

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PLR WORLDWIDE SALES LIMITED,
Petitioner

v.

FLIP PHONE GAMES, INC.,
Patent Owner

IPR No. IPR2024-00133

Patent No. 8,688,089

**DECLARATION OF DR. ROBERT AKL, D.SC.
IN SUPPORT OF PATENT OWNER'S RESPONSE**

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I, Robert Akl, declare and state as follows:

I. Introduction

1. I am over the age of 18 and am competent to make this Declaration. I have personal knowledge, or have developed knowledge, of the matters set forth herein based upon my education, training, and/or experience. If called upon to do so, I would testify competently thereto.

2. I have been retained by counsel for Patent Owner Flip Phone Games Inc. (“Patent Owner” or “FPG”) as an expert witness in the above matter. I am submitting this Declaration to address the validity of claims 1-10 in U.S. Patent No. 8,688,089 (“the ’089 Patent”). For the purposes of this Declaration, I have not been asked to opine on any other issues not addressed below.

3. My opinions are based on my years of education, research and experience, as well as my investigation and study of relevant materials, including those identified in this Declaration. I may rely upon these materials, my knowledge and experience, and/or additional materials in forming any necessary opinions. Further, I may also consider additional documents and information to rebut arguments raised by the Petitioner PLR Worldwide Sales Limited (“Petitioner” or “Playrix”). I reserve any right that I may have to supplement this Declaration if further information becomes available or if I am asked to consider additional information. Furthermore, I reserve any right that I may have to consider and

comment on any additional expert statements or testimony of Playrix's expert(s) in this matter.

4. My analysis of the materials produced in this investigation is ongoing and I will continue to review any new material as it is provided. This Declaration represents only those opinions I have formed to date. I reserve the right to revise, supplement, and/or amend my opinions stated herein based on new information and on my continuing analysis of the materials already provided.

II. Background and Qualifications

5. I have studied, taught, played, and researched video games, including mobile games, through my studies and academic career in technologies used in games, both from the client-server and networking end, and related to game design and game play. I also have knowledge and experience in the fields of mobile communication systems, client-server systems, and mobile gaming systems and have worked in those fields for around 30 years. I have summarized in this section my educational background, work experience, and other relevant qualifications. A true and accurate copy of my *curriculum vitae* is attached as Ex. 2006.

6. I earned my Bachelor of Science degrees in Electrical Engineering and Computer Science *summa cum laude* with a grade point average of 4.0/4.0 and a ranking of first in my undergraduate class from Washington University in St. Louis in 1994. In 1996, I earned my Master of Science degree in Electrical Engineering

from Washington University in St. Louis with a grade point average of 4.0/4.0. I earned my Doctor of Science in Electrical Engineering from Washington University in St. Louis in 2000, again with a grade point average of 4.0/4.0, with my dissertation being on “Cell Design to Maximize Capacity in Cellular Code Division Multiple Access (CDMA) Networks.”

7. After obtaining my Doctor of Science degree, I worked as a Senior Systems Engineer at Comspace Corporation from October of 2000 to December of 2001. At Comspace, I designed and developed advanced data coding and modulation methods for improving the reliability and increasing the available data rates for cellular communications. I coded and simulated different encoding schemes (including Turbo coding, Viterbi decoding, trellis coded modulation, and Reed-Muller codes) and modulation techniques using amplitude and phase characteristics and multi-level star constellations.

8. In January of 2002, I joined the faculty of the University of New Orleans in Louisiana as an Assistant Professor in the Department of Electrical Engineering. While in this position, I designed and taught two new courses called “Computer Systems Design I and II.” I also developed a Computer Engineering Curriculum with a strong hardware-design emphasis, formed a wireless research group, and advised graduate and undergraduate students.

9. In September of 2002, I received an appointment as an Assistant Professor in the Department of Computer Science and Engineering at the University of North Texas (UNT), in Denton, Texas. In May of 2008, I became a tenured Associate Professor in the Department of Computer Science and Engineering. Between January 2015 and August 2022, I was appointed to Associate Chair of Graduate Studies in the Department of Computer Science and Engineering. In May of 2023, I was promoted to the rank of Professor.

10. I am also the director of the Wireless Sensor Lab (“WiSL”) at UNT. I am a member of the Center for Information and Cyber Security (CICS). It is the only program in the U.S. to be federally certified by the National Security Agency as a Center of Academic Excellence in Information Assurance Education and Research *and* Cyber Defense Research. Several of my research projects are funded by industry and the National Science Foundation and published in *IEEE* conference proceedings and journals.

11. In addition to advising and mentoring students at UNT, I was asked to join the faculty of the University of Arkansas in Little Rock as an Adjunct Assistant Professor from 2004 to 2008 in order to supervise the research of two Ph.D. graduate students who were doing research in wireless communications. At UNT, I have advised and supervised more than 250 undergraduate and graduate students, several of whom received a master’s or doctorate degree under my guidance.

12. Starting in 2005, I began to research and programming robotics and games at UNT. Between 2005 and 2017, I received over a million dollars in funding from the State of Texas, Texas Higher Education Coordination Board, the National Science Foundation, and industry to design and conduct robotics and video game (e.g., Xbox, PC, mobile games) programming summer camps for middle and high school students at UNT. By using gaming as the backdrop, I have taught participants coding and programming principles and an understanding of the role of physics and mathematics in video game design. For this work, I received the *IEEE* Professionalism Award and the Tech Titan of the Future award. As another example, I have taught video game design and programming to former students who later designed and worked on the Call of Duty video game franchise, which is a very successful video game franchise across multiple platforms including PC, Xbox, and mobile devices. As another example, I have published articles related to video game design and programming and the challenges of attracting underrepresented minorities to that field. As another example, I have developed courses in video game programming and design which I have taught at UNT and in my summer camp program. I have also been a “gamer” for most of my life.

13. In addition to my academic work, I have remained active in the communications industry through my consulting work. In 2002, I consulted for Input/Output Inc. and designed and implemented algorithms for optimizing the

frequency selection process used by sonar for scanning the bottom of the ocean. In 2004, I worked with Allegiant Integrated Solutions in Ft. Worth, Texas to design and develop an integrated set of tools for fast deployment of wireless networks, using the 802.11 standard. Among other features, these tools optimize the placement of Access Points and determine their respective channel allocations to minimize interference and maximize capacity. I also assisted the Collin County Sheriff's Office (Texas) in a double homicide investigation, analyzing cellular record data to determine user location.

14. I have authored and co-authored over 100 journal publications, conference proceedings, technical papers, book chapters, and technical presentations in a broad array of communications-related technologies, including networking, wireless communication, and video games. I have also developed and taught over 100 courses related to communications and computer systems, including several courses on signals and systems, LTE, OFDM, VoIP, Wi-Fi (802.11), 802.15.4, Zigbee, wireless communication, communications systems, communication interfaces and standards, sensor networks, source coding and compression, network security, computer systems design, game and app design, and computer architecture. These courses have included introductory courses on communication networks and signals and systems, as well as more advanced courses on wireless communications.

A complete list of my publications and the courses I have developed and/or taught is also contained in my *curriculum vitae*.

15. My professional affiliations include services in various professional organizations and serving as a reviewer for a number of technical publications, journals, and conferences. I have also received a number of awards and recognitions, including the *IEEE* Professionalism Award (2008), UNT College of Engineering Outstanding Teacher Award (2008), and Tech Titan of the Future (2010) among others, which are listed in my *curriculum vitae*.

16. I have also served as an expert in certain legal proceedings. A list of cases in which I have testified at trial, hearing, or by deposition (including those during the past five years) is provided in my *curriculum vitae*. Over the years, I have been retained by both plaintiffs as well as defendants.

17. I am being compensated for my work in this case at my standard rate of \$895 per hour (plus reimbursement for expenses) in connection with my preparation of this Declaration, as well as for each hour spent providing deposition or testimony. This compensation is not contingent upon my performance, the outcome of this case, or any issues involved in or related to this case. I have no financial interest in this matter.

III. Documents and Materials Considered

18. In preparing my opinions, I have reviewed the '089 Patent and its prosecution history and have also reviewed the other documents and materials cited herein, including the Petition and the Board's Institution Decision (Paper 14) and the materials listed below. When citing from these references, all emphasis is added unless otherwise noted.

Ex.	Description
1001	U.S. Patent No. 8,688,089
1002	Prosecution History for U.S. Patent No. 8,688,089
1003	Declaration of Dr. Jose Zagal
1004	International Patent Publication WO 2008/008038 ("Ho")
1005	International Patent Publication WO 2000/070489 ("Jiau")
1006	International Patent Publication WO 2006/071246 ("Sturman")
1007	U.S. Patent No. 8,825,521 ("Ellis")
1008	U.S. Patent Publication No. 2007/0174490 ("Choi")
1015	Mark Andrejevic, "Productive Play 2.0: The Logic of In-Game Advertising" in Media International Australia, Vol. 130, No. 1, pp. 66-76 (Feb. 2009)
1016	Ilya Vedrashko, Advertising in Computer Games (Doc. No. 123290221) [Master's Thesis, Mass. Inst. of Technology], DSpace@MIT
1017	Exit Games, In-Game Advertising Goes Mobile [Press Release] (Mar. 21, 2006)
1018	Jussi-Pekka Partanen, Mobile Gaming: A Framework for Evaluating the Industry 2000-2005 (2001)

19. My opinions are also based upon my education, training, research, knowledge, and personal and professional experience. I reserve the right to supplement or amend this Declaration in the event that I hereafter become aware of additional relevant information.

IV. Understanding of Legal Standards

20. I am not an attorney and have not been asked to offer an opinion on the law. I understand, however, that certain aspects of the law are relevant to my evaluation and opinions set forth herein. I have therefore been informed of and asked to apply the legal principles summarized below.

A. Priority Date

21. I understand that the “priority date” of a patent is the date on which it is filed. I further understand that a patent may be entitled to the filing date of an earlier-filed application or foreign patent filing.

22. In this case I understand the '089 Patent was filed on June 26, 2007.

B. Burden of Proof

23. I understand that Playrix as the Petitioner bears the burden of proof in this proceeding and that that burden is to establish by a preponderance of the evidence that the claims are invalid.

C. Claim Construction

24. I understand that the words of a claim are generally given their ordinary and customary meaning, which I understand is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, *i.e.*, as of the effective filing date of the patent application. I understand the person of ordinary skill in the art is deemed to read the claim term not only in the context of

the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification and prosecution history. Additionally, I understand other extrinsic evidence external to the patent and prosecution history, such as dictionaries and treatises, may also be useful in determining the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention. I understand that such extrinsic evidence, however, is generally afforded less weight than intrinsic evidence in determining the meaning of claim terms, and overall is unlikely to result in a reliable interpretation of a patent claim scope unless considered in the context of the intrinsic evidence.

D. Obviousness Under 35 U.S.C. § 103

25. I understand that a claim is invalid if the invention recited in the claim would have been obvious to one of ordinary skill in the art at the time the invention was made. I understand this means that even if all the requirements of the claim cannot be found in a single prior art reference that would anticipate the claim, a person of ordinary skill in the field of the invention knowledgeable of the prior art would have come up with the claimed invention. In considering whether a claim is obvious, I have been asked to consider (a) the level of skill in the art at the time of the claimed invention, (b) the scope and content of the prior art, (c) any differences between the prior art and the claims of the patent-in-suit, and (d) any “secondary factors” tending to show non-obviousness of the claimed invention, including

commercial success, long-felt but unresolved need, failure of others, copying, praise by others, unexpected results, and simultaneous invention by others.

26. I understand that a claim composed of several elements is not proved obvious merely by demonstrating that each of its elements was independently known in the prior art. I also understand that obviousness should not be analyzed using the benefit of hindsight. Instead, it must be analyzed from the standpoint of what was known and understood by a POSITA at the time of the claimed invention. I further understand demonstrating that a modification to a reference or the combination of multiple references is obvious requires providing a reason for why a POSITA would modify a reference or combine multiple references and that reason must be supported with some rationale underpinning. Merely pointing out that two references are similar or in the same field of endeavor is not sufficient.

E. Secondary Considerations of Non-Obviousness

27. I understand that in determining whether the claims are obvious I must also consider certain factors that may help determine that a particular concept was not obvious. These include practical factors relating to the concept, including (1) commercial success, (2) a long-felt need for a solution to the problem facing the inventors, (3) whether others tried and failed to solve the problem, (4) whether others copied the claimed invention, (5) whether the invention achieved unexpected results,

- (6) whether the prior art teaches away from combining certain known elements, and
- (7) whether others in the field praised the invention.

V. Level of Ordinary Skill

28. I understand there is a concept in patent law known as a person having ordinary skill in the art (POSITA). I understand that this concept refers to a person who is trained in the relevant technical field of a patent without possessing extraordinary or otherwise exceptional skill. I further understand that factors such as the education level of those working in the field, the sophistication of the technology, the types of problems encountered in the art, prior art solutions to those problems, and the speed at which innovations are made may help establish the level of skill in the art.

29. Taking these factors into consideration, in my opinion, with regard to the '089 Patent, a person of ordinary skill in the art would have a bachelor's degree in electrical engineering, computer engineering, computer science, or a similar field, along with one to two years of experience developing or programming video games or video game systems, or similar types of computer systems. Additional education might substitute for some of the experience, and additional substantial experience might substitute for some of the educational background.

30. I understand that Petitioner asserts that a person of ordinary skill in the art would have "an undergraduate degree in game design or development, computer

science, computer engineering, or a related field, with at least two years of experience working with computer gaming systems or software application development.” Petition at 12.

31. Based at least on my educational and work experience, I was at least a person of ordinary skill in the art as of the filing date of the '089 Patent (June 26, 2007) under either party's proposal. And while I note that my qualifications and experience exceed this definition of a person of ordinary skill of the art, in arriving at the conclusions in this Declaration, I have considered the issues from the perspective of a person of ordinary skill of the art at the relevant time.

32. Unless otherwise stated, I have applied this level of ordinary skill in the art for the purposes of this Declaration.

VI. Overview of the '089 Patent

33. The '089 Patent is entitled “Methods and systems for providing in-game hot spots” and issued on April 1, 2014.

34. The '089 Patent describes systems and methods for providing video-game content of a video game played on a mobile device and addresses shortcomings in the prior art. *See* '089 Patent at Abstract. More specifically, the '089 Patent describes “systems and methods for providing hot spots of triggered content within the gaming environment of a mobile video game on a mobile communication

device,” which “may prolong user interest in a game for a mobile communication device” ’089 Patent at 1:60-2:2.

35. The ’089 Patent explains that, at the time the ’089 Patent was filed, “[m]any mobile communication devices (including cellular phones, PDAs, and other handheld devices capable of communicating with a server) [we]re capable of operating video games,” and, further, that “most [then-]current mobile communication devices c[a]me equipped with one or more games at the time of purchase, and most [then-]modern mobile communication devices also allow[ed] users to download and/or purchase new games.” ’089 Patent at 1:13-19. “As a result, gaming on mobile communication devices has become a popular mode of entertainment in a mobile environment.” ’089 Patent at 1:25-27.

36. At that time, however, video games on mobile phones had a limited life cycle. Game developers addressed loss of user interest by releasing new mobile games rather than updating existing mobile games. The ’089 Patent itself even recognizes that: “[A]ll video games tend to have a popularity life span. As game elements become increasingly familiar to players, the game may hold less surprises and/or no longer present a challenge to the user, at which point the user may stop playing that particular game in favor of others.” ’089 Patent at 1:28-32.

37. The ’089 Patent provides a novel solution to this problem—“systems and methods for providing hots spots of triggered content within the gaming

environment of a mobile video game on a mobile communication device.” ’089 Patent at 1:60-63. The ’089 Patent describes that a “hot spot” is “a location or item, sometimes hidden within the game, that triggers additional specialized content when activated by a user or some other in-game element.” ’089 Patent at 1:63-66.

38. The ’089 Patent describes: “The ability to provide hot spots and update in-game hot spot information may allow game companies to keep game elements fresh and prolong user enjoyment of the game. For example, new interactive items and/or hidden features may be placed within a particular scene in the game so that the user has something new to look at or trigger (sometimes unexpectedly).” ’089 Patent at 4:17-27. The ’089 Patent explains in-game hot spots “may prolong user interest in a game for a mobile communication device” (’089 Patent at 1:66-2:1) and/or allow a game to “sustain its popularity and be more profitable for the game creator than existing mobile communication device games.” ’089 Patent at 4:28-31.

39. The technology described and claimed by the ’089 Patent allowed carriers to provide new interactive and/or hidden video-game content (“hot spots”) by tailored gaming updates in lieu of replacing games on mobile communication devices as a whole and hence, decreasing the bandwidth required by the phone. *See* ’089 Patent at 1:32-37 (noting “mobile communication devices are generally less powerful than personal computers and stand-alone video game consoles”).

VII. Background of the Technology

40. As of the filing date of the '089 Patent (June 26, 2007), the claimed invention described above was novel and non-obvious, in my opinion.

41. At that time, mobile phones and mobile gaming faced numerous limitations. Mobile phones of that era had limited storage capacity, limited processing capability, and much slower network connectivity. *See* '089 Patent at 1:32-37 (noting “mobile communication devices are generally less powerful than personal computers and stand-alone video game consoles”). For example, the first-generation iPhone would not be released until June 29, 2007—after the filing date of the '089 Patent. And that first-generation iPhone did not have a wireless broadband connection, and came with just 4, 8, or 16GB of data storage, much of which was used by the iOS operating system. Download speeds were also limited as a 3G version of the iPhone would not be released until 2008. Due in part to these limitations, the first generation of the Apple Appstore would not be released for another year.

42. Thus, at the time of the filing date, mobile games existed in a very different form than we think of today. As of the June 26, 2007, filing date, mobile games were generally designed for only specific devices (*e.g.*, specific models of phones) and were made available on specific game decks or offerings available through mobile device carriers. *See* Petition at 6-7 (discussing Nokia’s game for the

Nokia “N-Gage” mobile phone). At the time, no systems existed to update mobile games via the data connection on the phone. Thus, once a game was released and installed on a mobile device, the developers did not develop new features or new game levels for that existing game. Rather, a developer may develop a new version of the game, which would be installed on later sold versions of the mobile device.

43. Because each wireless provider managed their own games and mobile games were not standardized, only a limited number of mobile games were available. And the available games had a much shorter lifecycle as old games were removed (or “sunset”) to make space for new games given storage and capacity limitations. *See* ’089 Patent at 1:32-37 (noting “mobile communication devices are generally less powerful than personal computers and stand-alone video game consoles”).

44. Video games in non-mobile contexts, *e.g.*, on consoles, did not face these same limitations. At the time of invention of the ’089 Patent, console games such as the Microsoft Xbox or the Sony PlayStation included large storage, fast processing, and wired broadband data connections. *See* ’089 Patent at 1:32-37 (noting “mobile communication devices are generally less powerful than personal computers and stand-alone video game consoles”). These games could be updated relatively easily, and game engines were available that provided architecture for loading new executable software that was absent from the mobile device industry.

45. In contrast, due to the much more limited processing, storage, and data bandwidth capabilities of mobile devices (*see* '089 Patent at 1:32-37), the only option readily available for mobile games, at that time, was to download an entire new game. *See* '089 Patent at 1:28-32. But downloading even a second copy of an entire game was not practical. Downloads for the games were large, data storage space on the mobile devices was extremely limited, and available bandwidth was too low to efficiently download a full game across the then available mobile network. *See* '089 Patent at 1:32-37 (noting “mobile communication devices are generally less powerful than personal computers and stand-alone video game consoles”).

46. These limitations in mobile technology at the time, combined with the short lifecycle of games, encouraged game developers to create new game titles (*see* '089 Patent at 1:28-32) rather than creating updates to a game itself, like the claimed invention of the '089 Patent. Instead, games were purchased only once and at a higher price point than they are offered at today, ranging from \$4.99 to \$9.99.

47. The claimed invention of '089 Patent solves the problems above by providing and controlling access to certain content in a mobile video game via a “hot spot”—and “update[s]” to in-game hot spot information”—“to keep game elements fresh and prolong user enjoyment of the game” and thereby prolong user interest in a game for a mobile communication device” and allow a game to “sustain its popularity and be more profitable for the game creator than existing mobile

communication device games.” ’089 Patent at 1:60-2:2, 4:17-31. Moreover, the claimed invention allows this to be done without re-downloading the entire contents of the game. This technology was not offered by service providers or device manufacturers at the time of invention.

VIII. Petitioner’s Technology Background

48. I have reviewed Petitioner’s “Technology Background” and disagree with many of the statements therein as provided below.

49. The Petition states that “[a]lthough mobile game development posed some unique challenges, hardware manufacturers and software developers quickly adapted to meet these changes.” Petition at 7. I disagree. As explained above, and as the Petition acknowledges, developers were siloed, and mobile game development was not mainstream. The developers and service providers each operated and developed games in accordance with their own technology and platforms. Petition at 6-7 (discussing platforms specific to graphics and handset providers). The platforms were not unified nor universal, which hindered mobile game development. This led to short life cycles of games, as evidence cited by Petitioner recognizes. *See, e.g.*, Ex. 1018 at 52 (“A life cycle of a certain game will [be] quite short, and will be replaced by more trendy games very promptly.”).

50. The Petition also states that “[g]ame developers embraced the idea of updateable games even before mobile games became popular.” Petition at 7. I

disagree. In my opinion, the prior art taught away from the claimed invention of the '089 Patent. As noted above, partial game updates were available on other video game platforms (console games or desktop computer games). But such updates were not available for mobile video games played on mobile devices at the time. As explained above, at this time mobile broadband was not available and mobile devices had limited processing and data storage capacity. *See* '089 Patent at 1:32-37 (noting “mobile communication devices are generally less powerful than personal computers and stand-alone video game consoles”). Thus, developers did not provide updates to these games once installed, except for full game updates requiring another download of the entire application. The evidence that Petitioner relies on does not indicate otherwise.

51. Petitioner cites to a book titled “MOBILE GAMING: A Framework for Evaluating the Industry 2000-2005” (Ex. 1018) for the contention that Nokia “allowed members to download new levels for games.” Petition at 7. But Ex. 1018 does not support that proposition. Ex. 1018 shows that users still had to download the entire game application to get new games or versions of the game. Ex. 1018 at 52 (“Exclusive membership allows Nokia 3330 owners to download a totally new game 'Bumper' or new game packs for Space Impact and Snake II.”).

52. Petitioner also asserts that “[b]y 2006, several advertising companies had launched in-game advertising networks that allowed game developers to

incorporate dynamic ads from third parties into their games, including mobile games.” Petition at 7-8. As discussed above, this is incorrect. Ad servers were available for console and PC-based games, but were not readily available for mobile devices. This is confirmed by the very papers cited by Petitioner. Indeed, Ex. 1016, for example, states that “advertisers should experiment with in-game advertising to gain skills that could become vital in the *near future*.” Ex. 1016 at 2. This confirms that in-game advertising (or other updates to video game content) were not readily available for mobile phone games at the time of invention of the ’089 Patent.

53. Likewise, Ex. 1017 is also forward looking and provides that “[i]n the *near future*, mobile in-game advertising *will become* increasingly attractive for providers of mobile phones.” Ex. 1017 at 1. Again, this does not support Petitioner’s contention that in-game advertising was available at the time of invention.

54. The evidence, instead, shows that there was a need for providing updated video-game content to video games on mobile devices, but it was not yet available. *See* Ex. 1015 at 1 (providing that “suggestive events for the future of online gaming took place in the [Australian] spring of 2007”); Ex. 1016 at 2 (suggesting that “advertisers should experiment with in-game advertising to gain skills that could become vital in the near future”); Ex. 1017 at 1 (“In the near future, mobile in-game advertising will become increasingly attractive for providers of mobile phones.”); Ex. 1018 at 50 (“The biggest change between the current game

technologies and the future ones is that in the future it will be possible to offer also games with real-time interactivity.”); *id.* at 52 (“A life cycle of a certain game will [be] quite short, and will be replaced by more trendy games very promptly.”).

IX. Non-Obviousness of the ’089 Patent

A. Ho, In View of Jiau, Choi, and/or Ellis, Does Not Render Claims 1-10 Obvious.

1) Claim 1

55. Claim 1 of the ’089 Patent recites that the claimed “hot spot” information uploaded to the mobile communication device comprise “a location in-game associated with activating the hot spot, wherein the location in-game is represented by a non-promotional background object.”

56. In my opinion, Ho, in view of Jiau, Choi, and/or Ellis, fails to disclose or render obvious “a location in-game associated with activating the hot spot, wherein the location in-game is represented by a non-promotional background object.” My opinion is based on and takes into account the Board’s construction of “non-promotional background object” to mean “an object that is not in the foreground and does not display a promotional message unless a hot spot is activated.” Paper 14 at 18.

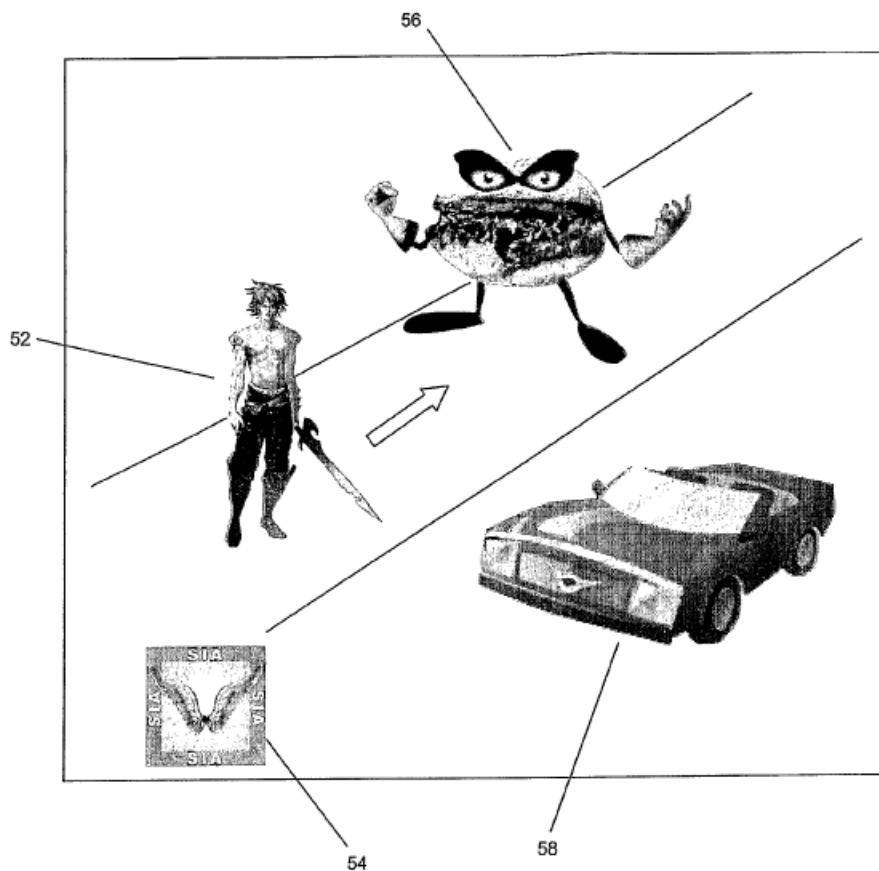
57. I understand that Petitioner contends that Ho discloses “interactive information elements,” which, according to Petitioner, comprise a hot spot and “may

be non-promotional background objects at their in-game locations.” Petition at 24, 29, 31. I disagree.

58. Ho discloses “a method [] of playing a video game with at least one interactive information element incorporated within the game.” Ex. 1004 at 4:4-6. The “interactive information element” may be “an icon in the game, a character in the game or an item in the game.” Ex. 1004 at 4:28-29. Ho provides a “wings” button (“an example of an icon in the game”), “a hamburger monster” (“an example of a character in the game”), and a “car” (“an example of an item in the game”) as examples of Ho’s “interactive information elements” in a massive multiplayer online role playing game (MMORPG). Ex. 1004 at 5:1-7. Ho describes that if a player engages an “interactive information element,” an action may be “activated,” such as an “on-screen presentation” within the gameplay. Ex. 1004 at 5:27-38.

59. In my opinion, a POSITA at the filing date of the ’089 Patent (June 26, 2007) would have understood that Ho describes its “interactive information elements” as game elements that a user is prominently presented with and encouraged to engage and interact with in the gameplay. *See* Ex. 1004 at 4:22-29. For example, Ho specifically describes that, “[i]n the course of gameplay,” a player is presented “an option to engage the at least one interactive information element. Ex. 1004 at 4:22-23, 5:1-5.

60. Relatedly, Ho's Figures consistently show Ho's "interactive information elements" in the foreground of Ho's gameplay. For example, Figure 3 of Ho illustrates "examples of the interactive information elements being incorporated in a MMORPG" and shows each of the "wings" button 54, hamburger monster 56, and car 58 in the *foreground* of the MMORPG game environment. Ex. 1004 at 5:1-5, Fig. 3 (reproduced below).



61. As another example, Figure 6 of Ho illustrates an "interactive information element" in a MMORPG game environment in the form of "supplementary box 206," which a POSITA would have understood is shown in the foreground of the gameplay, evidenced by the fact that the supplementary box is

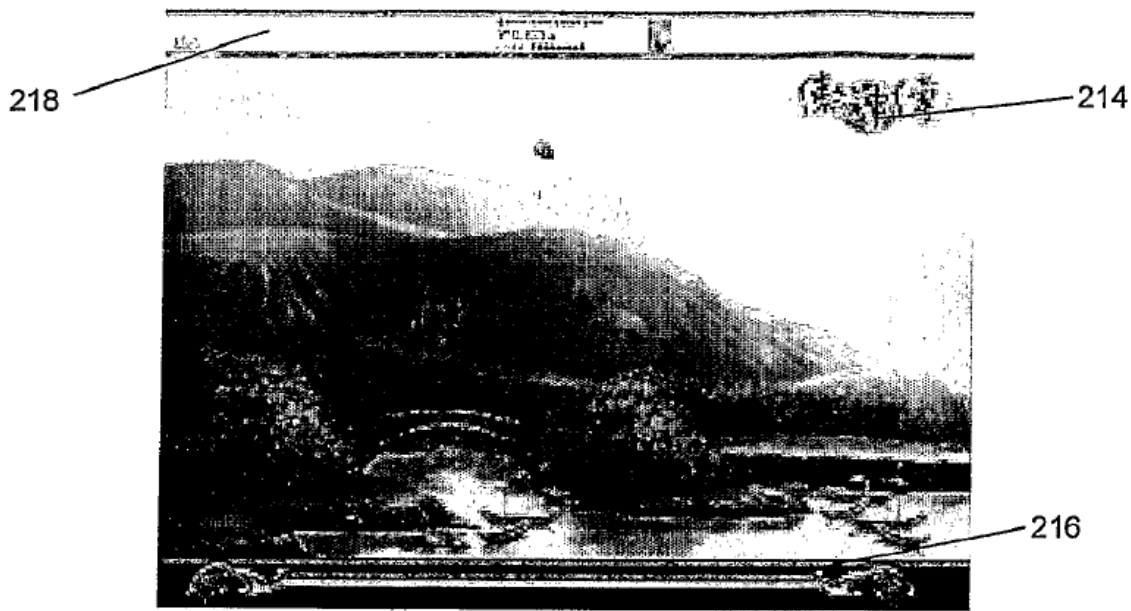
overlaid on top of the MMORPG game environment. Ex. 1004 at 4:29-33, Fig. 6 (reproduced below).



62. Similarly, Figure 7 of Ho illustrates an “interactive information element” in another “juncture” of the MMORPG game environment (“a log-in page to log into the MMORPG”) in the form of “icons 212,” which a POSITA would have understood is shown in the foreground of the gameplay, evidenced by the fact that the icons 212 are overlaid on top of the MMORPG game environment. Ex. 1004 at 4:33-36, Fig. 7 (reproduced below).



63. Likewise, Figure 8 of Ho illustrates an “interactive information element” in another “junction” of the MMORPG game environment (“where the game is loading data to proceed”) in the form of “element 218,” which a POSITA would have understood is shown in the foreground of the gameplay, evidenced by the fact that the element 218 (like “title 214” and “progress bar 216”) is overlaid on top of the “scene which is congruent to the game.” Ex. 1004 at 4:36-39, Fig. 8 (reproduced below).



64. In view of these disclosures in Ho, in my opinion, a POSITA at the filing date of the '089 Patent (June 26, 2007) would have understood that Ho's "interactive information elements" are game elements presented in the foreground of Ho's game. Because these elements are presented in the foreground, they necessarily are not "non-promotional background objects." Indeed, as noted, Ho describes its "interactive information elements" are game elements that a user is prominently presented with and encouraged to engage and interact with in the gameplay. *See* Ex. 1004 at 4:22-29. And Ho fails to identify any "interactive information elements" in the background of the game scenes illustrated in the Figures of Ho (shown above).

65. I understand that Petitioner alternatively contends that “the combined teachings of Ho and Jiau” render this limitation obvious in light of Jiau’s “hotspace.” Petition at 29. I disagree.

66. The Petition suggests Jiau’s “hotspace” is an “in-game location” that “may cause a pop-up advertisement to unexpectedly appear when a user passes through a background location within a predetermined distance of an associated object.” Petition at 32. The Petition further states that a “hotspace” “may ... have an object located therein” and, as such, “[i]t would have been obvious to a POSITA ... that a hotspot may define a region that contains one of several types of background objects disclosed by Jiau, such as a ‘solid object’ or an ‘object with a pass-through.’” Petition at 32. Based on this, the Petition suggests that Jiau discloses “a location in-game associated with activating the hot spot, wherein the location in-game is represented by a non-promotional background object.” I disagree.

67. As a fundamental point, Jiau describes that a “hotspace” is, as its name suggests, “a predetermined *space surrounding* an object.” Ex. 1005 at 16:29-17:1. Thus, a POSITA at the filing date of the ’089 Patent (June 26, 2007) would have understood that Jiau’s “hotspace” is not itself an object, let alone a “background object.” Indeed, Jiau itself expressly distinguishes its “hotspaces” from “hotspots,” which Jiau discloses are associated with “objects” in Jiau. Ex. 1005 at 16:29-17:1 (“Objects can have predetermined ‘hotspots’ that cause actions to occur when the

user touches or selects the object. ... In contrast, a ‘hotpace’ is a predetermined space surrounding an object.”).

68. Relatedly, Jiau describes that a user activates a “hotpace” in Jiau’s virtual world by moving within a certain distance of the “hotpace” in Jiau’s virtual world, as opposed to interacting with any object in that space. *See, e.g.*, Ex. 1005 at 17:1-4 (“[W]hen a user walks within ten virtual feet of a hotpace, a pop-up advertisement may appear.”). Thus, a POSITA at the filing date of the ’089 Patent (June 26, 2007) would have understood that a “hotpace” in Jiau is activated by a user moving within a certain distance of the “hotpace” in Jiau’s virtual world, as opposed to via a “location in-game [] represented by a non-promotional background object,” as required by claim 1 of the ’089 Patent.

69. And while Jiau does disclose that “[o]bjects can have predetermined ‘hotspots’ that cause actions to occur when the user touches or selects the object” (Ex. 1005 at 16:29-30), there is no disclosure or suggestion to a POSITA in Jiau that such “hotspots” are associated with “background” objects as the claims require. To the contrary, Jiau’s Figures consistently show Jiau’s “objects” in the foreground of Jiau’s virtual world.

70. For example, a POSITA at the filing date of the ’089 Patent (June 26, 2007) would have understood that the “objects” illustrated in Figure 11(d) of Jiau include signs containing advertisements (*e.g.*, “Buy Brand Y”), which are positioned

in the forefront of Jiau's virtual world environment. Ex. 1005 at 15:3-17, Fig. 11(d) (reproduced below). Jiau specifically identifies "hotspot link 1186 defined on object 1184," which Jiau states is "a sign containing an advertisement" ("Buy Brand Y"). Ex. 1005 at 15:12-17, Fig. 11(d).

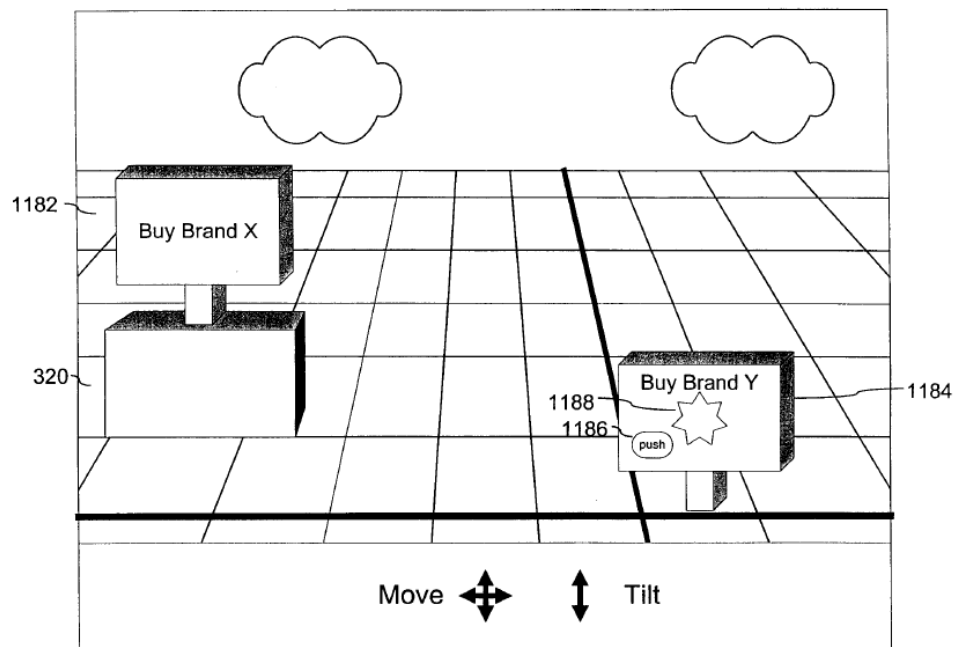


Fig. 11(d)

71. Jiau describes that similar object 320 contains a "hotspace" inasmuch as it "has a pop-up advertisement 1182 that is activated when the user's location becomes within a predetermined virtual distance in the virtual world." Ex. 1005 at 15:3-8, Fig. 11(d). Thus, a POSITA at the filing date of the '089 Patent (June 26, 2007) would have understood that any "hotspace" surrounding that object 320 would not be in the background of the scene of Jiau's virtual world illustrated in Figure 11(d). Rather, as is shown above, it would have been in the foreground.

2) Claim 6

72. Claim 6 of the '089 Patent recites “a location in-game associated with activating the hot spot, wherein the location in-game is represented by a non-promotional background object.” Petitioner contends that Ho, in view of Jiau, renders this limitation obvious for the same reasons with respect to the same limitation in claim 1 of the '089 Patent. Petition at 39. I disagree with Petitioner’s contention for the reasons discussed above with respect to the same limitation in claim 1 of the '089 Patent.

B. Sturman, In View of Ho, Does Not Render Claims 1-10 Obvious.

1) Claim 1

73. Claim 1 of the '089 Patent recites “[a] method for providing a hot spot associated with a mobile video game” comprising, “uploading [] hot spot information to the mobile communication device,” wherein the “hot spot information” includes “a location in-game associated with activating the hot spot ...; and hidden promotional content for presenting to the user, within a gaming environment of the mobile video game, when the hot spot is activated.”

74. In my opinion, Sturman, in view of Ho, fails to disclose or render obvious these “hot spot” and “hot spot information” limitations.

75. Petitioner contends that Sturman's "advertisements" displayed within a game at an "ad unit" teach the claimed "hot spot information" and "hot spot." Petition at 53-54. I disagree.

76. Sturman describes an "advertisement delivery scheme" to deliver advertisements to video games. Ex. 1006, Abstract. In particular, Sturman states: "[T]he advertisement delivery scheme and associated facility present advertisements as texture maps or other graphical displays (*e.g.*, animations, video, etc.) on pre-designated geometry within the game, such as billboards, storefront signs, panel trucks, Jumbotron screens in a sports stadium, posters on walls, T-shirts on a game character, items used by game characters (*e.g.*, a brand name soft drink or energy bar) and so on." Ex. 1006, [0019]. Sturman describes that each of these spaces may be referred to as an "ad unit." Ex. 1006, [0019].

77. Sturman, however, does not disclose or suggest to a POSITA that the advertisement content presented in Sturman's "ad units" is "hidden" until a "hot spot" is activated, as required by claim 1 of the '089 Patent. Rather, a POSITA at the filing date of the '089 Patent (June 26, 2007) would have understood that the advertisement content is presented in Sturman's "ad units" in the first instance, without any required action or activity by a user of video game. Indeed, Sturman is focused on improving means for advertisers to better "broadcast" their advertisements "substantially simultaneously" across audiences, including so as to

“reach millions of game players in a single night” (e.g., “at 8 p.m. on Thursday”). Ex. 1006, [0018], [0023], [0024].

78. I note that the Petition itself acknowledges as much, stating: “Sturman does not expressly teach that promotional content is ‘hidden’ and only displayed when a hot spot is activated.” Petition at 58. And Petitioner’s expert, Dr. Zagal, likewise states: “Sturman does not expressly describe its ads as containing ‘hot spots’ as the ’089 Patent uses that term.” Ex. 1003, ¶163.

79. I understand, however, that Petitioner nonetheless contends that Sturman’s ad units may be “interactive,” and that Petitioner’s expert, Dr. Zagal, suggests that “[a] POSITA would understand that an interactive ad includes an element that is activated through user interaction, and causes something to happen in response to the interaction, like the ’089 Patent’s hot spots.” Petition at 57; Ex. 1003, ¶175. I disagree.

80. In my opinion, a POSITA at the filing date of the ’089 Patent (June 26, 2007) would have understood Sturman describes an ad unit as “interactive” in the sense that a game character may be able to interact with or utilize the ad unit within the game to progress in the game environment. When Sturman notes that an ad unit “may be interactive within the game context,” Sturman provides an immediate example of such an “interactive” ad unit: “a game character eating a brand name energy bar to boost her power in the game.” Ex. 1006, [0020]. Sturman, in contrast,

never suggests that an ad unit may be “interactive” in the sense that the advertisement content associated with the ad unit (*e.g.*, the “brand name” of the “energy bar”) is not displayed until a game character activates (*e.g.*, eats) the ad unit. Rather, Sturman discloses that the “brand name” of the energy bar is already displayed prior to the game character eating the energy bar. Ex. 1006, [0020].

81. For all these reasons, I disagree with Petitioner’s suggestion that Sturman alone discloses or renders obvious the claimed “hot spot information” and “hot spot.” And for similar reasons, I disagree with Petitioner’s alternative suggestion that the “Sturman-Ho combination” renders these limitations obvious based on Ho’s teachings as to Ho’s “interactive information elements.” *See, e.g.*, Petition at 54-59.

82. I understand that Petitioner contends that a POSITA would have been motivated to modify Sturman’s “ad units” in view of Ho’s “interactive information elements” to make use of “interactive advertisements,” which Petitioner contends are “more engaging to players.” Petition at 52. In particular, I understand that Petitioner contends that a POSITA would have been motivated to modify Sturman’s “ad units” in view of Ho’s “interactive information elements” such that the advertisements associated with Sturman’s “ad units” are “not displayed initially” and, instead, “only presented when the player interacts with the designated in-game location.” Petition at 53. I disagree a POSITA would have been so motivated.

83. A POSITA at the filing date of the '089 Patent (June 26, 2007) would have read Sturman and understood that it is directed to a centralized “advertisement server” and “advertisement delivery scheme” that allows advertisers to provide “advertisements for multiple video games without advertisers having to specify specific game titles in which they would like their advertisements placed.” Ex. 1006, Abstract. And Sturman describes that the intent of its multi-game “advertisement delivery scheme” is to facilitate advertisers to “reach” a desired targeted audience “across numerous game titles” “substantially simultaneously.” Ex. 1006, [0018]; *see* Ex. 1006, [0023], [0024]. For example, Sturman describes that its invention allows advertisers to reach “millions of game players in a single night.” Ex. 1006, [0024]. Moreover, and relatedly, Sturman describes that its invention allows advertisers to meet specific “ad campaign needs” such as “reach[ing] 1 million men ages 18-34 at 8 p.m. on Thursdays.” Ex. 1006, [0018]; *see* Ex. 1006, [0023].

84. In view of these disclosures in Sturman, in my opinion, a POSITA at the filing date of the '089 Patent (June 26, 2007) would not have been motivated to modify Sturman’s “ad units” in view of Ho. A POSITA at the filing date of the '089 Patent (June 26, 2007) would have understood that modifying Sturman’s “ad units” such that the advertisements associated therewith are “not displayed initially,” as proposed by Petitioner (Petition at 53), is counter to Sturman’s stated intent and goals.

85. As one example, not “initially” displaying advertisements in Sturman’s ad units would prevent an advertiser from realizing “substantially simultaneous[]” broadcast of its advertisements across multiple game titles. *See* Ex. 1006, [0018], [0023], [0024]. This is at least because, under the modification proposed by the Petition, the advertisement itself may never be displayed to a recipient, *e.g.*, if the recipient does not engage with the object. Indeed, as described by the Petition “the ad ... *only displays* promotional content *when activated*.” Petition at 59. Thus, such content may never be displayed at all.

86. As another example, such a modification would likewise prevent an advertiser from meeting specific “ad campaign needs” such as “reach[ing] 1 million men ages 18-34 at 8 p.m. on Thursdays.” Ex. 1006, [0018]. Indeed, according to Petitioner’s proposed modification, an advertiser’s advertisement is “not displayed initially,” but rather “is only presented when the player interacts with the designated in-game location” (Petition at 53), which potentially may never happen as explained above or, at most, will happen at various, unspecified and unrelated times across multiple game titles. This is necessarily contrary to the stated purpose in Sturman. *See, e.g.*, Ex. 1006, [0018].

87. Additionally, Claim 1 of the ’089 Patent also recites that the claimed “location in-game associated with activating the hot spot ... is represented by a non-promotional background object.”

88. In my opinion, Sturman, in view of Ho, fails to disclose or render obvious “a location in-game associated with activating the hot spot, wherein the location in-game is represented by a non-promotional background object.” My opinion is based on and takes into account the Board’s construction of “non-promotional background object” to mean “an object that is not in the foreground and does not display a promotional message unless a hot spot is activated.” Paper 14 at 18.

89. I understand that Petitioner contends Sturman teaches its “ad units” “may designate in-game locations represented by non-promotional background objects.” Petition at 57. And Petitioner specifically identifies Sturman’s “storefront signs, Jumbotron screens, posters, and t-shirts on characters” as purported “non-promotional background objects.” Petition at 57.

90. I disagree with Petitioner’s suggestion that a POSITA at the filing date of the ’089 Patent (June 26, 2007) would have understood that Sturman’s “ad units” are “non-promotional background objects.”

91. Sturman’s “ad units,” as their name suggests, are not “non-promotional” objects. Sturman describes that “advertisements” are directly displayed in each of Sturman’s “ad units.” Ex. 1006, [0019]. Moreover, Sturman nowhere discloses or teaches that the “advertisements” displayed at Sturman’s “ad units” are “hidden” and only displayed after activating a “hot spot.” Quite the

opposite, a POSITA at the filing date of the '089 Patent (June 26, 2007) would have understood that the “advertisements” displayed at Sturman’s “ad units” are not hidden, but rather displayed promptly at Sturman’s ad units, consistent with the stated intent and goals of Sturman’s invention, as discussed above.

92. Additionally, Sturman never describes its “ad units” as “background” objects. And Sturman does not include any Figures illustrating its “ad units” in any game environment, let alone in the “background” of the game (as opposed to the foreground). And, perhaps relatedly, the Petition is silent as to any reasoning as to why any “ad unit” of Sturman is a “background” object. Petition at 57. Rather, the Petition simply concludes that “storefront signs, Jumbotron screens, posters, and t-shirts on characters” are “background” elements in Sturman’s game. Petition at 57. And Dr. Zagal simply repeats the same conclusion. Ex. 1003, ¶176. I note, however, that a POSITA at the filing date of the '089 Patent (June 26, 2007) would have understood that similar “signs” containing advertisements in other games, such as Jiau’s virtual world discussed above, are positioned in the foreground of the game environment. *See* Ex. 1005 at 15:3-17, Fig. 11(d).

93. I also disagree with Petitioner’s suggestion that the “Sturman-Ho combination” renders this limitation obvious “based on Ho’s teaching of interactive information elements.” Petition at 57.

94. Fundamentally, I disagree with Petitioner’s suggestion that “Ho [] teaches that interactive elements may be non-promotional background objects” (Petition at 57), for the reasons discussed above with respect to the Ho reference. Additionally, in my opinion, a POSITA at the filing date of the ’089 Patent (June 26, 2007) would not have been motivated to modify Sturman’s “ad units” in view of Ho, for the additional reasons I discussed above. And relatedly, in my opinion, a POSITA at the filing date of the ’089 Patent (June 26, 2007) would not have been motivated to modify any purported “background” “ad unit” of Sturman in view of Ho.

95. As I discussed above, Ho’s teachings with respect to activating “interactive information elements” to display advertisements are with respect to game elements that are prominently presented in the foreground of the game for user engagement—not in the “background,” as required by the claim language. Ex. 1004 at 4:22-39, 5:1-5, Figs. 3, 6, 7, 8. Ho does not teach any element in the background of Ho’s game as being an “interactive information element.”

96. Further, in my opinion, a POSITA at the filing date of the ’089 Patent (June 26, 2007) would not have been motivated to modify Sturman to apply a hidden advertisement (as suggested by the Petition in view of Ho) to a “background object” at least because doing so is entirely contrary to Sturman’s stated purpose of, *e.g.*, “substantially simultaneous[]” broadcast of its advertisements across multiple game titles, and displaying advertisements at a specific time to a specific group of users.

See Ex. 1006, [0018], [0023], [0024]. As I explained above, neither of these goals would be accomplished through, as the Petition proposes, concealing an advertisement in a purported “background” ad unit of Sturman unless and until some later time when the player interacts, if at all, with that background ad unit. See, e.g., Petition at 59 (“the ad ... *only displays* promotional content *when activated*.”). Indeed, placement of an ad unit of Sturman in the “background” of a game (as opposed to the foreground of the game, as taught by Ho) would increase the likelihood that the player never interacts with the ad unit, and thereby never displays the advertisement, which, as I explained above, defeats the purpose of Sturman’s invention.

97. As such, in my opinion, a POSITA at the filing date of the ’089 Patent (June 26, 2007) would not have been motivated to apply Ho’s teachings to any purported “background” “ad unit” disclosed by Sturman so as to make it an “interactive information element” in accordance with Ho.

2) Claim 6

98. Claim 6 of the ’089 Patent recites “[a] system for providing a hot spot associated with a mobile video game” comprising, “send[ing] [] hot spot information to the mobile communication device,” wherein the “hot spot information” includes “a location in-game associated with activating the hot spot ...; and hidden promotional content for presenting to the user, within a gaming environment of the

mobile video game, when the hot spot is activated.” I understand that Petitioner contends that Sturman, in view of Ho, renders these limitations obvious for the same reasons with respect to the same limitations in claim 1 of the ’089 Patent. Petition at 61-63. I disagree with Petitioner’s contention for the reasons discussed above with respect to the same limitation in claim 1 of the ’089 Patent.

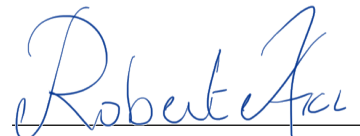
99. Claim 6 of the ’089 Patent also recites “a location in-game associated with activating the hot spot, wherein the location in-game is represented by a non-promotional background object.” I understand that Petitioner contends that Sturman, in view of Ho, renders this limitation obvious for the same reasons with respect to the same limitation in claim 1 of the ’089 Patent. Petition at 63. I disagree with Petitioner’s contention for the reasons discussed above with respect to the same limitation in claim 1 of the ’089 Patent.

X. Conclusion

For the reasons I explain above, none of the Challenged Claims of the ’089 Patent are rendered obvious.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Executed on February 24, 2025 in Dallas, Texas.


Dr. Robert Akl, D.Sc.