by the professor, including k-index and temporal coordination, to disprove the cheating claim. I was called to testify in the university hearing in the matter. Status: The case was decided in favor of UT Austin and is being appealed. Status unknown.	Education 1 Testimony (telephonic)
7	<i>BMW of North America, LLC v Stragent, LLC, 2017</i> <i>Daimler v Stragent, LLC, 2017</i> Representing: Stragent, LLC (defendant) Law Firm: O'Kelly & Ernst, LLC and Kevin J. Zilka, PC Role: I was retained as the expert witness for the IPR case concerning patents on software and network architectures used in vehicles. I filed a dozen IPR declarations, and I was deposed four times in this case. Status: Patent claims were invalidated.	Patent 12 Declarations 4 Depositions
6	<i>James Schultz v Danaher Corporation, Matco Tools Corporation, Matco Tools Distributor, Inc., Airgas, Inc., and DOES 1 through 200, 2016</i> Representing: Professional Tool Products (defendant) Law Firm: Kincaid & Associates Role: I was retained as the expert witness for one of the defendants in the case to provide an opinion on the current and future state of driverless vehicles for use by people with vision disabilities. Status: The case was settled.	Injury
5	<i>Ford Motor Company and Ford Global Technologies v ThermoAnalytics, Inc., 2015-2016</i> Representing: ThermoAnalytics, Inc. (defendant) Law Firm: Butzel Long Role: I was retained as the expert witness for ThermoAnalytics in a lawsuit from Ford based on a contract between the two companies on software produced by ThermoAnalytics. Status: The case was settled.	Contract 1 Exp Report

4	<i>Sherman & Zarrabian LLP v Aderant North America, Inc., Aderant Case Management LLC, Aderant Legal Holdings, Inc., Aderant Holdings, Inc., LAHC-CPMG Inc., Client Profiles Inc., LAHC-CPFS Inc., Client Profiles Financial Systems Corporation, and DOES 1 through 25, 2014</i> Representing: Client Profiles Inc. (defendant) Law Firm: Winget Spadafora & Schwartzberg LLP Role: I reviewed the complaints and developed case studies, primarily in SQL, for determining the usability of the Client Profiles software by Sherman & Zarrabian. Status: Status unknown.	Contract
3	<i>Magna Electronics Inc. v TRW Automotive Holdings Corp.; TRW Automotive US LLC; and TRW Vehicle Safety Systems Inc., 2013</i> Representing: TRW (defendant) Law Firm: Lathrop & Gage LLP Role: I submitted declarations for 12 patents Magna Electronics was claiming TRW infringed. The case was submitted for Inter Partes Review (IPR) with expert declarations and then proceeded to federal court for the civil lawsuit. The patents involved primarily concerned vision-based systems used as sensors for intelligent vehicular operations. Status: Status unknown.	Patent 15 Declarations
2	<i>RIAA, MPAA et al vs Kazaa, Morpheus, Grokster, 2003</i> Representing: RIAA, MPAA et al (plaintiff) Role: I aided Prof. Ellis Horowitz in preparing as an expert witness. The case involved an examination of the source code of Kazaa, written in C/C++, and Morpheus, written in Java, to determine the extent to which the software remained in contact with the distributor (i.e. Kazaa, Morpheus). Prof. Horowitz filed a declaration and was deposed. Status: The case was ruled in favor of Kazaa, et al, reaffirmed on appeal, but decided in favor of the RIAA et al by the United States Supreme Court in June 2005.	Trade Secret
1	<i>NAVCanada vs Adacel and CAE, 2007</i> Representing: NAVCanada (plaintiff) Role: I aided Prof. Ellis Horowitz in preparing as an expert witness. NAVCanada had developed an air traffic control system for flights across the North Atlantic. They accused Adacel and CAE of copyright infringement. The software was written using C++ and Pascal. Status: The case was settled.	Copyright

Professional Course Development

34. Southern New Hampshire University, Fundamentals of Data Mining (DAT220), June 2014.
33. Southern New Hampshire University, Introduction to SQL (IT220), April 2014.
32. Rasmussen College, Computer Science Program Curriculum, September 2013.
31. Rasmussen College, Web Developer Program Curriculum, February 2013.
30. Rasmussen College, Software Application Developer Program Curriculum, February 2013.
29. Rasmussen College, Software Engineering Program Curriculum, January 2013.
28. Charter College, Project Management (PM4799), October 2012.
27. Everest College, CompTIA A+ (ITSS1004, ITSS2001, ITSS3001), October 2012.
26. ITT, Project Management for Information Technology (PM3440), October 2012.
25. ITT, Email and Web Services (NT2670), October 2012.
24. Strayer University, C++ Development (unknown course number), July 2012.
23. Columbia Southern University, Data Analytics (ITC12A), May 2012.
22. Education Affiliates, Windows Server Network Resources (CNS160), May 2012.
21. Education Affiliates, Windows Server Network Infrastructure (CNS150), May 2012.
20. Education Affiliates, Help Desk Support (CNS135), May 2012.
19. ITT, Managing Software Development Projects (PM4540), January 2012.
18. ITT, Project Management for Information Technology (PM3140), December 2011.
17. Everest Colleges, Institutes, and Universities, Basic Computing (ITSS2001), November 2011.
16. ITT, 3D Modeling Techniques (GC1330), September 2011.
15. ITT, Physical Networking (NT1310), September 2011.
14. ITT/ESI, Web Programming in VB.NET (WT1220), July 2011.
13. ITT/ESI, Systems Analysis (PM3140), May 2011.
12. International Education Corporation, System Architecture CompTIA A+ (CT2009-110), April 2010.
11. International Education Corporation, Windows Applied Computing CompTIA A+ (CT2009-120), April 2010.
10. Walden/Laureate University, Computer Forensics (CMIS 4104), August 2009.
9. Walden/Laureate University, Information Security Techniques II (CMIS 4103), May 2009.
8. Walden/Laureate University, Information Security and Privacy (CMIS 4101), March 2009.
7. International Education Corporation, Network Architecture (Module D in Computer Systems Technician Program), November 2008.
6. International Education Corporation, Client Operating Systems (Module E in Computer Systems Technician Program), November 2008.
5. Strayer University, System Modeling Theory (CIS212), September 2008.
4. Strayer University, Data Warehousing Systems (CIS522), September 2008.
3. Baker College, Internet and Web Security (ITS405), August 2008.
2. Strayer University, Java Programming II (CIS407), August 2007.
1. Westwood College, Compiler and Interpreter Design (SG400), July 2006.

Professional Courses Taught

1. State of Alaska, Department of Natural Resources, "AJAX for Java Developers", March 2009.

Honors and Awards

Honors and Awards Received

16. *Utah Outstanding Registered Apprenticeship Sponsor* for SUU's Building Apprenticeship Systems in Cybersecurity (BASIC), Salt Lake City, Utah, November 2024.
15. *ACM Senior Member*, elevated in 2017.
14. *IEEE Senior Member*, elevated in 2015.
13. *IEEE Vehicular Technology Society Conference Chair Award, Vehicular Technology Conference-fall 2011, San Francisco, California, USA*. Presented in Seoul, Korea. May 20, 2014.
12. Alaska Engineer of the Year nominee, 2014. Nominated by IEEE Alaska Section.
11. IEEE Alaska Engineer of the Year, 2014.
10. *IEEE Alaska Section 2013 Outstanding Leadership and Professional Service Award*, IEEE Alaska Section, 2013.
9. *University of Alaska Anchorage Office of Undergraduate Research and Scholarship Faculty Mentor Award*, based on being the Faculty Mentor to a student who won an Undergraduate Research and Scholarship Award for Research, April 2012.
8. *IEEE Region 6 Northwest Area Outstanding Section Award 2011*, IEEE Alaska Section while I was the chair of the section in 2011.
7. *University of Alaska Anchorage School of Engineering Spring 2011 Engineering Competition Best Faculty Advisor*, based on being the Faculty Advisor to a student whose project won the Engineering Competition, April 2011.
6. *University of Alaska Anchorage Office of Undergraduate Research and Scholarship Faculty Mentor Award*, based on being the Faculty Mentor to a student who won an Undergraduate Research and Scholarship Award for Research, April 2011.
5. *Anchorage Convention and Visitors Bureau Seymour Award Winner 2011*, based on being the Annual Meeting Champion from 2010.
4. *University of Alaska Anchorage School of Engineering Fall 2010 Engineering Competition Best Faculty Advisor*, based on being the Faculty Advisor to a student whose project won the Engineering Competition, December 2010.
3. *Anchorage Convention and Visitors Bureau Meeting Champion*, October 2010, based on the conferences I have aided in bringing to Anchorage having an economic impact of \$3,157,341.94.
2. Poster Honorable Mention (given to top 5 out of 250 posters), "Determining Time to Traverse Road Sections based on Mapping Discrete GPS Vehicle Data to Continuous Flows." *IEEE 6th Intelligent Vehicles Symposium*, La Jolla, California, USA, June 2010.
1. *Professor of the Year of Computer Science* at California State University, Los Angeles in 2002 based on student votes. I was the first lecturer ever to be given this award.

Honors and Awards Received by Students Advised

- VexU Robotics World Competition Participant, April 2022. As the winner of a large VexU competition in California, we were invited to participate in the world competition.
- USC VexU Robotics Team, Viterbi Competition & Design Team Funding Award, fall 2021. \$8,551.70
- Jack (Boyuan) Xu, Undergraduate Outstanding Service Award, May 2020. Jack was an undergraduate TA of mine for three years in CSCI 201 and ITP 116.
- VexU Robotics World Competition Participant, January 2020. As the winner of the skills challenges for California, we were invited to participate in the world competition.
- USC VexU Robotics Team, Viterbi Competition & Design Team Funding Award, fall 2019. \$4000
- VexU Robotics World Competition Participant, April 2019. As the winner of the skills challenges for California, we were invited to participate in the world competition.
 - The team then won the Excellence Award at the World Competition, awarded to the top all around team, based on robot performance and judging
- VexU Robotics World Competition Participant, April 2018. As the winner of the skills challenges for California, we were invited to participate in the world competition.
- Albert Kong. VexU Robotics Team Competition Project, fall 2017. \$1,000
- Howard Gil. USC Undergraduate Symposium for Scholarly and Creative Work participant, April 12, 2017.

- VexU Robotics World Competition Participant, April 2016. As the winner of the skills challenges for California, we were invited to participate in the world competition.
- Richard Phillips, Christine Song, Stephen Chen, Karl Campanella-Dysart, Luke Yang, Ameya Deshpande. Honorable Mention by *Airport Cooperative Research Program (ACRP) University Design Competition for Addressing Airport Needs*. Computer Science Capstone Project in CSCI 401, co-advised by Drs. Thomas Anthony and Daniel Scalese. "Design of a Robust, Inexpensive System to Enhance Drone Flight Data," spring 2016. \$500
- Lowell Perry. *Office of Undergraduate Research and Scholarship (OURS)* for "ATV Remote Monitoring System," fall 2013. \$2,500
- Wolfram Donat. *Office of Undergraduate Research and Scholarship (OURS)* Discovery Award for "Computer Vision for Vehicular Robotics," spring 2013. \$250
- Vex Robotics High School World Competition Participant, April 2013. As a regional winner, we were invited to participate in the world competition.
- Vex Robotics High School Region Competition Winner, March 2013. I advised a group of four high school students to participate in the competition.
- Jacob Wingerd. *Office of Undergraduate Research and Scholarship (OURS)* for "Digital Snow Plow Monitoring for User Navigation Purposes," fall 2012, \$1,900.
- Timothy Menard, 2nd Place, *IEEE 2012 Region 6 Paper Competition*, September 2012. \$500
- Wolfram Donat. *Office of Undergraduate Research and Scholarship (OURS)* for "Computer Vision for Vehicular Robotics," spring 2012. \$2,000
- Timothy Menard. Admitted to University of Nevada, Las Vegas, Master's program in Electrical and Computer Engineering, fall 2012.
- Timothy Menard. Internship with Toyota InfoTechnology, Mountain View, California, summer 2012.
- Timothy Menard, *USUAA Leadership Award*, spring 2012. \$1,000
- Timothy Menard, BP 1st Place Award, *University of Alaska Anchorage School of Engineering Spring 2012 Design Competition*, spring 2012. \$300
- Timothy Menard, Society of Women Engineers Community Engagement Award, *University of Alaska Anchorage School of Engineering Spring 2012 Design Competition*, spring 2012. \$50
- Timothy Menard, 1st Place, *IEEE Spring 2012 Northwest Area Paper Competition*, April 2012. \$750
- Timothy Menard. 1st Place, *IEEE UAA Student Branch Spring 2012 Paper Competition*. (moved onto IEEE Spring 2012 Northwest Area Paper Competition), March 2012.
- Timothy Menard. *UAA Leadership Honors*, spring 2012.
- Timothy Menard. *Society of American Military Engineers Scholarship – Anchorage Post*, 2011. \$750
- Timothy Menard. *University of Alaska Anchorage School of Engineering Scholarship*, fall 2011. \$500
- Timothy Menard. *UAA University Honors College Discovery Grant* to attend IEEE Intelligent Transportation Systems Conference, Washington DC, October 2011. \$1,000
- Timothy Menard. Internship with Toyota InfoTechnology, Mountain View, California, 2011.
- Timothy Menard. 1st Place, "FreeSim_Mobile: iPhone vs Android." *University of Alaska Anchorage School of Engineering Spring 2011 Design Competition*. \$3,000
- Timothy Menard. *USUAA Student Travel Grant* to attend IEEE Intelligent Vehicles Symposium in Baden-Baden, Germany, spring 2011. \$850
- Timothy Menard. 2nd Place, *IEEE Spring 2011 Northwest Area Paper Competition*, April 2011. \$500
- Timothy Menard. 1st Place, *IEEE UAA Student Branch Spring 2011 Paper Competition*. (moved onto IEEE Spring 2011 Northwest Area Paper Competition), March 2011.
- Timothy Menard. *USUAA Student Travel Grant* to attend IEEE Intelligent Vehicles Symposium in San Diego, California, spring 2010. \$750
- Timothy Menard. 1st Place, "FreeSim_Mobile." *University of Alaska Anchorage School of Engineering Fall 2010 Design Competition*. \$3,000
- Timothy Menard. *Office of Undergraduate Research and Scholarship (OURS)* for FreeSim_Mobile, fall 2010. \$1,000

Research and Project Funding Received

Total funding since 2007 – **\$9,947,579.76**

Total funding at UAA (2007-2013) – **\$1,257,617.41**

Total funding at USC (2013-2022) – **\$1,248,560.27**

Total funding at SUU (2022-present) - **\$7,441,402.08**

Education-Based Funding Received

Total funding as PI/Co-PI at SUU - **\$1,299,431.08**

Total funding as PI/Co-PI at USC - **\$1,248,560.27**

Total funding as PI/Co-PI at UAA - **\$528,409.95**

Total funding as PI/Co-PI - **\$3,076,401.30**

87. Utah Department of Cultural and Community Engagement, STEM Action Center, “Southern Utah University PREP: More than a Summer Camp.” **\$46,175**, Co-PI
86. Utah Department of Cultural and Community Engagement, STEM Action Center, “SUU/BZI Youth Engineering Academy.” **\$40,301**, Co-PI
85. ALSAM Foundation, STEM Mobile Laboratory RV and SUU/BZI Youth Engineering Academy Operating Endowment, **\$750,000**, Co-PI
84. Align Precision, Thunderworks Makerspace Fellowship, **\$1,400**, PI
83. Sorenson Foundation, YEA 3D Printing and Theater Support, **\$1,500**
82. Ash Grove Foundation, Concrete Field-Testing Equipment, **\$25,000**
81. Hughes General Contractors, Inc., Construction Management Endowed Scholarship and Lab Equipment, **\$150,000**
80. Align Precision, “SUU/BZI Youth Engineering Academy,” June-July 2024, **\$500**, PI
79. Zonos, “SUU/BZI Youth Engineering Academy,” June-July 2024, **\$500**, PI
78. RAM Aviation, Space & Defense, “SUU/BZI Youth Engineering Academy,” June-July 2024, **\$1,000**, PI
77. High Desert Cleaning Services, “SUU/BZI Youth Engineering Academy,” June-July 2024, **\$1,000**, PI
76. Marci Staudt (individual), “SUU/BZI Youth Engineering Academy,” June-July 2024, **\$2,500**, PI
75. Guardsight, “SUU/BZI Youth Engineering Academy,” June-July 2024, **\$2,500**, PI
74. BZI, “SUU/BZI Youth Engineering Academy.” June-July 2024, **\$15,000**, PI
73. Utah STEM Action Center, SUU PREP, **\$7,000**, PI
72. Align Precision, Thunderworks Makerspace Fellowship and Scholarship, **\$5,600**, PI
71. Utah System of Higher Education (USHE) Targeted Workforce Development Program, Computer Science faculty line and equipment, August 2023-ongoing, **\$229,044**, PI
70. Various Food Vendors, “SUU/BZI Youth Engineering Academy,” **\$2,411.08**, PI
69. Guardsight, “SUU Youth Engineering Academy.” July 2023, **\$2,500**, PI
68. High Desert Cleaning Services, “SUU/BZI Youth Engineering Academy.” July 2023. **\$500**, PI
67. BZI, “SUU/BZI Youth Engineering Academy.” July 2023. **\$15,000**, PI
66. Newegg. “CS@SC Fall 2021 Camps.” September 2021-December 2021. **\$2,040**, PI
65. CogniCoder. “CS@SC Fall 2021 Camps.” September 2021-December 2021. **\$1,700**, PI
64. Individual Contributions, “CS@SC Fall 2021 Camps.” September 2021-December 2021. **\$17,350**, PI
63. CogniCoder. “CS@SC Summer 2021 Camps.” May 2021-August 2021. **\$15,300**, PI
62. Rowland Unified School District. “CS@SC Summer 2021 Camps.” May 2021-August 2021. **\$50,000**, PI
61. Individual Contributions. “CS@SC Summer 2021 Camps.” May 2021-August 2021. **\$95,230**, PI
60. Why Can’t We Make a Difference? “CS@SC Summer 2021 Camps.” May 2021-August 2021. **\$17,000**, PI
59. Institute for Education, “CS@SC Summer 2021 Camps.” May 2021-August 2021. **\$10,000**, PI
58. Epic Megagrants Program. “Game Programming in Unreal.” August 2021. **\$15,000**, Co-PI, Sanjay Madhav, PI
57. CogniCoder. “CS@SC Spring 2021 Camps.” January 2021-April 2021. **\$5,375**, PI

56. Individual Contributions. "CS@SC Spring 2021 Camps." January 2021-April 2021. **\$29,075**, PI
55. Institute for Education. "CS@SC Spring 2021 Camps." January 2021-April 2021. **\$5,000**, PI
54. CogniCoder. "CS@SC Fall 2020 Camps." September 2020-December 2020. **\$1,950**, PI
53. Why Can't We Make a Difference? "CS@SC Fall 2020 Camps." September 2020-December 2020. **\$1,200**, PI
52. Institute for Education. "CS@SC Fall 2020 Camps." September 2020-December 2020. **\$5,000**, PI
51. Individual Contributions. "CS@SC Fall 2020 Camps." September 2020-December 2020. **\$14,950**, PI
50. Institute for Education. "CS@SC Summer 2020 Camps." May 2020-August 2020. **\$5,000**, PI
49. Individual Contributions. "CS@SC Summer 2020 Camps." May 2020-August 2020. **\$104,600**, PI
48. Boston Scientific. "CS@SC Summer 2020 Camps." May 2020-August 2020 (deferred to 2021). **\$25,000**, PI
47. Institute for Education. "CS@SC Spring 2020 Camps." January 2020-April 2020. **\$5,000**, PI
46. Individual Contributions. "CS@SC Fall 2019 Camps." September 2019-December 2019. **\$13,200**, PI
45. Institute for Education. "CS@SC Fall 2019 Camps." September 2019-December 2019. **\$10,000**, PI
44. Rowland Unified School District. "CS@SC Summer 2019 Camps." May 2019-August 2019. **\$68,750**, PI
43. Walkite International Academy. "CS@SC Summer 2019 Camps." May 2019-August 2019. **\$48,000**, PI
42. Institute for Education. "CS@SC Summer 2019 Camps." May 2019-August 2019. **\$15,000**, PI
41. Individual Contributions. "CS@SC Summer 2019 Camps." May 2019-August 2019. **\$95,075**, PI
40. USC Viterbi School of Engineering and Computer Science Department. "SIGCSE 2019 Attendance." February 27-March 1, 2019. **\$1,775.77**, PI
39. Individual Contributions. "CS@SC Summer 2019 Camps." February 2019-April 2019. **\$13,490**, PI
38. Institute for Education. "CS@SC Summer Camps Spring 2019 Program." January 2019-March 2019. **\$10,000**, PI
37. Individual Contributions. "CS@SC Summer 2018 Camps." September 2018-December 2018. **\$10,600**, PI
36. Viterbi Summer Institute Contributions. "CS@SC Summer 2018 Camps." July 2018-August 2018. **\$10,270**, PI
35. Individual Contributions. "CS@SC Summer 2018 Camps." May 2018-August 2018. **\$42,913**, PI
34. Rowland Unified School District. "CS@SC Summer 2018 Camps." May 2018-August 2018. **\$50,000**, PI
33. VexU Competition Donations. January 2018-April 2018, **\$1,715**, PI
32. Individual Contributions. "CS@SC Summer 2017 Camps." May 2017-August 2017. **\$25,000**, PI
31. Rowland Unified School District. "CS@SC Summer 2017 Camps." May 2017-August 2017. **\$37,500**, PI
30. El Rancho Unified District. "CS@SC Summer 2017 Camps." May 2017-August 2017. **\$25,000**, PI
29. Fullerton School District. "CS@SC Summer 2017 Camps." May 2017-August 2017. **\$45,000**, PI
28. Westly Foundation. "CS@SC Summer 2017 Camps." May 2017-August 2017. **\$2,750**, PI
27. Google. "igniteCS." February 2017. **\$3,475**, PI
26. Northrop Grumman. Support for Computer Science Capstone Course Student Projects. 2016-2017. **\$3,000**, PI
25. USC Viterbi New Initiatives Request. "Computer Science Programming Bootcamp." August 2016 (deferred to August 2017). **\$38,571**, PI
24. Fullerton School District. "CS@SC Summer 2016 Camps." May 2016-August 2016. **\$60,000**, PI
23. Github. "CS@SC Summer 2016 Camps." May 2016-August 2016. **\$1,375**, PI
22. Python Software Foundation. "CS@SC Summer 2016 Camps." May 2016-August 2016. **\$3,125**, PI
21. Westly Foundation. "CS@SC Summer 2016 Camps." May 2016-August 2016. **\$5,000**, PI
20. Individual Donations. "CS@SC Summer 2016 Camps." May 2016-August 2016. **\$22,816**, PI

19. USC Department of Computer Science. "CS@SC Summer 2016 Camps." May 2016-August 2016. **\$21,058**, PI
18. Raytheon Company. "CS@SC Summer 2016 Camps." May 2016-August 2016. **\$7,450**, PI
17. Raytheon Company. "Computer Science Senior Design Project." January 2016-May 2016. **\$3,000**, PI
16. Northrop Grumman. Support for Computer Science Capstone Course Student Projects. 2015-2016. **\$5000**, PI
15. USC Department of Computer Science. "Robotics Summer Camps." April 2015-August 2015. **\$20,230**, PI
14. Institute for Education, Kathy Kemper, and James Valentine. "A Coding Camp at the Viterbi School of Engineering." April 2015-August 2018. **\$100,000**, PI
13. Northrop Grumman. Support for Computer Science Capstone Course Student Projects. 2014-2015. **\$5,000**, PI
12. REC Foundation. Vex Robotics Super Kit. October 2014. **\$999**, PI
11. Personal Grant from Tarek Shraibati. Vex Robotics Super Kit. October 2014. **\$1027.50**, PI
10. ConocoPhillips – Robotics, Alternative Energy, and Structure Destruction Summer Camps for K12 Students. May 1, 2014-August 15, 2014. **\$80,000**, PI (deferred)
9. BP – Robotics, Alternative Energy, and Structure Destruction Summer Camp Initiative for Pre-College Students. May 1, 2014-August 15, 2014. **\$90,000**, PI (deferred)
8. IEEE Foundation Grant – "K12 STEM Outreach in Computer and Electrical Engineering." July 1, 2013-August 31, 2013. **\$19,680**, PI
7. Vex Robotics High School World Competition, funded by UAA's School of Engineering, UAA's Computer Science and Engineering department, Visit Anchorage, IEEE Alaska, and ITE Alaska. **\$7,500**, PI
6. BP – Robotics, Alternative Energy, and Structure Destruction Summer Camp Initiative for Pre-College Students. May 1, 2013-August 15, 2013. **\$80,000**, PI
5. Vex Robotics – "RECF/VEX Robotics Competition Grant." November 2012-February 2013. **\$1,233.95**, PI
4. BP – Robotics, GPS Tracking, and Rapid Prototyping Summer Camp Initiative for Middle and High School Students. May 1, 2012-August 15, 2012. **\$80,000**, PI
3. BP – Robotics, GPS Tracking, and Rapid Prototyping Summer Camp Initiative for Middle and High School Students. May 1, 2011-August 15, 2011. **\$80,000**, PI
2. University of Alaska, Anchorage, Engineering K-12 Outreach, Bridging, and Summer Camps – "UAA School of Engineering Summer Robotics/Mechatronics Workshop and Competition." May 1, 2010-May 31, 2010. **\$59,996**, Co-PI
1. Alaska Natives in Science and Engineering Grant – "UAA School of Engineering Summer Robotics/Mechatronics Workshop and Competition." May 1, 2010-May 31, 2010. **\$30,000**, Co-PI

Non-Education-Based Funding Received

Total funding as PI/Co-PI at SUU - **\$6,141,971.00**

Total funding as PI/Co-PI at UAA - **\$609,207.46**

Total funding as team member at UAA - **\$120,000.00**

Total funding - **\$6,871,178.46**

31. US National Science Foundation – "Fostering Unity and Teamwork for Rural Excellence (FUTURE)." Enabling Partnerships to Increase Innovation and Partnerships (EPIIC) Grant, September 1, 2024-August 31, 2027. **\$375,000**, Co-PI
30. US Department of Labor – "Building Apprenticeship Systems in Cybersecurity (BASIC)." Closing the Skills Gap Grant, March 1, 2020-February 29, 2024. **\$5,766,971**, PI
29. Municipality of Anchorage – "Freight Vehicle Tracking for Real-Time Freight Route Origin-Destination Data." December 2012-December 2013. **\$5,000**, PI
28. University of Alaska Anchorage, Faculty Development Grant – "Test Bed for Robotic Driverless Transportation of Goods and Medical Supplies in Remote Areas." January 2013-June 2013. **\$2,147**, PI

27. University of Alaska Anchorage Faculty Leadership in Expanding Undergraduate Research (FLEUR) – “Security in Mobile and Vehicular Ad Hoc Networks (MANET/VANET).” August 2014-December 2014. **\$4,913.89**, PI
26. Personal Grant – Online Researching for Proprietary Project. July 15, 2012-December 31, 2013. **\$900**, PI
25. University of Alaska, Research Travel Grant – IEEE Vehicular Technology Conference-fall 2012, Quebec City, Quebec, Canada. September 3-7, 2012. **\$580.20**, PI
24. University of Alaska, Faculty Development Grant – “Disconnected Vehicular Ad Hoc Network Robotic Hardware Test Platform.” July 1, 2012-December 31, 2012. **\$2,853**, PI
23. Visit Anchorage (formerly Anchorage Convention and Visitors’ Bureau) Funding for Student Internship. February 2012-October 2012. **\$3,750**, PI
22. GCI – Cellular Data Plan for Vehicle Tracking at UAA. November 2011-August 2013. **\$16,500** (\$750/month for 22 months), PI
21. Alaska University Transportation Center – “Information Gathering Infrastructure towards Intelligent Transportation.” August 1, 2011-December 31, 2012. **\$85,000**, PI
20. University of Alaska, Anchorage – “Information Gathering Infrastructure towards Intelligent Transportation.” August 1, 2011-December 31, 2012. **\$85,000**, PI
19. Alaska University Transportation Center – “Gathering of Vehicular Parameters in a Vehicle-to-Infrastructure Intelligent Transportation System.” August 1, 2010-December 31, 2011. **\$99,546**, PI
18. University of Alaska, Anchorage – “Gathering of Vehicular Parameters in a Vehicle-to-Infrastructure Intelligent Transportation System.” August 1, 2010-December 31, 2011. **\$99,611**, PI
17. University of Alaska, Faculty Development Grant – “Determining Time to Traverse and Origin-Destination Matrices using Probe Vehicles.” July 1, 2010-December 31, 2010. **\$4,500**, PI
16. Alaska University Transportation Center – “Assessment of Traffic Congestion in Anchorage Utilizing Vehicle-Tracking Devices and Intelligent Transportation System Technology.” August 1, 2009-July 30, 2011. **\$84,639**, PI
15. University of Alaska, Anchorage – “Assessment of Traffic Congestion in Anchorage Utilizing Vehicle-Tracking Devices and Intelligent Transportation System Technology.” August 1, 2009-July 30, 2011. **\$72,252**, PI
14. Alaska Natives in Science and Engineering Program (ANSEP) Grant – “Assessment of Traffic Congestion in Anchorage Utilizing Vehicle-Tracking Devices and Intelligent Transportation System Technology.” August 1, 2009-July 30, 2011. **\$12,394**, PI
13. United States Department of Energy Grant – “A First Assessment of U.S. In-Stream Hydrokinetic Energy Resources since the 1986 NYU Study.” January 10, 2010-June 30, 2011. **\$120,000**, Team Member
12. University of Alaska, Faculty Development Grant – “Distributed Vehicle Gathering for Intelligent Transportation System Applications”, July 1, 2009-December 31, 2009. **\$4,500**, PI
11. University of Alaska, Research Travel Grant – IFAC Symposium on Control of Transportation Systems, Redondo Beach, California, USA, September 2009. **\$400.38**, PI
10. University of Alaska, Special United Academics Research Travel Grant – IEEE 69th Vehicular Technology Conference, Barcelona, Spain, April 26-29, 2009. **\$500**, PI
9. Xilinx University Program Donation – 5 Digilent Inc. Spartan 3E FPGA Boards for Digital Circuits Design course (CSE342). April 2009. **\$745**, Recipient
8. University of Alaska, Special United Academics Research Travel Grant – IEEE Intelligent Vehicles Symposium, Xi’an, China. June 3, 2009-June 6, 2009. **\$1,000**, PI
7. University of Alaska, Research Travel Grant – “Presentation of Alaska Intelligent Transportation Systems.” University of Southern California, Los Angeles, California, March 2009. **\$409.83**, PI
6. Alaska Natives in Science and Engineering Program (ANSEP) Grant – “Acquisition and Analysis of Vehicular Tracking Technology in Anchorage.” January 1, 2009-December 31, 2009. **\$10,000**, PI
5. University of Alaska, Faculty Development Grant – “Determination of Probabilities of Factors in Vehicle Crashes using Intelligent Transportation Systems.” July 1, 2008-December 31, 2008. **\$4,500**, PI

4. University of Alaska, Research Travel Grant – IEEE Intelligent Transportation Systems Conference 2008, Beijing, China. October 12, 2008-October 15, 2008. **\$316.16**, PI
3. Alaska University Transportation Center – Additional support for IEEE 4th International Intelligent Vehicles Symposium, Eindhoven, The Netherlands. June 3, 2008-June 6, 2008. **\$2,000**, Recipient
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10. "Top Five Predictions about the Future of Driverless Cars." September 20, 2012. *AolAutos.com*. <http://dreamcarscreditblog.com/uncategorized/top-five-predictions-about-the-future-of-driverless-cars/>
9. "You won't need a driver's license by 2040." September 18, 2012. CNN article includes quotations from me. <http://www.cnn.com/2012/09/18/tech/innovation/ieee-2040-cars/index.html>
8. "You won't need a driver's license by 2040." September 17, 2012. *Wired.com* article includes quotations from me. <http://www.wired.com/autopia/2012/09/ieee-autonomous-2040/>
7. "How Self-Driving Cars Will Change Transportation." September 10, 2012. *MSN.com Autos* article includes quotations from me. <http://editorial.autos.msn.com/blogs/autosblogpost.aspx?post=fd1dd24a-7eea-4a00-8a97-dd7c3aab7a1c>
6. "Look Ma, No Hands! Expert Members of IEEE Identify Driverless Cars As Most Viable Form of Intelligent Transportation Dominating the Roadway by 2040 and Sparking Dramatic Changes in Vehicular Travel." September 5, 2012. *PR Newswire* article includes quotations from me. <http://www.prnewswire.com/news-releases/look-ma-no-hands-168623236.html>

5. "Look Ma, No Hands!" September 2, 2012. IEEE News Release includes quotations from me.
http://www.ieee.org/about/news/2012/5september_2_2012.html
4. "Jeff Miller and ITS Help Anchorage Address a National Dilemma." *Transportation Communications Newsletter*, April 25, 2012, ISSN 1529-1057.
3. *Alaska University Transportation Center Spotlight Column*, based on my research in Intelligent Transportation Systems in Alaska, March 2012.
2. *IEEE Intelligent Transportation Systems Magazine Editor-in-Chief's Column*, announcing me as the incoming Editor-in-Chief of the ITS Magazine, winter 2011.
1. *Sustainable City Network Article* by Randy Rodgers, April 20, 2011.
http://www.sustainablecitynetwork.com/topic_channels/transportation/article_ca00cf16-69db-11e0-9b0e-001a4bcf6878.html?mode=story

Teaching

I have taught at four different universities, and a summary of my student evaluations for all the sections of classes I taught are included in the following tables. The first table provides a summary. I have taught 6,353 students from 2002 to present in 36 different class topics and 154 different sections. 2,595 students (40.8% of total students) provided evaluations of my teaching. On the question asking about my effectiveness as an instructor, I have an average score of 4.47 out of 5.

I have taught classes in-person, remotely, and in hybrid modalities. I have experimented with different teaching pedagogies throughout my career, including both active and passive learning, and I have modified classes based on feedback from students, my peers, and my own observations. I have given hand-written exams, multiple choice exams, programming exams, and combinations of each, utilizing the latest research in helping me to design assessments that most accurately measure the knowledge that a student was expected to gain throughout the course.

I believe that education needs to occur inside and outside of the classroom. The interaction with students during office hours and discussions after class all lead to a rich understanding of material related to the class as well as unrelated material. Some of the best student interactions I have had occurred outside of the classroom, typically during office hours or in the lab. Just as technology needs to be adapted to changing conditions, I believe that the traditional teaching paradigm should be adjusted based on the class and effectiveness of different methods of information dissemination. The goal of teaching is for students to learn, and different modalities are necessary to meet students where they are and provide them with a positive learning experience. I have been able to facilitate my students giving back through their education with K12 outreach programs.

Summary

University	Years	# Different Class Topics	# Sections	# Students	# Responses	Overall Instructor Rating (average)
SUU	2022-present	1	2	31	11 (35.5%)	5.00
USC	2014-2022	6	79	5,011	1,768 (35.3%)	4.29
UAA	2007-2013	15	37	465	167 (35.9%)	3.99
CSULA	2002-2007	14	36	846	649 (76.7%)	4.61
Total		36	154	6,353	2,595 (40.8%)	4.47 (average)

Southern Utah University (SUU)

Year	Semester	Class	# Students	# Responses	Overall, the instructor was effective at providing a valuable learning experience. (average)
2023	Spring	CS 4800	13	6	5.00
2024	Spring	CS 4800	18	5	5.00
		Total	31	11 (35.5%)	5.00 (average)

University of Southern California (USC)

Year	Semester	Class	# Students	# Responses	Overall, how would you rate this instructor? (average)
2014	Spring	CSCI 103	31	26	4.19
2014	Spring	CSCI 201	33	19	4.61
2014	Spring	CSCI 201	27	10	4.20
2014	Summer	CSCI 201	17	14	4.43
2014	Fall	CSCI 201	30	11	3.82
2014	Fall	CSCI 201	61	23	4.04
2014	Fall	CSCI 477a	94	46	3.22
2014	Fall	CSCI 570	57	25	4.38
2014	Fall	CSCI 570	57	30	4.37
2014	Fall	CSCI 570	56	32	4.48
2014	Fall	CSCI 570	58	33	4.64
2015	Spring	CSCI 201	67	18	4.50
2015	Spring	CSCI 201	48	15	4.27
2015	Spring	CSCI 477b	80	20	4.20
2015	Spring	CSCI 570	28	17	4.88
2015	Spring	CSCI 570	50	27	4.85
2015	Spring	CSCI 570	21	8	5.00
2015	Spring	CSCI 570	27	18	4.61
2015	Summer	CSCI 201	7	2	5.00
2015	Summer	CSCI 570	14	13	4.90
2015	Fall	CSCI 201	57	17	3.94
2015	Fall	CSCI 201	32	14	3.71
2015	Fall	CSCI 201	68	25	3.17
2015	Fall	CSCI 401	62	9	4.44
2016	Spring	CSCI 201	36	13	4.38
2016	Spring	CSCI 201	53	20	4.55
2016	Spring	CSCI 201	57	22	4.27
2016	Spring	CSCI 401	91	28	3.21
2016	Spring	CSCI 570	71	42	4.62
2016	Spring	CSCI 570	60	23	4.78
2016	Spring	CSCI 570	59	31	4.77
2016	Spring	CSCI 570	69	35	4.74
2016	Summer	CSCI 201	20	4	4.00
2016	Fall	CSCI 201	76	37	4.27
2016	Fall	CSCI 201	52	23	4.43
2016	Fall	CSCI 201	66	23	4.52
2016	Fall	CSCI 401	95	27	4.15
2017	Spring	CSCI 201	21	11	3.91
2017	Spring	CSCI 201	56	25	3.76
2017	Spring	CSCI 201	53	25	4.00
2017	Spring	CSCI 401	95	28	4.57
2017	Summer	CSCI 201	18	9	3.56
2017	Fall	CSCI 201	81	36	3.53
2017	Fall	CSCI 201	53	18	3.83
2017	Fall	CSCI 201	70	31	3.97
2017	Fall	CSCI 401	90	30	4.45
2018	Spring	CSCI 201	21	8	4.88
2018	Spring	CSCI 201	59	19	4.00
2018	Spring	CSCI 201	58	16	4.13
2018	Spring	CSCI 401	145	39	3.97
2018	Summer	CSCI 201	20	0	-

Year	Semester	Class	# Students	# Responses	Overall, how would you rate this instructor? (average)
2018	Fall	CSCI 201	79	27	3.78
2018	Fall	CSCI 201	80	32	3.91
2018	Fall	CSCI 201	81	30	4.13
2018	Fall	CSCI 401	98	24	3.82
2019	Spring	CSCI 201	36	11	4.09
2019	Spring	CSCI 201	59	33	4.03
2019	Spring	CSCI 201	59	20	4.05
2019	Spring	CSCI 401	128	28	3.93
2019	Fall	CSCI 401	100	64	4.27
2019	Fall	ITP 115	28	16	4.31
2019	Fall	ITP 115	57	36	4.53
2019	Fall	ITP 115	23	11	4.80
2019	Fall	ITP 115	27	12	4.25
2020	Spring	CSCI 201	181	42	4.61
2020	Spring	CSCI 401	155	35	4.27
2020	Summer	CSCI 201	36	8	4.75
2020	Fall	CSCI 401	115	30	4.28
2020	Fall	ITP 115	59	23	4.61
2020	Fall	ITP 115	43	16	4.94
2021	Spring	CSCI 401	232	54	4.26
2021	Spring	ITP 116	42	13	4.62
2021	Spring	ITP 116	27	16	4.94
2021	Fall	CSCI 401	159	18	3.63
2021	Fall	ITP 116	32	11	4.64
2021	Fall	ITP 116	38	15	4.53
2022	Spring	CSCI 401	200	23	3.87
2022	Spring	ITP 116	53	12	4.64
2022	Spring	ITP 116	57	13	5.00
		Total	5,011	1,768 (35.3%)	4.29 (average)

University of Alaska Anchorage (UAA)

Year	Semester	Class	# Students	# Responses	I rate this instructor an excellent teacher. (average)
2007	Fall	ES 309	21	0	-
2008	Spring	CSE 394A	1	0	-
2008	Spring	CSE 394B	1	0	-
2008	Spring	ES 309	16	1	-
2008	Fall	CSE 205	4	3	3.30
2008	Fall	CSE 215	1	0	-
2008	Fall	ES 309	26	6	3.30
2009	Spring	CSE 205	15	6	3.30
2009	Spring	CSE 215	9	4	2.80
2009	Spring	ES 309	29	19	3.50
2009	Fall	CSE 215	16	10	3.00
2009	Fall	CSE 342	1	0	-
2009	Fall	CSE 355	6	0	-
2010	Spring	CSE 215	9	7	4.10
2010	Spring	CSE 438	1	0	-
2010	Spring	CSE 442	3	0	-
2010	Fall	CSE 215	13	3	4.70
2010	Fall	CSE 342	2	0	-
2010	Fall	CSE 355	3	0	-
2011	Spring	CSE 215	15	13	4.30
2011	Spring	CSE 355	12	10	4.70
2011	Fall	CSE 205	10	8	4.00
2011	Fall	CSE 215	28	5	3.20
2011	Fall	CSE 465	8	6	4.80
2012	Spring	CSE 102	22	6	3.30
2012	Spring	CSE 215	35	4	4.30
2012	Spring	CSE 355	15	4	4.30
2012	Fall	CSE 205	17	10	4.30
2012	Fall	CSE 215	23	17	4.20
2012	Fall	CSE 465	6	3	5.00
2013	Spring	CSE 102	24	6	4.30
2013	Spring	CSE 355	15	6	4.00
2013	Spring	CSE 438	5	4	4.30
2013	Spring	CSE 497	4	0	-
2013	Summer	CS 110	22	6	4.80
2013	Fall	CSCE 205	12	0	-
2013	Fall	CSCE 465	15	0	-
		Total	465	167 (35.9%)	3.99 (average)

California State University, Los Angeles (CSULA)

Year	Semester	Class	# Students	# Responses	How would you rate this instructor's teaching ability? (average)
2002	Spring	CS 202	29	21	4.48
2002	Spring	CS 488	16	14	4.68
2002	Summer	CS 203	21	15	4.28
2002	Summer	CS 454	25	24	4.65
2002	Summer	CS 454	25	22	4.88
2002	Fall	CS 312	23	22	4.80
2002	Fall	CS 203	20	18	4.46
2003	Winter	CS 312	23	17	4.44
2003	Winter	CS 420	18	17	4.61
2003	Spring	CS 201	25	17	4.78
2003	Spring	CS 488	16	15	4.55
2003	Spring	CS 490	21	17	4.70
2003	Summer	CS 320	27	25	4.73
2003	Summer	CS 386	21	17	4.71
2003	Fall	CS 420	20	18	5.00
2003	Fall	CS 490	15	11	4.75
2004	Winter	CS 320	25	24	4.71
2005	Summer	CS 120	26	21	4.13
2005	Summer	CS 122	18	13	4.29
2005	Fall	CS 120	27	17	4.36
2006	Winter	CS 120	29	22	4.36
2006	Winter	CS 420	16	16	4.11
2006	Spring	CS 386	28	28	4.55
2006	Fall	CS 120	28	15	4.53
2006	Fall	CS 312	27	19	4.65
2007	Winter	CS 120	24	17	4.76
2007	Winter	CS 242	28	24	4.63
2007	Winter	CS 320	32	21	4.75
2007	Winter	CS 420	16	12	4.44
2007	Spring	CS 202	20	17	4.79
2007	Spring	CS 203	17	12	4.54
2007	Spring	CS 301	21	12	4.93
2007	Spring	CS 320	31	21	4.88
2007	Summer	CS 120	34	16	4.78
2007	Summer	CS 203	21	14	4.23
2007	Summer	CS 242	33	18	4.90
		Total	846	649 (76.7%)	4.61 (average)

Mentoring

Faculty

- SUU Department Chairs, Staff, and Faculty – As the Dean of the College of Engineering and Computational Sciences, I provide mentorship to four department chairs, one program director, five staff, and 60 full-time faculty.
- ITP Faculty – As the Chair of the department, I provided mentorship to all full-time and part-time faculty, which includes over 50 faculty, from 2019-2022
- Prof. Yoofi Quansah – Part-Time Lecturer in Information Technology at USC, 2020-present
- Prof. Aaron Cote – Senior Lecturer in Computer Science at USC, 2015-2017
- Prof. Nicholas Kirsch – Associate Professor in Electrical and Computer Engineering at the University of New Hampshire. When Prof. Kirsch was standing for promotion to associate professor with tenure in 2014-2015, I was the external committee member on his promotion and tenure committee.

Ph.D. Student (external member)

- Mohammad Hoque – Dr. Hoque was a Ph.D. student in Computer Science at the University of Alabama. I was the external committee member on his dissertation committee, which he successfully defended on April 25, 2012. Dr. Hoque is now an Assistant Professor in the Department of Computing at East Tennessee State University.

K12 Teachers

K12 Outreach Camps

2024 (SUU/BZI Youth Engineering Academy)

Leslie Baker, Courtney Wessling, Ronni Peck, Emily Romero

2023 (SUU/BZI Youth Engineering Academy)

Richard Edwards, Ashley Hunt, Codi Miller, Kalyn Salgado, Jennifer Springer

Teaching Assistants (Ph.D. Students)

Spring 2014

Mahdi Azmandian (*CSCI 201*)

Summer 2014

Xing Shi (*CSCI 201*)

Fall 2014

Youn Kyu Lee, Gholamreza Safi (*CSCI 401/477a*)

Spring 2015

Youn Kyu Lee (*CSCI 401/477b*)

Jason Gui (*CSCI 201*)

Fall 2015

Kien Nguyen (*CSCI 201*)

Spring 2016

Kien Nguyen (*CSCI 201*)

Summer 2016

TJ Collins (*CSCI 201*)

Fall 2016

Kien Nguyen (*CSCI 201*)

Spring 2017

Kien Nguyen (*CSCI 201*)

Reem Alfayez (*CSCI 401*)

Summer 2017

Reem Alfayez (*CSCI 201*)

Fall 2017

Sarik Ghazarian (*CSCI 201*)

Reem Alfayez (*CSCI 401*)
Spring 2018
 Sarik Ghazarian (*CSCI 201*)
 Reem Alfayez, Brian Cohn (*CSCI 401*)
Summer 2018
 Reem Alfayez (*CSCI 201*)
Fall 2018
 Reem Alfayez (*CSCI 201*)
Spring 2019
 Reem Alfayez (*CSCI 201*)
Fall 2019
 Suhrid Karthik (*CSCI 401*)
Spring 2020
 Reem Alfayez, Kan Chi (*CSCI 201*)
 Suhrid Karthik (*CSCI 401*)
Summer 2020
 Reem Alfayez, Patricia Chaffey (*CSCI 201*)
 Kan Chi (*CSCI 201*)
Fall 2020
 Reem Alfayez (*CSCI 401*)
Spring 2021
 Rajat Tandon, Yang Chen (*CSCI 401*)
Fall 2021
 Sandeep Kollannur (*CSCI 401*)
Spring 2022
 Yang Chen, Thomas Groechel, William Borie (*CSCI 401*)

Master's Students

Master's Student Advisor

Andrew Bare - I was the primary advisor for Andrew, a Master of Science student in Green Technologies in the Electrical Engineering department. Andrew's thesis was entitled, "Routing Traffic to Prioritize the Entire Network instead of Individual Vehicles." He successfully presented his thesis on December 14, 2016, to graduate in fall 2016.

K12 Outreach Camp TAs

2015 (USC CS@SC Camps)
 Abhishek Radhakrishnan, Madhu Ramiah, Salonee Rege, Shruti Zamwar, Shweta Pargaonkar, Surabhi Raje, Yamini Goyal
2016 (USC CS@SC Camps)
 Arpita Agrawal, Pablo Fernandez, Priya Ananthasankar, Priyanka Shah
2017 (USC CS@SC Camps)
 Akanksha Tyagi, Anika Jain, Anshul Rawat, Anurag Mantripragada, Chia Hung Lee, Deepack Singh, Dipti Kothari, Kexuan Sun, Neeharika Gopikrishna, Prakarsh Upmanyu, Rishabh Tyagi, Sayali Ghaisas, Sayantan Ghosh, Shanshang Li, Shaohui Qian, Vishweshwer Shastri, Zeeshan Abid
2018 (USC CS@SC Camps)
 Ashley McCarley, Chloe Choe
2019 (USC CS@SC Camps)
 Jodi Kourdi, Yuhuan Qiu, Ekta Trivedi, Ya Wu, Gitanshu Sardana, He Wang, Prasanna Natarajan
2024 (SUU/BZI Youth Engineering Academy)
 Leslie Baker, Courtney Wessling

Graduate Teaching Assistants

Fall 2014

Animesh Sinha, Ankush Prasad, Srikanth Kumbham, Divya Swaminathan (CSCI 201)
Dharmik Kumar, Karthik Kumarguru (CSCI 201)

Spring 2015

Animesh Sinha, Ankush Prasad, Srikanth Kumbham, Divya Swaminathan (CSCI 201)

Fall 2015

Animesh Sinha, Ankush Prasad, Divya Swaminathan, Salonee Rege (CSCI 201)
Mahesh Ganesamoorthi (CSCI 201)

Spring 2016

Salonee Rege, Mahesh Ganesamoorthi, Surabhi Raje (CSCI 201)

Summer 2016

Keerthan Harish (CSCI 201)

Fall 2016

Keerthan Harish, Mahesh Ganesamoorthi, Priya Ananthasankar (CSCI 201)
Priyanka Shah, Jimmy Chen (CSCI 201)

Spring 2017

Priyanka Shah (CSCI 201)

Fall 2017

Anshul Rawat, Rishabh Tyagi (CSCI 201)

Fall 2020

Hanieh Arabzadehghahyazi (CSCI 401)

Spring 2021

Hanieh Arabzadehghahyazi, Ankit Dalal (CSCI 401)

Fall 2021

Hanieh Arabzadehghahyazi, Hunny Vankawala (CSCI 401)

Spring 2022

Vinay Gowdara Raj (CSCI 401)

Undergraduate Students

USC Viterbi Student-Alumni Mentoring Program (VSAMP)

2015-2016

Sebastian Rinkema – I participated in VSAMP during the 2015-2016 academic year and mentored Sebastian. He is a Computer Engineering and Computer Science transfer student graduating in fall 2018.

K12 Outreach Camp TAs

2015 (USC CS@SC Camps)

Robyn To, Joseph Chen, Yimin Jia

2016 (USC CS@SC Camps)

Christiane Snyder, Christopher Aguilera, Edgar Lugo, Hector Amaya, Jalin Marks, Jeffrey Vaudrin-McLean, Kobe Lee, Kourtney Chima, Matteo Tanaka, Nicholas Roewe, Osagie Ero, Samuel Sintz, Sarah Wu, Sondhayni Murmu, Sophia Spackova

2017 (USC CS@SC Camps)

Annie Song, Arfan Rehab, Aya Shimuzu, Cheng Cheng, Courtney Vu, Eduardo Marin, Emily Wittkowske, Enoch Hang, Erica Jung, James Tseng, Jason Kwak, Jesse Werner, Judy Zhang, Melody Chai, Neftali Hernandez, Nicholas Thompson, Sara Binder, Sigifredo Soto

2018 (USC CS@SC Camps)

Andrew Espindola, Anna Shott, Anthony Martinez, Benjamin Rubin, Emily Jin, Eric Choi, Ethan Recinto, Hao Xiong, Hope Kim, Hunter Wilkinson, Joseph Su, Mark Scarsi, Mehr Sethi, Neftali Hernandez, Noah Forman, Stephanie Huynh, Zachary Flores

2019 (USC CS@SC Camps)

Adelayde Rome, Arlyvia Chaialee, Diana Salcedo-Pierce, Ha Young Kong, Hunter Wilkinson, Jessica Chen, Kelly Dickson, Rachel Wang, Sterling Hahn, Tianyi Yu, Yanqiao Gan, Andrew

Garcia, Eli Bales, Evan Zamora, Han Gu, Hao Sun, Kevin Zhang, Mingyu Cui, peter Bauman, Matthew Fala, Neftali Hernandez, Anirban Manna

2020 (USC CS@SC Camps)

Aaqib Ismail, Aya Shimizu, Carlos Lao, Christen Clark, Christopher Pack, Jack Zhang, Juan Valderrama, Lauren Okhovat, Lily Perry, Lucia Jia, Lydia DiBlasio, Megan Friedenberg, Neftali Hernandez, Rachel Leipold, Sachi Desale, Stella Miller, Susan Chavez, Victor Udobong, Vivika Kapoor, Xiaomeng (Simone) Li, Xiaoyu (Sunny) Dong, Zohar Rabinovich, Lauren Okhovat, Simone Li, Lucia Jiang, Jack Zhang, Steven Gong, Raymond Liu

2021 (USC CS@SC Camps)

Anika Shrivastava, Chloe Stonecipher, Edward Cheng, James Kasaba, Jessica Cheung, Joseph Worthington, Maria Ashby, Micaela Mengen, Neha Halebeed, Nia Rae Ignacio, Riyana Gobin, Sahithi Lingampalli, Sana Jain, William Zou, Chelcie Tjoeng, Alexander Fox, Christopher Pack, Eric Zhou, Jenny Kim, Maria Tangalos, Noah Ha, Pau Sang, Peter Henry, Rose Gasser, Yasmin Gil, Yifeng Yu, Zuoning Zhang, Gary Yang, Carolyn Luo, Austin Traver, Abhaya Krishnan-Jha, Alexander Fox, Allison Oseguera, Alysha Kanjiyani, Amanda Horton, Angela Jarquin, Angelina Lee, Arnav Singh, Aurana Lo, Brad Barakat, Carlos Lao, Chris Kim, Christopher Pack, Elain Guo, Eric Zhou, Gabriella Martinez, Galila Amedie, Hassan Shah, Jadie Minkoff, Jaemyung Choi, Jay Lin, Jenny Kim, Jodie-Ann Duquesnay, John La, Joseph Mulholland, Julia Lim, Kaley Tien, Maria Tangalos, Neftali Hernandez, Noah Ha, Olivia Du, Rachel Bakke, Raymond Kuan, Olivia Gasser, Shirley Su, Steven Hernandez, Uma Durairaj, William Chang, William Liu, Winfield Zhao, Yasmin Gil, Yifeng Yu, Zuoning Zhang

2023 (SUU/BZI Youth Engineering Academy)

Rodrigo Armaza, Evelyn Jacobsen, Beeliada Lola, Allison Munro, Melissa Munro, Thomas Munro, Malena Wilken

2024 (SUU/BZI Youth Engineering Academy)

Eva Frey, Beeliada Lola, Allison Munro, Melissa Munro, Thomas Munro, Hannah Springer, Keigan LeFevre, Shekina Masengo, Rodrigo Armaza, Camille Martinez, Leona Lombardi, Jessica Adams

Directed Research Students

Spring 2016

Daler Asrorov – Block-based vs Non-Block-based Start for K12 Programming

Spring 2017

Howard Gil – K12 Computer Science Inequities

Ilia Labkovsky – Technologies Concerning Self-Driving Vehicles

Abhishek Mantha – Self-Driving Simulation Development

Fall 2017

Ilia Labkovsky – Technologies Concerning Self-Driving Vehicles

Janson Lau – Technologies Concerning Self-Driving Vehicles

Courtney-Lynn Presto – K12 Computer Science Inequities

Spring 2018

Abhishek Mantha – Self-Driving Simulation Development

Ilia Labkovsky – Technologies Concerning Self-Driving Vehicles

Courtney-Lynn Presto – K12 Computer Science Inequities

Summer 2020

Andrew Hutchison – Analysis of Code Comparator Applications for Detecting Plagiarism

Undergraduate Teaching Assistants

CSCI 201 spring 2014

Monroe Ekilah

CSCI 201 summer 2014

Matt Carey

CSCI 201 fall 2014

Matt Carey, Steven Francus, Ryan Chase, Vincent Ho, Michael Qian, Ford Filer, Wayne Chi,

Kenneth Chang, Holly Mitchell, Samir Lavingia, Oceane Bel

CSCI 201 spring 2015

Matt Carey, Ford Filer, Ryan Chase, Steven Francus, Michael Qian, Wayne Chi, Kenneth Chang, Oceane Bel, Brent Johnson, Elsie Tue

CSCI 201 fall 2015
 Matt Carey, Ford Filer, Michael Qian, Kenneth Chang, Oceane Bel, Brent Johnson, Robyn To, Vincent Jin, Brandon Au, Joseph Chen, Emma Lautz, Sheng Chen, Kevin Yang

CSCI 201 spring 2016
 Matt Carey, Kenneth Chang, Oceane Bel, Robyn To, Vincent Jin, Brandon Au, Joseph Chen, Sheng Chen, Kevin Yang, Alana Kamahale-Sanfratello, Maxwell Brewin, Dana Thomas, Ritvik Salim, Jessica Lai

CSCI 201 summer 2016
 Ritvik Salim

CSCI 201 fall 2016
 Alana Kamahale-Sanfratello, Anthony Tu, Caleb Simmeth, Carl Eubanks, Dana Thomas, Davina Zahabian, Edgar Lugo, Emma Lautz, Jason Lin, Jeffrey Vaudrin-McLean, Lucas Anfang, Matteo Tanaka, Maxwell Brewin, Robyn To, Samuel Sintz, Sondhayni Murmu, Uddhav Joglekar

CSCI 201 spring 2017
 Alana Kamahale, Andrew Jiang, Anthony Tu, Caleb Simmeth, Dana Thomas, Edgar Lugo, Emma Lautz, Howard Gil, Janson Lau, Jeffrey Vaudrin-McLean, JonLuca DeCaro, Matteo Tanaka, Michelle Yin, Ninareh Mehrabi, Peter Kaminski, Robyn To, Ruth Libowsky, Sam Sintz, Sondhayni Murmu, Uddhav Joglekar, Zilong Xiao

CSCI 201 summer 2017
 Ninareh Mehrabi, Ruth Libowsky

CSCI 201 fall 2017
 Annie Song, Anthony Tu, Courtney Vu, Daniel Mizrahi, Emma Lautz, Enoch Hang, Helena Rhee, Janson Lau, Jennifer Anthony, Jesse Werner, Jiuchang Zhang, JonLuca DeCaro, Matteo Tanaka, Melody Chai, Michelle Yin, Ming Chen, Natalie Monger, Nicholas Thompson, Ninareh Mehrabi, Peifei Li, Peter Kaminski, Qing Ye, Ruth Libowsky, Sebastian Rinkema, Sondhayni Murmu, Uddhav Joglekar, Yuzhou Ge, Ziqian Gu

CSCI 201 spring 2018
 Annie Song, Archana Venkatesh, Daniel Mizrahi, Emma Lautz, Enoch Hang, Hrishi Vora, Jiuchang Zhang, JonLuca DeCaro, Matteo Tanaka, Melody Chai, Ming Chen, Nikita Pashintsev, Peifei Li, Qing Ye, Ruth Libowsky, Scott Kriesberg, Sebastian Rinkema, Sondhayni Murmu, Uddhav Joglekar, William Wang, Ziqian Gu

CSCI 201 summer 2018
 Daniel Mizrahi, Emily Jin, Ethan Xiong, Noah Forman

CSCI 201 fall 2018
 Alina Abidi, Anant Chandra, Anav Batra, Andrew Hutchinson, Anthony Martinez, Aya Shimizu, Catherine Chung, Cindy Clarissa, Daniel Mizrahi, Emily Jin, Enoch Hang, Hrishi Vora, Isabelle Tobolski, Jae Woong Jung, James Oeth, Jialou Wang, Judy Zhang, Peijia Lu, Qing Ye, Tanay Shah, William Wang, Zifan Shi, Ziqian Gu

CSCI 201 spring 2019
 Adelade Rome, Adina Kruijssen, Anant Chandra, Andrew Hutchinson, Bryan Van Horn, Cindy Clarissa, Daniel Mizrahi, Emily Jin, Boyuan Xu, Jae Woong Jung, Joel Joseph, Kevin Yeung, Natasha Thakur, Nikita Takru, Roopal Kondepudi, Utsav Thapa, William Wang, Ziqian Gu

ITP 115 fall 2019
 Claire Powers, Srishti Miglani, Claudia Herrera, Nalin Goel, Hannah Chong, Ekta Trivedi, Andrew Garcia

CSCI 201 spring 2020
 Andrew Hutchinson, Aya Shimizu, Anna Shott, Austin Traver, Boyuan Xu, Connor Buckley, Daniel Mizrahi, Ethan Fridley, Hekmat Barbar, Emily Jin, Roopal Kondepudi, Miles Pham, Philip Jung, Swapnil Patel, Ziqian Gu

CSCI 201 summer 2020
 Austin Traver, Boyuan Xu, Conor McCormack, Ryan Zheng

ITP 115 fall 2020
 Mehr Sethi, Claudia Herrera, Henry Morales, Michael Chang, Philana Williams, Monica Gan

ITP 499/116 spring 2021

Amanda Horton, Michael Chang, Jack Xu

ITP 116 fall 2021

Amanda Horton, Jack Xu, Megan Friedenberg

ITP 116 spring 2022

Amanda Horton, Megan Friedenberg, Riley Carlin, Margot Meldefontenay

Recommendations Provided (325 total)

2014 (3 total)

Chapman Lee, Kelsey Fargas, Matthew Carey

2015 (15 total)

Derrick Choi, Woye Lin, Shikhar Gupta, Geoffrey Knopf, Kaiwen Shi, Alexander Wormuth, Emma Smith, Julia Lin, Stephanie Reagle, Dizhen Lu, Theodore Monyak, Courtney-Lynn Presto, Jessica Koe, Oceane Bel, Kenneth Chang

2016 (27 total)

Amir Williams, Gary Saunders, Charisa Saunders, Zhenyu Fu, Shweta Pargaonkar, Vincent Jin, Erica Engle, Rena Chen, Sheng Chen, Dana Thomas, Jason Lin, Jason Kwak, Rahul Pradhan, Wenfei Cao, Benny Lau, Jonathan Grant, Emile Indik, Alana Kamahale, Christopher O'Brien, Minghui Wanghan, Nicholas Roewe, Conner Frey, Ji Zhang, Alexander Kingsborough, Yoofi Quansah, Edgar Lugo, Yingyu Wu

2017 (53 total)

Alana Kamahale, Alexander Kingsborough, Mitali Karmarkar, Keerthan Vasist, Yoofi Quansah, Samuel Sintz, Rama Gosula, Kobe Lee, Rachit Kataria, Dong Fengyuan, Uddhav Joglekar, Jonathan Luu, Mengyao He, Xiaoyang Liao, Adrian Sunga, Sang Woon Lee, Jacob Antony, Catherine Chung, Prateek Bhatia, Mazen Azar, Keith Redmill, Kelsey Valentine, Jennifer Anthony, Hunter Hurja, Nikhil Cherukuri, Jiaqi Lou, Ming Chen, Ziqian Gu, Kuiren Su, Ruyin Shao, Ramiro Mendoza-Axle, Alexina Boudreaux-Allen, Ninareh Mehrabi, Vivek Ramachandran, Utsav Thapa, David Gerry, Saty Raghavachary, Raymond Dam, Utkash Dubey, Jacob Rey, Ninareh Mehrabi, Arfan Rehab, Jie He, Natalie Monger, Zilong Xiao, Elizabeth Chu, Zhi Wang, Yifei Liu, Jiaxin Cheng, Ze Xiao, Henry Keane, Qing Ye, Yi Wang

2018 (47 total)

Ahsan Zamad, William Wang, Peijia Lu, Zhengyu Yang, Xiaoyang Liao, Ziqian Gu, Alexina Boudreaux-Allen, Sara Wiltberger, Baiyu Huang, Ryan Espiritu, Pengxiang Zu, Dipti Kothari, Sarik Ghazarian, Peter Kaminski, Tianhang Liu, Beyza Bozbey, Eliseo Monzon, Scott Kriesberg, Kinwai Wong, Yang Chen, John Dwyer, Matthew van Niekerk, Janson Lau, Barrett Koster, Samuel Chordas, Anthony Martinez, Jeffrey Hernandez, Nathan Chang, Natalie Pearson, Kartik Mathur, Christopher Pack, Noah Forman, Cindy Clarissa, Kristian Mills, Daniel Kim, Gaurav Baney, Nathan Chang, Zhong Chu, Haoyang Chen, Shih-Bor Lu, Anna Szymanski, Bingtang Wang, Wei Wen Jang, Raisa Ifquat, Tuling Zhao, Runwei Lin, Juntao Shen

2019 (67 total)

Lifan Zhao, Hao Chen, Anav Batra, Yawen Cao, Taixiang Zeng, Ekta Gogri, Ruilin Liu, Xavier Negron, Ruimin Zhang, Gabrielle Roberts, Nathan Shangkala, Adina Kruijssen, Ishan Shah, Justin Kim, Nicholas Yazdani, Jae Woong Jung, Haocheng Song, Sevara Razzakova, Qizun Xie, Sarah Cheung, Virginia Dudley, Eric Su, Ashwin Chakicherla, Tianxing Liu, Haiyu Tian, Beiyu Zhu, Gabrielle Roberts, Jung Choi, Minxuan Song, Boyuan (Jack) Xu, Wei Luo, Luting Wang, Manipushpak Gupta, John La, Cameron Podd, Harshil Shah, Kousheyo Kundu, Claire Powers, Timothy Lupo, Arian Memari, Tianyi Yu, Wenbei Wang, Xing Gao, Yichun Kong, Mingzhe Fang, Nathan Marchant, Vivek Ramachandran, Jung Choi, Adelade Rome, Gabrielle Sinacola, Amira Ottosson, Ruichen Zhu, Mingyu Cui, Dr. Marco Papa, Yichun Lu, Can Chen, Gabriel Katz, Ziang Liu, Lily Francus, Navneeth Pillai, Jialou Wang, Ekta Gogri, Xiao Jing Jiang, Xingchen Liao, Kaiyuan Yu, Vincent Chen, Rachel Jiang

2020 (55 total)

Feihong Qian, Emily Liu, Sophia Musk-Burton, Michael Chang, Yuming Fei, Kevin Zhang, Adelade Rome, Mark Scarsi, Buting Xu, Melissa Wen, Alexander Kim, Maryam Nawaz, Tongyu Zhu, Han Gu, Theodore Ilie, Dylan Ah Teck, Shannon Cameron, Muhammad Fariz Attamimi,

Yifei Liu, Guillermo Gamboa, Zohar Rabinovich, Sidharth Raguraman, Lauren Hampson, Tim Lupo, Jeremy Yang, Jerry Tejada, Rami Hammoud, Ruchi Shah, Harshal Mulchandani, Kaitlyn Yang, Haeju Jeong, Tianyu Bai, Lung-Young (Eric) Yu, Tatiana Santos, Willie Shen, Jodi Kourdi, Sujun Zhu, Anant Chandra, Yu Zheng, Lauren Krikorian, Sara Etter, Conor McCormack, Alex Doytchinov, John Wright, Sajan Gutta, Henry Yang, Jiuchang Zhang, Sarah Cheung, Christopher Fucci, Jiho Kim, Denny Shen, Monica Gan, Haiwen Chen, Chen Tang, Mingchen Zhang

2021 (32 total)

Kendra Walther, Ao Xu, Khyle Calpe, Hao Sun, Mingyu Cui, Wenhan Fan, Jamie Chen, Annie Le, Zhenghao (Lucas) Dai, Swapnil Patel, Elly Berge, John La, Pei Jou Liu, Kaituo Xu, Hanieh Arabzadehghahyazi, Andrew Hutchinson, Dayu Jiang, Tianyu Bai, Jiayang Li, Sachet Vijay, Ziqian Gu, Amity Tang, Han Gu, Ruyin Shao, Heng (Tiffany) Bo, Miranda Vizcarra, Yan Ho (Nathan) Lau, Zhenghao (Lucas) Dai, Jack Zhang, Sebastian Lopez, Kexin Xu, Xiaoyu (Agnes) Lu

2022 (17 total)

Tianhao Wu, Arjun Mitra, Marco Papa, Jenna Fishman, Justin Yang, Mohib Mirza, Hoai-Huong Nguyen, Fiona McCann, Julie Shi, Lisa Wagner, Maged Jendi, Terry Tang, Victor Udobong, Michelle Zhu, Rena Chen, Sophia Yang, Yimin Jia

2023 (2 total)

Margot Mel de Fontenay, Mohamed Reja Rajati

2024 (7 total)

Jeremy Waite, Jaylee Willis, Rodrigo Armaza, Lihan Zhu, Ziqian Gu, Jay Doshi, Alexander Sierra

Professional Service

Professional Affiliations

- IEEE – member since 2002, Senior Member since 2015
- ACM – member since 2002, Senior Member since 2017
- Educational Testing Service (ETS) Computer Science rater – since 2016
- ACM Special Interest Group on Computer Science Education (SIGCSE) – member since 2014
- IEEE Ethics, Society, and Technology Committee Member, 2016-2018
- Computer Science Teachers Association Member, 2016-present
- IEEE Education Society – member since 2014
- IEEE Communications Society – member 2002-2013
- IEEE Computer Society – member since 2002
- IEEE Intelligent Transportation Systems Society – member since 2006
- IEEE Vehicular Technology Society – member 2009-2013
- IEEE Intelligent Transportation Systems Society Board of Governors – January 2009-December 2012, January 2017-December 2019
- IEEE Intelligent Transportation Systems Society VP Admin Activities – January 2011-December 2012
- IEEE Intelligent Transportation Systems Society Best Ph.D. Dissertation Committee – 2011, 2012, 2013, 2017
- IEEE Vehicular Technology Society Board of Governors – September 2011-December 2013
- IEEE Vehicular Technology Society Conference Committee – January 2011-December 2013
- Intelligent Transportation Society of Alaska President – January 2010-December 2011
- IEEE Alaska Section Chair – January 2011-December 2011
- IEEE Alaska Section Treasurer – January 2010-December 2010
- IEEE Region 6 Northwest Area Awards Chair – January 2012-December 2013
- IEEE-USA's Career and Workforce Policy Committee – January 2011-December 2013
- IEEE-USA's Committee on Transportation and Aerospace Policy – April 2011-December 2013
- Intelligent Transportation Society of Alaska – member June 2009-December 2013
- University of Alaska, Anchorage ACM Student Chapter Faculty Advisor – 2008-2011
- Municipality of Anchorage (MOA) Anchorage Metropolitan Area Transportation Solutions (AMATS) Freight Advisory Committee – 2010-2013

- Municipality of Anchorage (MOA) Anchorage Metropolitan Area Transportation Solutions (AMATS) Intelligent Transportation Systems Advisory Committee – January 2013-December 2013

Journal and Conference Publication Service

- Editor-in-Chief
 - ACM Special Interest Group on Computer Science Education (SIGCSE) Bulletin, April 2019-March 2022
 - IEEE Intelligent Transportation Systems Magazine, January 2012-December 2013
- Associate Editor
 - IEEE Transactions on Intelligent Transportation Systems, January 2010-2019
 - IEEE Intelligent Transportation Systems Magazine Guest Editor – Traffic Simulators, fall 2010
 - IEEE Intelligent Transportation Systems Magazine, January 2009-December 2011
- Editorial Board
 - IEEE Intelligent Transportation Systems Society Monthly Podcast, January 2013-present
- Journal Publication Reviewer
 - IEEE Access, 2018
 - IEEE Transactions on Intelligent Transportation Systems, 2018
 - IEEE Transactions on Intelligent Transportation Systems, 2017
 - IEEE Transactions on Intelligent Transportation Systems, 2016
 - IEEE Transactions on Intelligent Transportation Systems, 2015
 - IEEE Transactions on Intelligent Transportation Systems, 2014
 - IEEE Transactions on Intelligent Transportation Systems, 2013
 - MDPI Algorithms Journal, 2013
 - ACM Transactions on Interactive Intelligent Systems, 2012
 - IEEE Transactions on Intelligent Transportation Systems, 2012
 - IEEE Transactions on Vehicular Technology, 2012
 - Elsevier Simulation Modeling Practice and Theory, 2012
 - IEEE Vehicular Technology Magazine, 2011
 - IEEE Intelligent Transportation Systems Magazine, 2011
 - IEEE Transactions on Intelligent Transportation Systems, 2011
 - IEEE Intelligent Transportation Systems Magazine, 2010
 - IEEE Transactions on Intelligent Transportation Systems, 2010
 - EURASIP Journal on Advances in Signal Processing, 2009
 - IEEE Transactions on Intelligent Transportation Systems, 2009
 - IEEE Communications Magazine, 2009
 - IEEE Transactions on Intelligent Transportation Systems, 2008
 - IEEE Communications Magazine, 2008
 - IEEE Transactions on Intelligent Transportation Systems, 2007
 - IEEE Communications Magazine, 2007
- Conference Proceedings Reviewer
 - *IEEE 21st Intelligent Transportation Systems Conference*, Maui, Hawaii, USA, November 2018.
 - *IEEE 13th Intelligent Vehicles Symposium*, Redondo Beach, California, USA, June 2017.
 - *IEEE 20th Intelligent Transportation Systems Conference*, Yokohama, Japan, September 2017.
 - *IEEE 18th Intelligent Transportation Systems Conference*, Canary Islands, Spain, September 2015.
 - *IEEE 17th Intelligent Transportation Systems Conference*, Qingdao, China, October 2014.
 - *IEEE 16th Intelligent Transportation Systems Conference*, the Hague, the Netherlands, October 2013.
 - *IEEE 78th Vehicular Technology Conference*, Las Vegas, Nevada, USA, September 2013.
 - *IEEE 9th Intelligent Vehicles Symposium*, Gold Coast, Australia, June 2013.
 - *IEEE International Conference on Industrial Technology*, Cape Town, South Africa, February 2013.
 - *IEEE 15th Intelligent Transportation Systems Conference*, Anchorage, Alaska, USA, September 2012.
 - *IEEE 76th Vehicular Technology Conference*, Quebec City, Quebec, Canada, September 2012.

- *IEEE 8th Intelligent Vehicles Symposium*, Alcalá de Henares, Spain, June 2012.
- *IEEE 8th International Conference on Information, Communications, and Signal Processing*, Shangri-La, Singapore, December 2011.
- *IEEE 2011 Systems, Man, and Cybernetics Conference*, Anchorage, Alaska, USA, October 2011.
- *IEEE 74th Vehicular Technology Conference*, San Francisco, California, USA, September 2011.
- *IFAC 18th World Congress*, Milano, Italy, August 2011.
- *IEEE 7th Intelligent Vehicles Symposium*, Baden-Baden, Germany, June 2011.
- *IEEE 1st Forum on Integrated and Sustainable Transportation Systems*, Vienna, Austria, June 2011.
- *IEEE 73rd Vehicular Technology Conference*, Budapest, Hungary, May 2011.
- *IEEE 13th Intelligent Transportation Systems Conference*, Madeira, Portugal, September 2010.
- *IEEE Workshop on Vehicular Networking and Applications*, co-located with *IEEE International Conference on Communication*, Cape Town, South Africa, May 2010.
- *IEEE 13th International Multitopic Conference*, Islamabad, Pakistan, December 2009.
- *IEEE 7th International Conference on Information, Communications, and Signal Processing*, Macau, China, December 2009.
- *IEEE 12th Intelligent Transportation Systems Conference*, St. Louis, Missouri, USA, October 2009.
- *IEEE 1st Vehicular Networking Conference*, Tokyo, Japan, October 2009.
- *IEEE 70th Vehicular Technology Conference*, Anchorage, Alaska, USA, September 2009.
- *IEEE 69th Vehicular Technology Conference*, Barcelona, Spain, April 2009.
- *IEEE 3rd Workshop on Automotive Networking and Applications*, co-located with *IEEE Global Communication Conference 2008*, New Orleans, Louisiana, USA, December 2008.
- *IEEE 11th Intelligent Transportation Systems Conference*, Beijing, China, October 2008.
- *3rd International Symposium of Transport Simulation*, Queensland, Australia, August 2008.
- *IEEE 4th Vehicle-to-Vehicle Communications Workshop*, in conjunction with *IEEE 4th Intelligent Vehicles Symposium*, Eindhoven, The Netherlands, June 2008.
- *IEEE 4th Intelligent Vehicles Symposium*, Eindhoven, The Netherlands, June 2008.
- *IEEE 10th Intelligent Transportation Systems Conference*, Seattle, Washington, USA, October 2007.
- *IEEE 3rd Vehicle-to-Vehicle Communications workshop*, in conjunction with *IEEE 3rd Intelligent Vehicles Symposium*, Istanbul, Turkey, June 2007.

NSF Grant Reviewer

- NSF Panel, 2011 (twice)

Conference Service

- Conference General Chair
 - *IEEE 78th Vehicular Technology Conference*, Las Vegas, Nevada, USA, September 2013.
 - *IEEE 15th Intelligent Transportation Systems Conference*, Anchorage, Alaska, USA, September 2012.
 - *IEEE 70th Vehicular Technology Conference*, Anchorage, Alaska, USA, September 2009.
- Conference Technical Program Chair
 - *IEEE 74th Vehicular Technology Conference*, San Francisco, California, USA, September 2011.
- Conference Technical Program Co-Chair
 - *IEEE 21st Intelligent Transportation Systems Conference*, Maui, Hawaii, USA, November 2018.
 - *IEEE 19th Intelligent Transportation Systems Conference*, Rio de Janeiro, Brazil, October 2016.
 - *IEEE 18th Intelligent Transportation Systems Conference*, Canary Islands, Spain, September 2015.
 - *IEEE 7th Intelligent Vehicles Symposium*, Baden-Baden, Germany, June 2011.
 - *IEEE 1st Forum on Integrated and Sustainable Transportation Systems*, Vienna, Austria, June 2011.
- Conference Technical Program Committee Member
 - *IEEE 20th Intelligent Transportation Systems Conference*, Yokohama, Japan, September 2017.
 - *IEEE 16th Intelligent Transportation Systems Conference*, The Hague, The Netherlands, September 2013.

- *16th Portuguese Conference on Artificial Intelligence, Artificial Intelligence in Transportation Systems Track*, Azores, Portugal, September 2013.
- *IEEE 8th International Conference on Emerging Technologies*, Islamabad, Pakistan, October 2012.
- *IEEE 15th Intelligent Transportation Systems Conference*, Anchorage, Alaska, USA, September 2012.
- *IEEE 76th Vehicular Technology Conference*, Quebec City, Quebec, Canada, September 2012.
- *IEEE 14th Intelligent Transportation Systems Conference*, Washington DC, USA, October 2011.
- *IEEE 2nd Vehicular Networking Conference*, Jersey City, New Jersey, USA, December 2010.
- *IEEE International Conference on Communications, Vehicular Mobility Workshop*, Cape Town, South Africa, May 2010.
- *IEEE International Conference on Communications Vehicular Connectivity Workshop*, Cape Town, South Africa, May 2010.
- *IEEE 1st Vehicular Networking Conference*, Tokyo, Japan, October 2009.
- *IEEE 69th Vehicular Technology Conference*, Barcelona, Spain, April 2009.
- *IEEE 4th Intelligent Vehicles Symposium Vehicle-to-Vehicle Communications Workshop*, Eindhoven, The Netherlands, June 2008.
- Conference Publicity Chair
 - *IEEE 13th Intelligent Vehicles Symposium*, Redondo Beach, California, USA, June 2017.
 - *IEEE 13th Intelligent Transportation Systems Conference*, Madeira Island, Portugal, September 2010. (Co-Chair)
- Conference Local Arrangements Chair
 - *IEEE Systems, Man, and Cybernetics Conference 2011*, Anchorage, Alaska, USA, October 2011.
 - *IEEE International Conference on Robotics and Automation*, Anchorage, Alaska, USA, May 2010.
- Conference Awards Committee Member
 - *IEEE 16th Intelligent Transportation Systems Conference Best Paper Committee Member*, The Hague, The Netherlands, September 2013.
 - *IEEE 6th Intelligent Vehicles Symposium*, La Jolla, California, USA, June 2010.
- Conference Session Chair
 - *ACSE International Conference on Computational Science and Computational Intelligence (CSCI) International Symposium on Education (ISED)*, Las Vegas, Nevada, USA, December 2016.
 - *IEEE 16th Intelligent Transportation Systems Conference*, The Hague, The Netherlands, September 2013.
 - *IEEE 9th Intelligent Vehicles Symposium*, Gold Coast, Australia, June 2013.
 - *IEEE Systems, Man, and Cybernetics Conference 2011*, Anchorage, Alaska, USA, October 2011.
 - *IEEE 14th Intelligent Transportation Systems Conference*, Washington DC, USA, October 2011.
 - *IEEE 7th Intelligent Vehicles Symposium*, Baden-Baden, Germany, June 2011.
 - *IEEE 2nd Vehicular Networking Conference*, Jersey City, New Jersey, USA, December 2010.
 - *IEEE 12th Intelligent Transportation Systems Conference*, St. Louis, Missouri, USA, October 2009.
 - *IFAC 12th Symposium on Control in Transportation Systems*, Redondo Beach, California, USA, September 2009.
 - *IEEE 5th Intelligent Vehicles Symposium*, Xi'an, China, June 2009.
 - *IEEE 11th Intelligent Transportation Systems Conference*, Beijing, China, October 2008.
 - *IEEE 10th Intelligent Transportation Systems Conference*, Seattle, Washington, USA, October 2007.
- Special Session Organizer
 - "Intelligent Vehicular Applications, Simulations, and Implementations." *IEEE Systems, Man, and Cybernetics Conference 2011*, Anchorage, Alaska, USA, October 2011.
- Workshop Organizer
 - "Education in Intelligent Transportation Systems." *IEEE 18th Intelligent Transportation Systems Conference*, Las Palmas, Gran Canaria, Spain, September 2015.
 - "Information Fusion for Intelligent Transportation Systems." *IEEE 15th Intelligent Transportation Systems Conference*, Anchorage, Alaska, USA, September 2012. (jointly organized with Javier Sanchez Medina of the University of Las Palmas de Gran Canaria, Spain)

Conferences Attended

- One Utah Summit, Cedar City, Utah, USA, October 2023.
- Silicon Slopes, Salt Lake City, Utah, USA, September 2023.
- One Utah Summit, Cedar City, Utah, USA, October 2022.
- *ACM 50th Special Interest Group in Computer Science Education (SIGCSE)*, Minneapolis, Minnesota, USA, February 2019.
- *IEEE 20th Intelligent Transportation Systems Conference*, Yokohama, Japan, October 2017.
- *CS Education Summit*, Pittsburgh, Pennsylvania, USA, October 2017.
- *IEEE 13th Intelligent Vehicles Symposium*, Redondo Beach, California, USA, June 2017.
- *ACSE International Conference on Computational Science and Computational Intelligence (CSCI) International Symposium on Education (ISED)*, Las Vegas, Nevada, USA, December 2016.
- *IEEE 78th Vehicular Technology Conference*, Las Vegas, Nevada, USA, September 2013.
- *IEEE 9th Intelligent Vehicles Symposium*, Gold Coast, Queensland, Australia, June 2013.
- *IEEE 4th Vehicular Networking Conference*, Seoul, South Korea, November 2012.
- *ITS Alaska Annual Meeting*, Anchorage, Alaska USA, October 2012.
- *IEEE 15th Intelligent Transportation Systems Conference*, Anchorage, Alaska, USA, September 2012.
- *IEEE 8th Intelligent Vehicles Symposium*, Alcala de HERNANDEZ, Spain, June 2012.
- *IEEE 75th Vehicular Technology Conference*, Yokohama, Japan, May 2012.
- *IEEE Panel of Editors Meeting*, San Francisco, California, USA, April 2012.
- *IEEE 3rd Vehicular Networking Conference*, Amsterdam, The Netherlands, November 2011.
- *ITS Alaska Annual Meeting*, Anchorage, Alaska USA, October 2011.
- *IEEE Systems, Man, and Cybernetics Conference*, Anchorage, Alaska, USA, October 2011.
- *IEEE 14th Intelligent Transportation Systems Conference*, Washington DC, USA, October 2011.
- *IEEE 74th Vehicular Technology Conference*, San Francisco, California, USA, September 2011.
- *ITE Western District Annual Meeting*, Anchorage, Alaska, USA July 2011.
- *IEEE 73rd Vehicular Technology Conference*, Budapest, Hungary, May 2011.
- *American Planning Association's National Planning Conference*, Boston, Massachusetts, USA, April 2011.
- *IEEE 2nd Vehicular Networking Conference*, Jersey City, New Jersey, USA, December 2010.
- *ITS Alaska Annual Meeting*, Fairbanks, Alaska, USA, October 2010.
- *Alaska Community Transportation Transit Conference*, Fairbanks, Alaska, USA, October 2010.
- *IEEE 13th Intelligent Transportation Systems Conference*, Madeira Island, Portugal, September 2010.
- *IEEE 6th Intelligent Vehicles Symposium*, La Jolla, California, USA, June 2010.
- *IEEE International Conference on Robotics and Automation*, Anchorage, Alaska, USA, May 2010.
- *Maintenance Decision Support System Product Showcase*, Anchorage, Alaska, USA, April 2010.
- *Arctic Ice and Snow Roads 2010 Conference*, Anchorage, Alaska, USA, March 2010.
- *IEEE 12th Intelligent Transportation Systems Conference*, St. Louis, Missouri, USA, October 2009.
- *IEEE 70th Vehicular Technology Conference*, Anchorage, Alaska, USA, September 2009.
- *IFAC Symposium on Control Systems*, Redondo Beach, California, USA, September 2009.
- *IEEE 69th Vehicular Technology Conference*, Barcelona, Spain, April 2009.
- *IEEE 6th Consumer Communication and Networking Conference*, Las Vegas, Nevada, USA, January 2009.
- *IEEE 4th Intelligent Vehicles Symposium*, Eindhoven, The Netherlands, June 2008.
- *IEEE 10th Intelligent Transportation Systems Conference*, Seattle, Washington, USA, October 2007.
- *IEEE 3rd Intelligent Vehicles Symposium*, Istanbul, Turkey, June 2007.
- *IEEE 29th International Conference on Software Engineering*, Minneapolis, Minnesota, USA, May 2007.
- *IEEE 9th Intelligent Transportation Systems Conference*, Toronto, Ontario, Canada, September 2006.
- *ITS America Conference*, Phoenix, Arizona, USA, May 2005.
- *IEEE 1st Consumer Communication and Networking Conference*, Las Vegas, Nevada, USA, January 2004.

Presentations

NOTE: This list does not include presentations associated with publications at conferences. All the papers published at conferences had associated presentations.

76. Miller, Jeffrey. "SUU College of Engineering and Computational Sciences – State of the College and Outlook for 2024/2025." *SUU College of Engineering and Computational Sciences Faculty/Staff Summit*, Cedar City, Utah, USA, August 23, 2024.
75. Miller, Jeffrey. "College of Engineering and Computational Sciences Awards Banquet." Cedar City, Utah, April 17, 2024.
74. Miller, Jeffrey. "SUU College of Engineering and Computational Sciences – State of the College and Outlook for 2023/2024." *SUU College of Engineering and Computational Sciences Faculty/Staff Summit*, Cedar City, Utah, USA, August 25, 2023.
73. Miller, Jeffrey. "SUU College of Engineering and Computational Sciences – State of the College and Outlook for 2023/2024." *SUU College of Engineering and Computational Sciences Leadership Summit*, Cedar City, Utah, USA, August 22, 2023.
72. Miller, Jeffrey. "College of Engineering and Computational Sciences Awards Banquet." Cedar City, Utah, April 12, 2023.
71. Miller, Jeffrey. "Vision and Overview of SUU College of Engineering and Computational Sciences." *SUU College of Engineering and Computational Sciences Retreat*, Cedar City, Utah, USA, August 26, 2022.
70. Miller, Jeffrey. "ITP Overview." *USC Computer Science Department Retreat*, Los Angeles, California, USA, August 26, 2019.
69. Miller, Jeffrey. "CS@SC Summer Camps Summary." *Institute for Education Celebrating Twenty-Five Years of Civility and Common Ground*, Washington DC, USA, December 1, 2016.
68. Miller, Jeffrey. "CS@SC Outreach." *USC Computer Science Department Retreat*, Los Angeles, California, USA, August 28, 2016.
67. Miller, Jeffrey. "CS@SC Summer Camps and ABET Summary." *USC Computer Science Industry Advisory Board Meeting*, Los Angeles, California, USA, November 5, 2015.
66. Miller, Jeffrey. "Computer Science Capstone." *USC CET Instructional Design Meet Up*, Los Angeles, California, USA, October 16, 2015.
65. Miller, Jeffrey. "CS@SC K12 Outreach - Computer Science in K12 Curricula." *Calvary Christian Retreat*, Malibu, California, USA, October 9, 2015.
64. Miller, Jeffrey. "Computer Science Capstone." *USC Viterbi School of Engineering Division of Engineering Education – Capstone Retreat*, Los Angeles, California, USA, August 18, 2015.
63. Miller, Jeffrey. "Ethics in Driverless Vehicles." *Beverly Hills Rotary Club*, Beverly Hills, California, USA, August 3, 2015.
62. Miller, Jeffrey. "Current Technology and Ethics in Driverless Vehicles." *University of California Los Angeles Beyond the Headlines*, Los Angeles, California, USA, May 5, 2015.
61. Miller, Jeffrey. "USC Explore Reception." *University of Southern California Viterbi School of Engineering*, Los Angeles, California, USA, April 9, 2015.
60. Miller, Jeffrey. "Ethics in Driverless Vehicles." *National Academy of Sciences Distinctive Voices*, Irvine, California, USA, January 14, 2015.
<https://www.youtube.com/watch?v=SfP7FBSnojK&feature=youtu.be>
<https://twitter.com/uscviterbi/status/565643247473528832>
59. Miller, Jeffrey. "USC On-Campus Admitted Student Reception." *University of Southern California Viterbi School of Engineering*, Los Angeles, California, USA, April 26, 2014.
58. Miller, Jeffrey. "Are Computer Engineers and Computer Scientists Real Engineers?" *University of Alaska Anchorage Fall 2013 Preview Day*, Anchorage, Alaska, USA, November 15, 2013.
57. Miller, Jeffrey. "IEEE Intelligent Transportation Systems Society Magazine Editor-in-Chief Report." *IEEE Intelligent Transportation Systems Society Board of Governors and Executive Committee Meeting*, The Hague, The Netherlands, October 5-6, 2013.
56. Miller, Jeffrey. "ITS in Alaska and K12 STEM Robotics Competition." *ITE Alaska October 2013 Member Luncheon*, Anchorage, Alaska, USA, October 1, 2013.
55. Miller, Jeffrey. "IEEE 78th Vehicular Technology Conference" Welcome Address. *Presentation at IEEE 78th Vehicular Technology Conference*, Las Vegas, Nevada, USA, September 3, 2013.

54. Miller, Jeffrey. "IEEE Intelligent Transportation Systems Society Magazine Editor-in-Chief Report." *IEEE Intelligent Transportation Systems Society Board of Governors and Executive Committee Meeting*, Gold Coast, Queensland, Australia, June 23, 2013.
53. Miller, Jeffrey. "2013 Vex Robotics World Competition Recap." *IEEE Alaska Section May Member Luncheon*, May 15, 2013.
52. Miller, Jeffrey. "Intelligent Transportation System Projects in Alaska and Beyond." *IEEE Alaska Section March Member Luncheon*, March 20, 2013.
51. Miller, Jeffrey. "IEEE Intelligent Transportation Systems Society Magazine Editor-in-Chief Report." *IEEE Intelligent Transportation Systems Society Executive Committee Meeting*, New Orleans, Louisiana, USA, February 9, 2013.
50. Miller, Jeffrey (presented by Dave Butcher). "IEEE Northwest Area Awards Summary." *IEEE Region 6 Annual Meeting*, Las Vegas, Nevada, USA, February 2, 2013.
49. Miller, Jeffrey (presented by Joe Decuir). "IEEE Northwest Area Awards." *IEEE Fall 2012 Northwest Area Meeting*, Seattle, Washington, USA, October 20, 2012.
48. Miller, Jeffrey. "IEEE Intelligent Transportation Systems Society Magazine Editor-in-Chief Report." *IEEE Intelligent Transportation Systems Society Board of Governors and Executive Committee Meeting*, Anchorage, Alaska, USA, September 15, 2012.
47. Miller, Jeffrey. "IEEE Intelligent Transportation Systems Society VP Administrative Activities Report." *IEEE Intelligent Transportation Systems Society Board of Governors and Executive Committee Meeting*, Anchorage, Alaska, USA, September 15, 2012.
46. Miller, Jeffrey (presented by Alex Wyglinski). "IEEE 78th Vehicular Technology Conference." *Presentation at IEEE 76th Vehicular Technology Conference*, Quebec City, Quebec, Canada, September 5, 2012.
45. Miller, Jeffrey. "Intelligent Transportation System Projects in Heterogeneous Connectivity Environments." *Alaska Department of Transportation Quarterly Design Meeting*, July 31, 2012.
44. Miller, Jeffrey. "Vehicle-to-Infrastructure Design and Applications in Disconnected Environments." *Universitas Miguel Hernandez*, Elche, Spain, June 11, 2012.
43. Miller, Jeffrey. "IEEE Intelligent Transportation Systems Society Magazine Editor-in-Chief Report." *IEEE Intelligent Transportation Systems Society Board of Governors Executive Committee Meeting*, Alcala de Henares, Spain, June 7, 2012.
42. Miller, Jeffrey. "IEEE Intelligent Transportation Systems Society VP Administrative Activities Report." *IEEE Intelligent Transportation Systems Society Board of Governors and Executive Committee Meeting*, Alcala de Henares, Spain, June 7, 2012.
41. Miller, Jeffrey. "Design of Vehicular Ad-Hoc Networks (VANETs) and Applications in Disconnected Environments." *University of Alabama*, Tuscaloosa, Alabama, USA, April 27, 2012.
40. Miller, Jeffrey (presented by Joe Decuir). "IEEE Northwest Area Awards." *IEEE Spring 2012 Northwest Area Meeting*, Spokane, Washington, USA, April 14, 2012.
39. Miller, Jeffrey. "IEEE Intelligent Transportation Systems Society Magazine Editor-in-Chief Report." *IEEE Intelligent Transportation Systems Society Executive Committee Meeting*, Atlanta, Georgia, USA, February 11, 2012.
38. Miller, Jeffrey. "IEEE Intelligent Transportation Systems Society VP Administrative Activities Report." *IEEE Intelligent Transportation Systems Society Executive Committee Meeting*, Atlanta, Georgia, USA, February 11, 2012.
37. Miller, Jeffrey. "Intelligent Transportation Systems Projects in Alaska." *Municipality of Anchorage AMATS January 2012 Meeting*, Anchorage, Alaska, USA, January 12, 2012.
36. Miller, Jeffrey. "IEEE Alaska Report." *IEEE Fall 2011 Northwest Area Meeting*, Portland, Oregon, USA, October 15, 2011.
35. Miller, Jeffrey. *Introduction to Banquet Entertainment – IEEE Systems, Man, and Cybernetics Conference*, Anchorage, Alaska, USA, October 11, 2011.
34. Miller, Jeffrey. "IEEE Intelligent Transportation Systems Society VP Administrative Activities Report." *IEEE Intelligent Transportation Systems Society Board of Governors and Executive Committee Meeting*, Washington DC, USA, October 8, 2011.
33. Miller, Jeffrey. "IEEE 14th Intelligent Transportation Systems Conference." *Presentation at IEEE 13th Intelligent Transportation Systems Conference*, Washington DC, USA, October 6, 2011.
32. Miller, Jeffrey. *IEEE Alaska Section Award Banquet Master of Ceremony*, Anchorage, Alaska, September 17, 2011.

31. Miller, Jeffrey. "Academic Profession and Intelligent Transportation Systems Research." *Guest Lecture – Engineering Seminar (ENGR 192/292)*, University of Alaska Anchorage, September 13, 2011.
30. Miller, Jeffrey. "IEEE 74th Vehicular Technology Welcome Message." *IEEE 74th Vehicular Technology Conference*, San Francisco, California, September 6, 2011.
29. Miller, Jeffrey. "Using Vehicle Probes for Accurate Travel Time Estimation." *Institute of Transportation Engineers (ITE) Western District Annual Meeting*, Anchorage, Alaska, July 13, 2011.
28. Miller, Jeffrey. "IEEE 74th Vehicular Technology Conference." *Presentation at IEEE 73rd Vehicular Technology Conference*, Budapest, Hungary, May 16, 2011.
27. Miller, Jeffrey. *Engineering Graduation Luncheon*, Anchorage, Alaska, April 21, 2011.
26. Miller, Jeffrey. *Acceptance of Anchorage Convention and Visitors' Bureau Seymour Award (Meeting Champion of the Year, 2011)*, Anchorage, Alaska, April 15, 2011.
25. Miller, Jeffrey. "UAA Engineering Programs." *BP Explorers' Visit to UAA School of Engineering*, Anchorage, Alaska, April 12, 2011.
24. Miller, Jeffrey, Teresa Brewer. "Real-Time Freight Tracking using GPS and Cellular Transceivers for Transportation and Community Planning." *American Planning Association 2011 National Planning Conference*, Boston, Massachusetts, April 9, 2011.
23. Miller, Jeffrey. "IEEE Alaska Report." *IEEE Spring 2011 Northwest Area Meeting*, Richland, Washington, April 2, 2011.
22. Miller, Jeffrey. "Distributed Real-Time Vehicular Data Gathering through a Vehicle-to-Infrastructure Network in Anchorage." *University of Alaska Anchorage, Complex Systems Lecture*, Anchorage, Alaska, March 25, 2011.
21. Miller, Jeffrey. "IEEE Intelligent Transportation Systems Society VP Administrative Activities Report." *IEEE Intelligent Transportation Systems Executive Committee Meeting*, Orlando, Florida, February 5, 2011.
20. Miller, Jeffrey. "Fundamentals of Engineering Exam Review – Computers." *University of Alaska, Anchorage School of Engineering FE Refresher Series, Fall 2010*, University of Alaska, Anchorage, October 21, 2010.
19. Miller, Jeffrey. "Real-Time Data Collection through ITS Architectures in Anchorage." *Alaska Community Transportation Conference, ITS Alaska Annual Meeting*, Fairbanks, Alaska, October 6, 2010.
18. Miller, Jeffrey. "IEEE 14th Intelligent Transportation Systems Conference." *Presentation at IEEE 12th Intelligent Transportation Systems Conference*, Madeira Island, Portugal, September 22, 2010.
17. Miller, Jeffrey (presented by James Irvine). "IEEE 74th Vehicular Technology Conference." *Presentation at IEEE 72nd Vehicular Technology Conference*, Ottawa, Canada, September 7, 2010.
16. Miller, Jeffrey. "Anchorage Real-Time Traffic Gathering and Distribution." *Intelligent Transportation Society of Alaska Membership Meeting*, Anchorage, Alaska, July 13, 2010.
15. Miller, Jeffrey. "FreeSim Overview and Current Status." *Pangomedia Developer Meeting*, Anchorage, Alaska, May 14, 2010.
14. Miller, Jeffrey. "Determining Real-Time Flow of Traffic in Anchorage using Vehicle Probes." *Anchorage Freight Advisory Committee Meeting*, Municipality of Anchorage, Alaska, April 12, 2010.
13. Miller, Jeffrey. Welcome Speech for *Arctic Ice and Snow Roads 2010 Conference*, Anchorage, Alaska, March 30, 2010.
12. Miller, Jeffrey. "Fundamentals of Engineering Exam Review – Computers." *University of Alaska, Anchorage School of Engineering FE Refresher Series, Spring 2010*, University of Alaska Anchorage, March 25, 2010.
11. Miller, Jeffrey. "IEEE 70th Vehicular Technology Conference Welcome Message." *IEEE 70th Vehicular Technology Conference*, Anchorage, Alaska, September 21, 2009.
10. Miller, Jeffrey. "IEEE 70th Vehicular Technology Conference." *Presentation at IEEE 69th Vehicular Technology Conference*, Barcelona, Spain, April 28, 2009.
9. Miller, Jeffrey. "Dynamic Intelligent Transportation Systems." *Guest Lecture – American Indian Science and Engineering Society (AISES)*, University of Alaska Anchorage, April 3, 2009.

8. Miller, Jeffrey. "Fundamentals of Engineering Exam Review – Computers." *University of Alaska, Anchorage School of Engineering FE Refresher Series, Spring 2009*, University of Alaska Anchorage, March 31, 2009.
7. Miller, Jeffrey. "Fundamentals of Engineering Exam Review – Computers." *University of Alaska, Anchorage School of Engineering FE Refresher Series, Fall 2008*, University of Alaska Anchorage, October 23, 2008.
6. Miller, Jeffrey. "Jeffrey Miller's Current Research." *Bachelor of Science in Engineering Faculty Research Seminar*, University of Alaska Anchorage, October 14, 2008.
5. Miller, Jeffrey. "Career in Computer and Software Engineering." *Guest Lecture – Engineering Seminar (ENGR 192/292)*, University of Alaska Anchorage, September 30, 2008.
4. Miller, Jeffrey. "E-Week – Exciting Era of Engineering." *E-Week Presentation*, Bartlett High School, Anchorage, Alaska, February 13, 2008.
3. Miller, Jeffrey. "Intelligent Transportation Systems." *Guest Lecture – Transportation Engineering (CE 402)*, University of Alaska Anchorage, October 24, 2007.
2. Miller, Jeffrey. "A Future in Computer Science." *Guest Lecture for IEEE Student Chapter*, California State University, Los Angeles, November 14, 2002.
1. Miller, Jeffrey. "Web Services." *Directed Research Project (CS 590)*, University of Southern California, April 2002.