

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSARA, INC.

Petitioner

v.

MOTIVE TECHNOLOGIES, INC.,

Patent Owner.

Case IPR2026-00108

U.S. Patent No. 12,062,243

DECLARATION OF DAVID ZNIDARSIC

I, David Znidarsic, do hereby declare and state as follows:

I. BACKGROUND AND QUALIFICATIONS

1. I am currently President and Chief Executive Officer for Stairstep Consulting LLC, focusing on software and litigation consulting. I have been in this position since 2017 when I founded the company.

2. I have acted in various roles as a technical expert and consulting in various areas relating to software. I also have over 40 years of professional experience in the field of software development, including having held senior management roles.

3. I received a Bachelor of Science in Mathematics from Ohio State University in 1983, and a Master of Science in Computer Science from Stony Brook University in 1985.

4. From 1985 to 1990, I held two roles at Quintus Computer Systems, an artificial intelligence programming language company, including Software Developer and Manager of Software Development.

5. From 1990 to 1992, I was a Manager of Software Development for Ingres Corporation, a database management company.

6. From 1992 to 2000, I held various roles for Informix Corporation, a database management company, including Program Manager, Software Development Manager, and Director of Software Development.

7. From 2000 to 2001, I was the Director of Software Development for Virage Incorporated, a digital video management company.

8. From 2001 to 2017, I was Vice President of Engineering and the Information Security / Technology Officer for Flexera Software LLC/Macrovision Corporation, which was an intellectual property protection company.

9. A copy of my *curriculum vitae* is attached hereto, and it includes a listing of my prior experience in litigation matters as an expert.

II. ASSIGNMENT AND MATERIALS CONSIDERED

11. I submit this declaration in support of Motive's Patent Owner Preliminary Response to Samsara Inc.'s Petition for *inter partes* review of U.S. Patent No. 12,062,243 ("the '243 Patent").

12. I am not an employee of Motive Technologies or of any affiliate or subsidiary thereof.

13. My consulting firm, Stairstep Consulting LLC, is being compensated for my time at a rate of \$500 per hour.

14. My compensation is in no way dependent upon the substance of the opinions I offer below, or upon the outcome of the petition for *inter partes* review.

15. I have been asked to provide certain opinions relating to the patentability of the '243 Patent and the viability of the grounds presented in the Petition. Specifically, I have been asked to provide my opinion regarding: (1) the

level of ordinary skill in the art to which the '243 Patent pertains and (2) whether any grounds in the Petition show any basis to find claims 1–33 of the '243 Patent unpatentable as being obvious in view of the prior art asserted in the Petition.

16. Given the preliminary nature of the Patent Owner's Preliminary Response, the opinions expressed in this declaration are not exhaustive of my opinions on the patentability of claims 1–33 of the '243 Patent. Therefore, the fact that I do not address a particular point should not be understood to indicate any opinion on my part that any positions advanced by Petitioner or its expert are meritorious. To the extent the Patent Trial and Appeal Board institutes a trial in this proceeding, I may submit additional opinions regarding the patentability of the claims.

17. In forming my opinions, I have reviewed the Petition, including its exhibits, the declaration of Dr. Trevor Darrell in support of the Petition, the '243 Patent's disclosure (including materials incorporated by reference) and its prosecution history. In particular, I reviewed the following references, which are discussed further below:

- a) Chun, S., *et al.* "NADS-Net: A nimble architecture for driver and seat belt detection via convolutional neural networks." Proceedings of the IEEE/CVF International Conference on Computer Vision Workshops (2019) ("Chun," Ex. 1005);

- b) U.S. Patent Appl. Pub. No. 2020/0242381 to Chao *et al.* (“Chao,” Ex. 1006)
- c) Chinese Publication No. CN111860253 to Dongguan Zhengyang Electronic Mechanical Co. Ltd. (“Zhengyang,” Ex. 1007)
- d) He, K., *et al.* “Mask R-CNN.” IEEE International Conference on Computer Vision (2017) (“He,” Ex. 1008)
- e) Shanmugamani, R. “Deep Learning for Computer Vision” (2018) (“Shanmugamani,” Ex. 1010)

III. SUMMARY OF OPINIONS

18. In my opinion, Petitioner and its expert, Dr. Darrell, fail to demonstrate that Chun in view of Chao render obvious any of Claims 1, 2, 6–14, 18–20, and 24–33 (Petitioner’s Ground 1).

19. In my opinion, Petitioner and Dr. Darrell also fail to demonstrate that Chun in view of Chao and further in view of Shanmugamani renders obvious any of Claims 3–5, 15–17, and 21–23 (Petitioner’s Ground 2).

20. In my opinion Petitioner and Dr. Darrell also fail to demonstrate that Zhengyang in view of He renders obvious any of Claims 1–6, 9–18, and 20–24 (Petitioner’s Ground 3).

21. In my opinion, Petitioner and Dr. Darrell also fail to demonstrate that Zhengyang in view of He and further in view of Chao renders obvious any of

Claims 7, 8, 19, and 25–33 (Petitioner’s Ground 4).

IV. TECHNICAL BACKGROUND

22. A neural network processes data through a series of layers, each receiving input tensors (numerical data arrays), transforming them, and passing output tensors to the next layer. The final layer's output is converted into a human-interpretable result. When a model needs to make multiple predictions from the same input, efficiency can be gained by structuring the model into three foundational components: a common backbone (shared early layers), a common neck (which is optional), and one or more prediction heads.

23. A CNN (Convolutional Neural Network) often serves as the common backbone. It comprises a sequence of layers that includes convolutional layers, which scan small regions of input data to detect patterns (like edges in an image frame), along with supporting layer types such as pooling layers (which summarize data to reduce computational load), fully-connected layers (which make decisions from features), batch normalization layers (which standardize value ranges), and activation layers (which retain only the strongest signals).

24. A Feature Pyramid Network (FPN) often serves as the common neck. It processes an image frame at multiple resolutions, giving downstream layers both fine-grained (low-level) and abstract (high-level) interpretations of the same image

frame — making it especially useful for tasks like object detection across varying scales.

25. Prediction heads are the final task-specific layers of the model which handle the actual classification or detection tasks. Because they must be compatible with the tensors output by the backbone (and any neck), swapping in a new backbone typically requires (at least) retraining the prediction heads to maintain that compatibility.

V. OVERVIEW OF THE '243 PATENT AND ITS PROSECUTION

26. The '243 Patent, titled “Distracted Driving Detection Using a Multi-Task Training Process,” was issued to Motive Technologies, Inc. on August 13, 2024. The patent addresses a critical safety concern regarding the operation of motor vehicles – driver distraction – which remains “one of the major causes of road fatalities, especially involving heavy-duty vehicles.” Ex. 1001, 1:26–28.

27. The inventors of the '243 Patent recognized that prior art driver distraction detection systems suffered from significant limitations. Existing solutions relied on deep neural network (DNN) models that had been trained to perform a *single task* (e.g., object identification) and simply attempted to repurpose those models for other tasks related to predicting distracted driving prediction (e.g., estimating body and/or head pose). *Id.*, 1:16-23. In practice, these prior art

systems performed poorly and were inaccurate because the DNNs had not learned the full range of visual cues indicative of driver distraction.

28. The '243 Patent addresses this problem by introducing an innovative *multi-task* training approach that trains a “distraction model” or distraction detection model to simultaneously detect multiple types of specific driver-distraction indicators (e.g., mobile-device use, head turning, hands off the steering wheel, etc.). *Id.*, Fig. 2, 1:42-2:10. The system employs a convolutional neural network (CNN) with “a plurality of downstream prediction heads for each of these tasks (e.g., mobile detection, face detection, etc.).” *Id.*, 1:46–49. By training the distraction detection model to detect multiple types of driver-distraction indicators simultaneously, it learns to efficiently focus on the most relevant features for distraction detection, thereby improving its predictive capability. *See, e.g., id.*, 7:62-66.

29. The core architecture of the '243 Patent's distraction detection model 104, shown below in Fig. 2 of the '243 Patent, includes a backbone network 204 and Featured Pyramid Network (FPN) 206, both of which may be coupled to multiple prediction heads 208A-208N and 212A-212N, each dedicated to detecting different driver-distraction indicators.

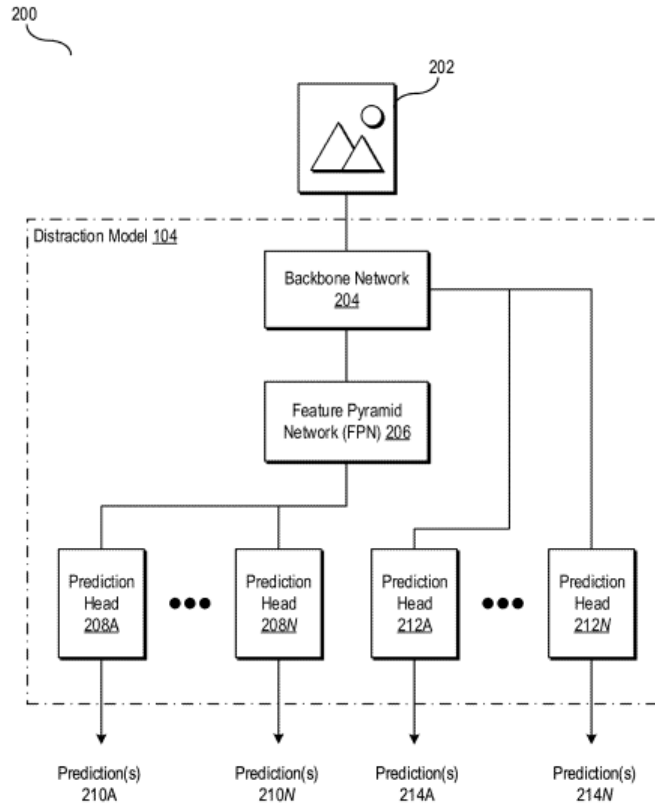


FIG. 2

Id., Fig. 2.

30. In operation, an “image 202” to be analyzed for a distracted driver is first processed by backbone network 204, which typically comprises “a convolutional neural network (CNN) (e.g., an EfficientNet)” coupled to FPN 206. *Id.*, 2:63-66. A CNN is a type of deep-learning model designed to analyze visual data (*e.g.*, image frames) by mimicking how the human brain processes visual information to detect and identify objects in the image frame being analyzed (in this case, to detect a human driving a vehicle, a mobile device, etc.).

31. The output of CNN 204 may then be passed on to various prediction heads 212A-212N to determine whether any driver-distraction indicators are present in the analyzed image frame. *See, e.g., id.*, 5:30-49; Fig. 2. The output of CNN 204 may also be fed into FPN 206 for further analysis. *See id.* The FPN enhances object-detection performance by recognizing objects across different scales and sizes, ensuring that smaller items in the image frame – such as a mobile device – are not overlooked, and ensuring that larger items in the image frame – such as the driver’s upper body – are not overlooked. The object-detection results generated by the FPN may then be fed into prediction heads 208A–208N to determine whether any additional driver-distraction indicators are present. *See, e.g., id.*, 5:30-49; Fig. 2.

32. As shown in Fig. 2, different prediction heads 208A-208N and 212A-212N receive inputs from different parts of the architecture: some receive input directly from CNN 204 while others receive input from FPN 206. *Id.*, 2:66–3:2. The ’243 Patent describes three primary prediction heads: the distraction classification prediction head (*id.*, 3:4–6); the object detection prediction head (*id.*, 3:9–12); and the pose estimation prediction head (*id.*, 3:21–23). Collectively, these prediction heads analyze the processed image frame to determine whether any driver-distraction indicators are present.

33. The process for training the distraction detection model is a central aspect of the '243 Patent's innovation. During training, the model minimizes a “joint loss” function that combines the losses produced by each of the model's prediction heads (e.g., how wrong the previous prediction was). As the patent explains, minimizing this joint loss “caus[es] a change in the parameters of the backbone network,” thereby shaping how the model learns to extract meaningful features from the input image frames. *Id.*, 2:56–58. In practical terms, the joint loss optimization forces the network to focus on the regions of each image frame that matter most for determining whether a driver is distracted—for example, the driver's face, hands, or a handheld device—because errors in any of the tasks increase the overall loss of the model. *Id.*, 6:12–15.

34. The patent expresses the joint loss function as:

$$\text{loss} = \text{loss}_{\text{detection}} + \text{loss}_{\text{bbox}} + \text{loss}_{\text{classification}} + \text{loss}_{\text{landmarks}} + \text{loss}_{\text{reg}}.$$

Id., 5:61–65. Each type of loss corresponds to a different task the model must learn:

$\text{loss}_{\text{detection}}$ and $\text{loss}_{\text{bbox}}$ measure the accuracy of the object-detection prediction head (e.g., identifying and localizing a phone or driver);

$\text{loss}_{\text{classification}}$ measures the accuracy of the distraction-classification head (e.g., determining whether the driver is distracted);

$\text{loss}_{\text{landmarks}}$ reflects the performance of the pose-estimation head (e.g., identifying facial or body landmarks related to head and hand position); and loss_{reg} is an L_2 regularization term that stabilizes training and prevents overfitting by discouraging overly large parameter values.

Id., 5:61–6:5.

35. By minimizing the joint loss, the claimed invention enables the distraction detection model to accurately classify and detect a wide range of distraction types, including “cell phone usage (e.g., talking, texting, other usages), smoking, talking to fellow passengers, talking on a handsfree headset, taking both hands off the wheel, eating/drinking, reading or writing, [and] one-handed driving while the other hand is doing a secondary action.” *Id.*, 1:56-62.

VI. CHALLENGED CLAIMS

36. The Grounds in the Petition seek invalidation of Claims 1–33 of the ’243 Patent (“Challenged Claims”).

37. Claims 1, 13, 20, 26, and 30 are the independent claims:

- Claim 1 is directed to a method.
- Claim 13 is directed to a non-transitory medium for storing a computer program to carry out the method steps of Claim 1.
- Claim 20 is directed to a device comprising a processor and a storage medium for storing a program to execute the method steps of Claim 1.

- Claims 26 is directed to a method that adds in-vehicle steps, including storing a distraction classification model in a dash-mounted camera device and performing at least one action by the dash-mounted camera device based on the distraction classification, such as updating a display, playing an audible alarm, or transmitting a prediction to a remote location.
 - Claim 30 is directed to a device comprising a processor and a memory for storing a program to execute the method steps of Claim 26.
38. Claim 1 of the '243 patent is reproduced below:

A method comprising:

- [a] inputting labeled examples into a neural network, the neural network comprising:
- [b] a backbone network, and;
- [c] one or more prediction heads coupled to the backbone network, the one or more prediction heads comprising one or more of a distraction classification prediction head, object detection prediction head, and a pose estimation prediction head;
- [d] minimizing a loss based on outputs of the one or more prediction heads causing a change in parameters of the backbone network; and
- [e] storing a distraction classification model after minimizing the loss, the distraction classification model comprising the

parameters of the backbone network and parameters of at least one of the one or more prediction heads.

Ex. 1001, Claim 1.

VII. LEGAL STANDARDS

A. Claim Construction

39. In rendering the opinions set forth in this declaration, I have read the claims from the perspective of a person of ordinary skill in the art (“POSITA”) at the time of the invention, in June 2021. I understand that in this *inter partes* review, the claims are construed in the same manner as in district court, to have their plain and ordinary meaning in the context of the specification and prosecution history.

B. Person of Ordinary Skill in the Art

40. I understand that, to determine the appropriate level of skill of a POSITA, the following four factors may be considered: (a) the types of problems encountered by those working in the field and prior art solutions thereto; (b) the sophistication of the technology in question, and the speed with which innovations occur in the field; (c) the educational level of active workers in the field; and (d) the educational level of the inventor. I have been instructed that the level of ordinary skill in the art should be determined at the time of the invention. I have been asked to presume that the relevant date for my evaluation is 2021.

41. The field of the ’243 Patent relates to multiple technologies: computer

vision with respect to vehicular systems, predictive models and their linear algebra origins, and artificial intelligence and its inference engines. Based on my review and analysis of the '243 Patent and applying the considerations identified above as best they are known to me today, a POSITA in the field of the '243 Patent as of June 2021 would have (i) earned a bachelor's degree in mathematics, computer science, or a similar engineering or science degree, and (ii) attained two or more years of experience in a combination of the multiple technologies listed above. Alternatively, a person with a more advanced degree in the above fields might have had less practical experience and still be deemed a POSITA. Conversely, a person with a general college background not necessarily in the above fields might also have become a POSITA by acquiring more real-world experience in designing and/or implementing hardware and/or software components for computers, servers, and/or other electronic devices.

42. Under either of the definitions proposed by Petitioner and Patent Owner, I believe that I have the relevant experience and understanding of a POSITA qualified to opine regarding the technologies related to the '243 Patent, based on my litigation work, industry experience, and education.

43. Regarding computer vision, I was the Software Development Director at Virage, responsible for the development of its VideoLogger product. The Virage VideoLogger product detected the following information in video and created an

index which mapped the detected information to the timecode in the video at which the information was detected: scene transitions, facial detections, logo detections, color pattern detections, and object detections.

44. Regarding computer vision with respect to vehicular systems, I was a testifying expert on a patent litigation case between Motive and Omnitrac involving Motive's computer vision technologies for 11 months, logging more than 500 hours. During that patent litigation case, I used and analyzed the source code of a Motive AI Dashcam, a Motive Omnicam, a Motive Vehicle Gateway, Motive's iOS and Android mobile apps, and Motive's Dashboard interface to its back-end servers. I was a forensic software and firmware expert on a patent litigation case between Facebook and Blackberry involving vehicular Electronic Logging Devices (ELDs) including vehicle gateways and asset gateways. During that case, I used a Blackberry ELD device.

45. Regarding predictive models and their linear algebra origins, I have a Bachelor's degree in Mathematics, with an emphasis in discrete mathematics, including linear algebra.

46. Regarding artificial intelligence and its inference engine origins, I have Master's degree in Computer Science with an emphasis in the Prolog programming language, where Prolog is one of the foundational programming languages of Artificial Intelligence, embodying a rule-based inference engine used

in early Artificial Intelligence research. My thesis project was the implementation of a fully-functional compiler for the Prolog programming language, along with a runtime library written in a combination of Prolog and C. After receiving my Master's degree in Computer Science, I worked as a software development engineer and software development manager for 5 years at Quintus Computer Systems to produce and maintain a commercial compiler and runtime libraries for the Prolog programming language.

47. Further regarding artificial intelligence and its inference engines, I completed a private research project by applying Iterative Imputation using a Multivariate Imputation by Chained Equations (MICE) model to a set of tables containing over 1.7 million data records containing over 108 million data values.

C. Obviousness

48. I understand that a patent claim is unpatentable and invalid if the subject matter of the claim as a whole would have been obvious to a POSITA as of the time of the invention at issue. I understand that the following factors must be evaluated to determine whether the claimed subject matter is obvious: (1) the scope and content of the prior art; (2) the difference or differences, if any, between each claim of the patent and the prior art; and (3) the level of ordinary skill in the art at the time the patent was filed. Unlike anticipation, which allows consideration of only one item of prior art, I understand that obviousness may be shown by

considering more than one item of prior art. Moreover, I have been informed and I understand that so-called objective indicia of non-obviousness, also known as “secondary considerations,” like the following are also to be considered when assessing obviousness: (1) commercial success; (2) long-felt but unresolved needs; (3) copying of the invention by others in the field; (4) initial expressions of disbelief by experts in the field; (5) failure of others to solve the problem that the inventor solved; and (6) unexpected results. I also understand that evidence of objective indicia of non-obviousness must be commensurate in scope with the claimed subject matter.

VIII. GROUND 1 – ALLEGED OBVIOUSNESS OF CLAIMS 1, 2, 6–14, 18–20 AND 24–33 BASED ON CHUN IN VIEW OF CHAO

49. Petitioner asserts that Chun (Ex. 1005) in view of Chao (Ex. 1006) renders obvious Claims 1, 2, 6–14, 18–20, and 24–33. In view of the evidence cited by Petitioner and Dr. Darrell, I disagree.

A. Petitioner and Dr. Darrell Fail to Demonstrate That a POSITA Could Have Combined Chun and Chao With a Reasonable Expectation of Success

50. The ’243 Patent is directed to the sophisticated process of training a neural network to detect driver distraction. Neural networks are complicated and elaborate systems whose internal feature learning and interactions are not self-evident to lay readers (or even to many technical practitioners). As such, neural networks are, by the very nature, obscure. *See, e.g.*, Ex. 2010 at 6 (“The

[neural] networks’ opacity is still unsettling to theorists. . . .’). The field of neural networks was rapidly evolving around the ’243 Patent’s critical date, and even now, as it experiences a renaissance. *Id.* (“The recent resurgence in neural networks — the deep-learning revolution — comes courtesy of the computer-game industry. . . . the architecture of a GPU is remarkably like that of a neural net.”). Moreover, and as discussed further below, Chao itself is obscure in its description of certain key inherent characteristics of its neural network model.

51. In view of the complex nature of the technology at issue here as well as Chao’s vagueness, Petitioner and Dr. Darrell should have provided a much clearer, evidence-supported account of the contemplated workings of Chun, Chao, and the proposed Chun-Chao combination than they actually did.

52. Petitioner and Dr. Darrell claim that routing the features output by Chun’s backbone into Chao’s classification head would require *no* architectural redesign. *See, e.g.*, Ex. 1003 at ¶¶ 129, 135. More specifically, Petitioner claims that “the distraction classification head from Chao could be connected to Chun’s shared feature maps.” *Id.* at ¶ 135. In essence, Petitioner and Dr. Darrell appear to claim that these complex neural network programs/systems have “plug-and-play” compatibility with one another.

53. The only evidentiary support Dr. Darrell offers for this conclusion is that Chun and Chao both apply multi-task CNNs to the problem of driver

distraction. *See id.* at ¶¶ 133–135. Categorizing a neural network model as a multi-task CNN (Convolutional Neural Network) does not teach a POSITA all of the characteristics of that model which are necessary for the POSITA to determine if they would have a reasonable expectation of success in combining a multi-task CNN model with another model, even with another multi-task CNN model. Categorizing a neural network model as a multi-task CNN only teaches a POSITA that the model has at least one convolution layer, has at least one layer that outputs a feature map that is input by at least one other layer, and makes multiple predictions.

54. Further, neither Chun nor Chao discuss or describe the concept of portability of prediction heads such that another head could be added to their respective models or that their respective prediction heads could be added to another model. Further, just because the respective programs/systems described in both Chun and Chao have modular components does not mean those modules were designed, trained, and tuned to interoperate across architectures or be repurposed from one model to another. Neural networks are highly complex systems whose components (backbones, feature pyramids, heads, loss functions, training protocols, and data distributions) are often co-dependent of each other; successful integration requires concrete, architecture-specific steps, and careful examination of the predictions made by the combined components.

55. Dr. Darrell’s repeatedly offers his conclusory opinions that mixing and matching components of Chun and Chao would be easy and straightforward. *See, e.g.*, Ex. 1003, ¶¶ 91, 118, 129, 135. Yet Dr. Darrell provides no suggestion that industry practitioners have successfully ported a prediction head from one network into another with limited difficulty, let alone that such cross-model portability was routine.

56. With no evidence that this has previously been done, Petitioner and Dr. Darrell also fail to support their conclusion that a POSITA would have had a reasonable expectation of success in combining Chun with Chao.

57. Accordingly, I disagree that Petitioner and Dr. Darrell have demonstrated that Chun in view of Chao renders obvious any of Claims 1, 2, 6–14, 18–20, and 24–33.

B. The Evidence Establishes That a POSITA Would Not Have Had a Reasonable Expectation of Success in Combining Chun With Chao

58. In reviewing all of the available evidence and based on my knowledge, skills, and experience, it is my opinion that a POSITA would not have a had a reasonable expectation of success in combining Chun with Chao, for at least the reasons discussed below.

1. Chun and Chao Are Not “Plug-And-Play” Compatible

59. As discussed above, Petitioner and Dr. Darrell claim that Chao’s

prediction head could easily be connected to the output of Chun's backbone. But Chao's inadequate disclosure undercuts any such conclusion.

60. Chao is missing disclosure of backbone specifications – the very characteristics a POSITA would need to assess for compatibility (e.g., the spatial dimensions and channel depth of the backbone's feature maps, or the pyramid levels/strides if an FPN is used). By contrast, Chun discloses that its backbone produces: (1) a feature map of width equal to 96, height equal to 96, and number of channels equal to 512 and (2) a feature pyramid with levels C2, C3, C4, and C5 which have corresponding strides of 1/4, 1/8, 1/16, and 1/32. Ex. 1005, p. 5. Because Chao does not disclose corresponding specifications, a POSITA would have no basis to conclude that Chun's backbone output could drive Chao's prediction head with a reasonable expectation of success.

61. At least in view of this lack of detail in Chao, a POSITA would understand that integrating Chao with Chun would require non-trivial design work, implementation work, training work, and testing work, not the "straightforward" connection Petitioner and Dr. Darrell posit (without evidence).

62. In my opinion, the foregoing undercuts any conclusion that a POSITA would have had a reasonable expectation of success in combining Chun with Chao in the "plug-and-play" manner suggested by Petitioner and Dr. Darrell.

2. Dr. Darrell's Own Published Research Teaches Away From the Very "Plug-and-Play" Approach He Now Proposes Here

63. Even if the output of Chun's backbone was theoretically compatible with the input of Chao's prediction head, a POSITA would still not have had a reasonable expectation of success due to practical concerns. Specifically, Petitioner's expert Dr. Darrell has co-authored at least two research papers cautioning that transferring CNN backbone models from one domain to another without adaption is unlikely to yield a successful result, thereby teaching away from the "plug-and-play" approach of combining Chun with Chao that Petitioner and Dr. Darrell now propose here.

64. In the Abstract of one research paper, Dr. Darrell and his co-authors warn that: "Transfer of [CNN] models directly to new domains without adaptation has historically led to poor recognition performance." Ex. 2011 at 1 (Abstract). In the paper, Dr. Darrell and his co-authors propose a solution to this problem: "a general framework for selectively adapting the parameters of a convolutional neural network (CNN)." *Id.* at 3. Apparently, the problem of poor recognition performance was significant enough to warrant the authors dedicating the paper entirely to this "adaptation" solution for the problem, as indicated by the paper's title ("One-Shot Adaptation of Supervised Deep Convolutional Models").

65. So although Dr. Darrell now opines that it would have been obvious for a POSITA to combine Chun and Chao without any architectural redesign, his

own research suggests the opposite: taking such a leap typically leads to the significant problem of poor recognition performance, and adaptation is typically necessary to avoid this unfavorable result. It's unclear why Dr. Darrell believes adaptation is typically necessary to avoid this catastrophic result yet would not have been necessary in the case of combining Chun with Chao, because he simply does not explain the factual/evidentiary basis for his conclusion.

66. In the same research paper, Dr. Darrell and his co-authors further warn that: "In general, training or fine-tuning a state-of-the-art deep model on a new domain requires a significant amount of data, which for many applications is simply not available." *Id.* at 1 (Abstract). A second research paper Dr. Darrell co-authored provides a similar warning. *See* Ex. 2012 at 1 ("Fine-tuning deep models in a new domain can require a significant amount of data, which for many applications is simply not available."). This suggests that combining Chun with Chao would require a significant amount of training data, which may or may not have been available in the context of detecting driver distraction. Again, Dr. Darrell simply does not provide sufficient detail to be able to make this determination.

67. In my opinion, the foregoing further undercuts any conclusion that a POSITA would have had a reasonable expectation of success in combining Chun with Chao in the "plug-and-play" manner suggested by Petitioner and Dr. Darrell.

3. Re-training the Proposed Chun-Chao Model Risks
“Catastrophic Forgetting”

68. If Chun and Chao are not, in fact, “plug-and-play” compatible, and thus, a POSITA would have had to “adapt” Chun’s backbone for integration with Chao’s prediction (as suggested by Dr. Darrell’s research), another significant potential obstacle would arise that further undercuts any reasonable expectation of success in combining Chun and Chao.

69. The transfer of a prediction head from one neural network model to another neural network model for integration with the backbone of the latter model potentially requires re-training the set of weights used by each layer of each prediction head and/or re-training the set of weights used by each layer of the backbone. Putting aside the additional effort required to re-train the modified network, there is the potential of losing information previously learned by either the backbone or the prediction head that was transferred from a different model. This phenomenon, known as “catastrophic forgetting,” is well-known in the machine-learning field.

70. IBM warns that “[c]atastrophic forgetting can have substantial effects on the performance of machine learning models” *See, e.g.*, Ex. 2013 at 4. In particular, it warns that “[w]ith robotics and self-driving automobiles, these effects might be especially dangerous.” *Id.* In the vehicular-safety context of the ’243 Patent – detecting distracted human driving – the consequences would be no less

severe. A POSITA would appreciate that catastrophic forgetting could render the resulting model unreliable or unusable, creating unacceptable risks to driver safety by a poorly-trained neural network.

71. In my opinion, the foregoing further undercuts any conclusion that a POSITA would have had a reasonable expectation of success in combining Chun with Chao.

IX. GROUND 2 – ALLEGED OBVIOUSNESS OF CLAIMS 3–5, 15–17, 21–23 BASED ON CHUN IN VIEW OF CHAO AND FURTHER IN VIEW OF SHANMUGAMANI

72. In Ground 2, Petitioner challenges the dependent Claims 3–5, 15–17, and 21–23 based on the combination of Chun, Chao, and Shanmugamani. It is my understanding that a dependent claim can be rendered obvious only if the independent claim from which it depends is rendered obvious. For the independent claims from which these claims depend, Petitioner and Dr. Darrell continue to rely on the same combination of Chun and Chao discussed above with respect to Ground 1. For all the reasons discussed above, in my opinion, Petitioner and Dr. Darrell fail to demonstrate that Chun in view of Chao renders obvious any of the independent claims of the '243 Patent. Accordingly, it is my opinion that the Petitioner and Dr. Darrell also fail to demonstrate that Chun in view of Chao and further in view of Shanmugamani renders obvious any of Claims 3–5, 15–17, and 21–23.

X. GROUND 3 – ALLEGED OBVIOUSNESS OF CLAIMS 1–6, 9–18, 20–24 BASED ON ZHENGYANG IN VIEW OF HE

73. Petitioner asserts that Zhengyang (Ex. 1007) in view of He (Ex. 1008) renders obvious Claims 1–6, 9–18, and 20–24. In view of the evidence cited by Petitioner and Dr. Darrell, I disagree.

A. Petitioner and Dr. Darrell Fail to Demonstrate That a POSITA Could Have Combined Zhengyang and He With a Reasonable Expectation of Success

74. In view of the complex nature of the technology at issue here, Petitioner and Dr. Darrell should have provided a much clearer, evidence-supported account of the contemplated workings of Zhengyang, He, and the proposed Zhengyang-He combination than they actually did.

75. Petitioner and Dr. Darrell claim, much like they do for their proposed Chun-Chao combination, that routing the features output by Zhengyang’s backbone into He’s classification head would require *no* architectural redesign. *See, e.g.*, Ex. 1003 at ¶¶ 422, 428. More specifically, Dr. Darrell claims that “a POSITA would have recognized that [Zhengyang’s] feature maps could serve as input to [He’s] keypoint-regression head without altering the network’s fundamental design.” *Id.* at ¶ 422. In essence, Petitioner and Dr. Darrell appear to claim that these complex neural network programs/systems have “plug-and-play” compatibility with one another.

76. The only evidentiary support Dr. Darrell offers for this conclusion is that Zhengyang and He both apply multi-task CNNs to the problem of driver distraction. *See id.* at ¶¶ 424–428. But again, categorizing a neural network model as a multi-task CNN does not teach a POSITA all of the characteristics of that model which are necessary for the POSITA to determine if they would have a reasonable expectation of success in combining a multi-task CNN model with another model, even with another multi-task CNN model.

77. Further, neither Zhengyang nor He teaches that their prediction heads are portable, nor do they suggest that such heads could be inserted into, or detached from, another neural-network architecture. Further, the mere fact that both systems contain multiple connected components does not imply that those components were designed to be repurposed or interchanged. Neural networks are complex and highly interdependent systems; their components cannot simply be mixed and matched with another system.

78. Dr. Darrell's repeatedly offers his conclusory opinions that mixing and matching components of Zhengyang and He would be easy and straightforward. *See id.* at ¶¶ 422, 427. Yet Dr. Darrell identifies no industry practice or evidence suggesting that prediction heads can be transplanted between architectures with minimal effort, let alone that practitioners in the field routinely do so.

79. With no evidence that this has previously been done, Petitioner and Dr. Darrell also fail to support their conclusion that a POSITA would have had a reasonable expectation of success in combining Zhengyang with He.

80. Accordingly, I disagree that Petitioner and Dr. Darrell have demonstrated that Zhengyang in view of He renders obvious any of Claims 1–6, 9–18, and 20–24.

B. The Evidence Establishes That a POSITA Would Not Have Had a Reasonable Expectation of Success in Combining Zhengyang With He

81. In reviewing all of the available evidence and based on my knowledge, skills, and experience, it is my opinion that a POSITA would not have had a reasonable expectation of success in combining Zhengyang with He, for at least the reasons discussed below.

1. Zhengyang and He’s Datasets Serve Fundamentally Different Purposes

82. As discussed above, Petitioner and Dr. Darrell claim that He’s prediction head could easily be connected to the output of Zhengyang’s backbone. But Petitioner and Dr. Darrell provide no factual or evidentiary detail to support the conclusion that a POSITA would have had a reasonable expectation of success in attempting this.

83. Zhengyang’s domain of input data for training its model consists of labeled image frames of drivers and passengers taken by a dashcam in a vehicle.

See Ex. 1007 at ¶ [0058]. He’s domain of input data, in stark contrast, consists of labeled image frames of animals and of humans who are performing actions outside of the context of the interior/cabin of a vehicle, for example, standing, walking, surfing, skateboarding, playing baseball, riding a motorcycle, and skiing. *See* Ex. 1008, Figs. 3–6. It is a data set provided by Microsoft called “COCO,” which stands for “**C**ommon **O**bjects in **C**ontext,” a dataset that a POSITA would consider a “generic” or “general” data set. Zhengyang and He’s datasets thus serve fundamentally different purposes and are not interchangeable.

84. A POSITA would have readily understood that generic, out-of-vehicle pose-estimation data (like COCO) is ill-suited for in-vehicle driver-monitoring tasks, and a model designed for the former would not be expected to function effectively in the latter. The literature in the field evidences the limitations of using COCO in the driver pose estimation context. *See, e.g.*, Ex. 2014, p. 2869 (“[T]he COCO annotation style does not provide hand or head size. The use of the torso is also not an appropriate option in the car cockpit context since, depending on the viewing angle, the torso’s full length is not always fully visible on the image.”). Thus, in light of this dataset incompatibility – and the importance of consistent, domain-specific training – a POSITA would not have reasonably expected success in “plug-and-play” combining Zhengyang with He.

85. In my opinion, Zhengyang and He’s incompatibility with one another, which a POSITA would have readily recognized, undercuts any conclusion that a POSITA would have had a reasonable expectation of success in combining Zhengyang with He.

2. Dr. Darrell’s Own Published Research Teaches Away From the Very “Plug-and-Play” Approach He Now Proposes Here

86. My discussion of Dr. Darrell’s own research teaching away from his proposed “plug-and-play” manner of combining references above with respect to Ground 1 is not repeated here, but it applies with full force to Ground 3. This teaching away further undercuts any conclusion that a POSITA would have had a reasonable expectation of success in combining Zhengyang with He.

3. Re-training the Proposed Zhengyang-He Model Risks “Catastrophic Forgetting”

87. My discussion of having to re-train any combined model and such re-training risking “catastrophic forgetting” above with respect to Ground 1 is not repeated here, but it applies with full force to Ground 3. This risk can have serious consequences in safety-critical applications, such as detecting distracted drivers. A POSITA would have recognized catastrophic forgetting as a significant obstacle, further diminishing any expectation of success in the proposed Zhengyang–He combination.

XI. GROUND 4 – ALLEGED OBVIOUSNESS OF CLAIMS 7, 8, 19, AND 25–33 BASED ON ZHENGYANG IN VIEW OF HE AND FURTHER IN VIEW OF CHAO

88. In Ground 4, Petitioner challenges the dependent Claims 7, 8, 19, and 25–33 based on the combination of Zhengyang, He, and Chao.

89. Claims 7, 8, 19, and 25 are dependent claims that depend from independent claims—Claims 1, 13, and 20—challenged in Ground 3. It is my understanding that a dependent claim can be rendered obvious only if the independent claim from which it depends is rendered obvious. For Claims 1, 13, and 20, Petitioner and Dr. Darrell continue to rely on the same combination of Zhengyang and He discussed above with respect to Ground 3. For all the reasons discussed above, in my opinion, Petitioner and Dr. Darrell fail to demonstrate that Zhengyang in view of He renders obvious any of these independent claims. Accordingly, it is my opinion that the Petitioner and Dr. Darrell also fail to demonstrate that Zhengyang in view of He and further in view of Chao renders obvious any of Claims 7, 8, 19, and 25.

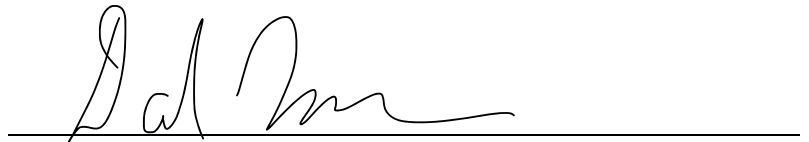
90. As for independent Claims 26 and 30, although Petitioner relies on Chao for its alleged teaching of a single limitation of each of those claims, its challenge of those claims still fundamentally relies on the combination of Zhengyang with He in the same manner as for independent Claims 1, 13, and 20. *See* Ex. 1003 at ¶¶ 626–631, 633, 634. For all the reasons discussed above with

respect to Ground 3, this challenge also fails. And, Claims 27–29 and 31–33 depend from Claims 26 and 30, respectively. Accordingly, it is my opinion that the Petitioner and Dr. Darrell also fail to demonstrate that Zhengyang in view of He and further in view of Chao renders obvious any of Claims 26–33.

* * *

I 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 were 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.

Dated: February 25, 2026

A handwritten signature in black ink, appearing to read 'David Znidarsic', is written over a horizontal line.

David Znidarsic

EXHIBIT A

David Znidarsic

380 Pacheco Street, San Francisco, CA 94116 | 650-576-3870 | djznidarsic@stairstepconsulting.com

Summary

30+ years of experience in the Silicon Valley computer industry, holding positions as: Company Founder, Intellectual Property Expert, Software Security Expert, Testifying Expert, Forensic Software Expert, Open Source Software Expert, Information Security Officer, Vice President of Technology, Vice President of Engineering, Software Development Director, Software Development Manager, iOS App Developer, Applications Software Development Engineer, and Systems Software Development Engineer.

Intellectual Property Litigation, M&A, and Licensing Experience

- **Stairstep Consulting LLC - President / CEO (2017 - present)**
 - **NCH v. Illumina** - Testifying expert, contracted by King & Spalding counsel for the plaintiff, for patent litigation regarding secondary genetic analysis, in United States District Court for the District of Delaware: *The Research Institute at Nationwide Children's Hospital, Plaintiff / Counter Defendant, v. Illumina, Inc., Defendant / Counter Claimant*; C.A. No. 25-683-JLH-EGT (February 2026 to present)
 - **UCT v. HP** - Forensic Software Expert, contracted by Intuity Consultants, Shook, Hardy & Bacon counsel for the defendant, for patent litigation regarding USB, DisplayPort, and PCIe communication technologies, in United States District Court, Northern District of California, San Jose Division: *Universal Connectivity Technologies, Inc., Plaintiff v. HP Inc., Defendants*; 5:24-cv-04097; (January 2026 to present)
 - **Motive v. Samsara** - Testifying Expert, contracted by Greenberg Traurig, Greenberg Traurig counsel for the plaintiff, for patent litigation and Inter Partes Review regarding vehicular Electronic Logging Devices (ELDs), United States District Court, Northern District of California: *Motive Technologies, Inc., Plaintiff, v. Samsara Inc., Defendant*; 24-cv-00902; (September 2025 to present)
 - Filed declaration on 2026-01-15
 - Title: *Declaration of David Znidarsic in Support of Claim Construction*
 - **DraftKings v. Diogenes** - Forensic Software Expert, contracted by eComp Consultants and Intuity Consultants, Gilbert's LLP counsel for the patent owner, for Inter Partes Review of patent regarding multi-leg wagering, United States Patent Trial and Appeal Board: *DK Crown Holdings Inc., Petitioner v. Diogenes Limited, Patent Owner*; IPR2023-00268 Patent 11,200,779 B2 (August 2025 to September 2025)
 - **Nutanix v. former employees** - Forensic Software Expert, contracted by Intuity Consultants, Quinn Emanuel counsel for the respondent, for copyright and trade secret litigation regarding enterprise management software, JAMS Arbitration:

Nutanix, Inc., Claimant vs. Bala Kuchibhotla, Kamaldeep Khanuja, Bakul Banthia, Respondent; JAMS Ref. No. 5110000487 (August 2025 to September 2025)

- **G and G Funding v. Miyeya Auto Import** - Testifying Expert, contracted by eComp Consultants and Intuity Consultants, Kurtz Law counsel for the plaintiff, for contract litigation regarding geolocation services, in Circuit Court of Cook County, Illinois, Law Division, Tax and Miscellaneous Remedies Section: *G and G Funding Group LLC v. Miyeya Auto Import and Felix M Difo*; No. 2025L050318, Calendar 1; (July 2025)
- **Mullen v. Samsung** - Forensic Software Expert, contracted by eComp Consultants, Mintz, Levin, Cohn, Ferris, Glovsky, and Popeo counsel for the plaintiff, for patent litigation regarding smart watch and cellular telephone technologies, in United States District Court, for the Eastern District of Texas, Marshall Division: *Mullen Industries LLC., Plaintiff v. Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc., Defendants*; 2:24-cv-00049; (June 2025)
- **UCT v. Lenovo** - Forensic Software Expert, contracted by Intuity Consultants, Kilpatrick Townsend & Stockton LLP counsel for the defendant, for patent litigation regarding USB, DisplayPort, and PCIe communication technologies, in United States District Court, for the Eastern District of Texas, Marshall Division: *Universal Connectivity Technologies, Inc., Plaintiff v. Lenovo Group Limited, Defendants*; 2:23-cv-00449; (March 2025 to October 2025)
- **Maxell v. TCL** - Testifying Expert, contracted by King & Spalding, King & Spalding counsel for the defendant, for ITC actions regarding internet-connected televisions: *Maxell, Ltd., Plaintiff v. TCL Electronic Holdings Co., Ltd., Defendants, et al.*; 337-TA-1420; (December 2024 to June 2025)
- **Maxell v. TCL** - Testifying Expert, contracted by Merchant & Gould, Merchant & Gould counsel for the defendant, for patent litigation regarding internet-connected televisions, in United States District Court, for the Eastern District of Texas, Texarkana Division: *Maxell, Ltd., Plaintiff v. TCL Electronic Holdings Co., Ltd., Defendants, et al.*; 5:23-cv-00108; (January 2025 to March 2025)
- **Maxell v. TCL** - Testifying Expert, contracted by King & Spalding, King & Spalding counsel for the defendant, for patent litigation regarding internet-connected televisions in United States District Court, for the Eastern District of Texas, Texarkana Division: *Maxell, Ltd., Plaintiff v. TCL Electronic Holdings Co., Ltd., Defendants, et al.*; 5:23-cv-00108; (December 2024 to January 2025)
- **Entropic v. Comcast** - Forensic Software Expert, contracted by Intuity Consultants, Winston & Strawn LLP counsel for Comcast, for patent litigation regarding home networking communication software, in the United States District Court, Central District of California: *Entropic Communications, LLC, Plaintiff v. Comcast Corporation et alia, Defendants*; Case No. 2:23-cv-1048 (October 2024 to December 2024)
- **Abbott v. Dexcom - Dexcom v. Abbott** - Forensic Software Expert, contracted by Intuity Consultants, Kecker, Van Nest & Peters LLP counsel for Dexcom, for patent litigation regarding medical device software, in United States District Court for the

District of Delaware: *Abbott Diabetes Care; et al., Plaintiffs, v. Dexcom, Defendant; Dexcom, Counterclaim-Plaintiff, v. Abbott Diabetes Care; et al., Counterclaim-Defendants*; C.A. No. 23-239; (September 2024)

- **Dexcom v. Abbott - Abbott v. Dexcom** - Forensic Software Expert, contracted by Intuity Consultants, Kecker, Van Nest & Peters LLP counsel for Dexcom, for patent litigation regarding medical device software, in United States District Court for the District of Delaware: *Dexcom, Plaintiff, v. Abbott Diabetes Care; et al., Defendants; Abbott Diabetes Care; et al., Plaintiffs, v. Dexcom, Defendant*; C.A. No. 22-605, C.A. No. 21-1669 (Consolidated); (September 2024)
- **B.E. Technology v. Twitter** - Forensic Software Expert, contracted by eComp Consultants, King & Wood Mallesons/Skiermont Derby, LLP counsel for B.E. Technology, for patent litigation regarding social networking advertisements, in the United States District Court for the District of Delaware: *B.E. Technology, L.L.C., Plaintiff, v. Twitter, Inc., Defendant*; C.A. No. 1:20-cv-00621 (July 2024 to February 2025)
- **Veeva v. Aktana** - Forensic Software Expert, contracted by Intuity Consultants, Finnegan Henderson Farabow Garrett & Dunner LLP counsel for the plaintiff, for patent litigation regarding pharmaceuticals management cloud services, in United States District Court, District of Delaware: *Veeva Systems, Inc. v. Tact.AI and Aktana, Inc.*; 1:23-cv-01032; (May 2024 to June 2024)
- **Griffith v. TikTok** - Forensic Software Expert, contracted by Intuity Consultants, Susman Godfrey counsel for the plaintiff, for class action regarding data privacy, in United States District Court, Central District of California: *Griffith, et al. v. TikTok, et al.*; 5:23-cv-00964; (August 2024)
- **Omnitracs v. Motive** - Testifying Expert, contracted by King & Spalding, King & Spalding counsel for the defendant, for patent litigation regarding vehicular Electronic Logging Devices (ELDs), in United States District Court, Northern District of California: *Omnitracs, et al. v. Motive*; 3:23-cv-05261; (April 2024 to April 2025)
 - Testified as expert witness at trial on 2025-04-21
 - Deposed as expert witness on 2024-11-22
 - Filed expert report on 2024-11-05
 - Title: *David Znidarsic Rebuttal Source Code Analysis*
 - Filed expert report on 2024-08-25
 - Title: *David Znidarsic Analysis of Omnitrac's Source Code*
- **Nokia v. Amazon** - Forensic Software Expert, contracted by Intuity Consultants, Perkins Coie LLP counsel for the defendant, for ITC actions regarding streaming digital video: *Nokia v. Amazon et al.*; 337-TA-1379; (July 2024)
- **Nokia v. Amazon** - Forensic Software Expert, contracted by Intuity Consultants, Perkins Coie LLP counsel for the defendant, for ITC actions regarding streaming digital video: *Nokia v. Amazon et al.*; 337-TA-1380; (April 2024 to June 2024)

- **SitNet v. Meta** - Forensic Software Expert, contracted by Intuity Consultants, Davis Polk LLP counsel for the defendant, for patent litigation regarding social media services, in United States District Court, Southern District of New York: *SitNet LLC v. Meta Platforms, Inc.*; 1:23-cv-06389; (February 2024)
- **Pantech v. LG** - Forensic Software Expert, contracted by Intuity Consultants, Mayer Brown counsel for the plaintiff, for patent litigation regarding cellular communications technology, in the United States District Court for the Eastern District of Texas, Texarkana Division: *Pantech Corporation and Pantech Wireless, LLC v. LG Electronics Inc., and LG Electronics U.S.A., Inc.*; 5:22-cv-00113 (December 2023 to June 2024)
- **WhatsApp v. NSO** - Forensic Software Expert, contracted by Intuity Consultants, Davis Polk LLP counsel for the plaintiff, for contract litigation regarding social media services, in the United States District Court for the Northern District of California: *WhatsApp LLC et al. v. NSO Group Techs. Ltd, et al.*; 4:19-cv-07123 (September 2023 to September 2024)
- **BSD Crown v. Amazon/Twitch** - Forensic Software Expert, contracted by Intuity Consultants, Perkins Coie LLP counsel for the defendant, for patent litigation regarding streaming digital video, in the United States District Court for the Northern District of California: *BSD Crown, LTD v. Amazon, Inc., Amazon Web Services, Inc., and Twitch Interactive, Inc.*; 3:23-cv-00057 (August 2023 to September 2023)
- **Touchstream v. Comcast** - Forensic Software Expert, contracted by Intuity Consultants, Davis Polk LLP counsel for the defendant, for patent litigation regarding streaming digital video, in the United States District Court for the Eastern District of Texas Marshall Division: *Touchstream Technologies, Inc., Plaintiff v. Comcast Cable Communications, et al., Defendants*; 23-cv-00062 (July 2023 to July 2024)
- **CloudOfChange v. Lightspeed** - Forensic Software Expert, contracted by Intuity Consultants, Patterson & Sheridan LLP counsel for the plaintiff, for patent litigation regarding point-of-sale terminal software, in the United States District Court for the Western District of Texas Waco Division: *CloudOfChange, Inc., Plaintiff v. Lightspeed POS, Inc., Defendant*; 6:21-cv-01102-ADA (April 2023 to October 2023)
- **Abbott v. Dexcom** - Forensic Software Expert, contracted by Intuity Consultants, Keker, Van Nest & Peters LLP counsel for the defendant, for patent litigation regarding medical device software, in the United States District Court for the District of Delaware: *Abbott Diabetes Care Inc. and Abbott Diabetes Care Limited, Plaintiffs v. Dexcom, Inc., Defendant*; C.A. No. 21-977 (KAJ) (November 2022 to April 2023)
- **VideoShare v. Meta** - Forensic Software Expert, contracted by Intuity Consultants, Kilpatrick Townsend, counsel for the defendant, for patent litigation regarding digital video distribution, in the United States District Court for the Western

District of Texas: *VideoShare, LLC v. Meta Platforms, Inc.*; 6:21-cv-00254 (November 2022)

- **Broadband iTV v. Comcast** - Forensic Software Expert, contracted by Intuity Consultants, Davis Polk counsel for a proposed respondent, for patent litigation regarding consumer video entertainment devices, in the United States International Trade Commission: *Broadband iTV, Inc. (Complainant) v. Comcast Corporation, Charter Communications, Inc., and Altice USA, Inc. (Proposed Respondents)*; (August 2022 to October 2022)
- **Google v. Sonos** - Forensic Software Expert, contracted by Precedia Associates, Quinn Emanuel Urquhart & Sullivan counsel for the plaintiff, for patent litigation regarding consumer audio entertainment devices, in the United States District Court, Northern District of California: *Google LLC (Plaintiff) v. Sonos, Inc. (Defendant)*; Case No. 3:20-cv-06754-WHA (February 2022 to July 2022)
- **eBuddy v. LinkedIn** - Forensic Software Expert, contracted by Edmonds & Schlather, Edmonds & Schlather counsel for the plaintiff, for patent litigation regarding social media services, in the United States District Court for the District of Delaware: *eBuddy Technologies B.V., Plaintiff v. LinkedIn Corporation, Defendant*; C.A. No. 20-cv-1501-MN (December 2021 to October 2025)
 - Filed declaration on 2025-05-08
 - Title: *Declaration of David Znidarsic in support of eBuddy's letter brief*
 - Filed declaration on 2025-04-24
 - Title: *Declaration of David Znidarsic in support of eBuddy's letter brief*
 - Filed declaration on 2025-04-21
 - Title: *Declaration of David Znidarsic submitted in support of eBuddy's responsive letter brief*
- **Facebook v. BrandTotal** - Forensic Software Expert, contracted by Precedia Associates, WilmerHale counsel for the plaintiff, for a breach of contract and violation of Computer Fraud and Abuse Act (CFAA) litigation regarding social media services, in the United States District Court, Northern District of California: *Facebook, Inc., Plaintiff v. BrandTotal LTD., and Unimania, Inc., Defendants*; Civil Action No. 3:20-CV-07182-JCS (December 2021 to January 2022)
- **StreamScale v. Intel** - Forensic Software Expert, contracted by Intuity Consultants, WilmerHale counsel for a defendant, for patent litigation regarding data management technologies, in the United States District Court for the Western District of Texas: *StreamScale, Inc., Plaintiff v. Cloudera, Inc., Automatic Data Processing Inc., Experian PLC, Wargaming (AUSTIN), Inc., and Intel Corporation, Defendants*; Case No. 6:21-cv-00198-ADA (August 2021 to December 2021)
- **Chamberlain v. Overhead Door** - Forensic Software Expert, contracted by Winston & Strawn LLP, Winston & Strawn LLP counsel for the plaintiff, for patent litigation regarding consumer and industrial devices, in the United States District Court for

the Eastern District of Texas, Marshall Division: *The Chamberlain Group, Inc., Plaintiff v. Overhead Door Corporation, et al, Defendants*; Case No. 2:21-CV-0084-JRG (July 2021 to June 2022)

- **Zoho v. Freshworks** - Forensic Software Expert, contracted by Intuity Consultants, Keker, Van Nest & Peters LLP counsel for the defendant, for trade secret litigation regarding Customer Relationship Management (CRM) services, in the United States District Court for the Northern District of California: *Zoho Corporation Pvt. Ltd v. Freshworks, Inc.*, Case No. 3:20-cv-01869-VC (July 2021 to November 2021)
- **Oracle v. Rimini Street** - Forensic Software Expert, contracted by JurisLogic, Morgan, Lewis & Bockius counsel for the Plaintiffs, for copyright litigation regarding database management software, in the United States District Court, District of Nevada: *Oracle USA, Inc., Oracle America, Inc., and Oracle International Corporation, Plaintiffs, v. Rimini Street, Inc., Seth Ravin, Defendants*; Case No. 2:10-cv-00106-LRH-PAL (May 2021 to June 2021)
- **Sonos v. Google** - Forensic Software Expert, contracted by Precedia Associates, Quinn Emanuel Urquhart & Sullivan counsel for the defendant, for patent litigation regarding consumer audio devices, in the United States District Court for the Western District of Texas, Waco Division: *Sonos, Inc. (Plaintiff), v. Google LLC, (Defendant)*; Case 6:20-cv-00881-ADA (May 2021 to March 2022)
- **Commvault v. Rubrik** - Forensic Software Expert, contracted by Precedia Associates, Quinn Emanuel Urquhart & Sullivan, LLP counsel for the plaintiff, for patent litigation regarding database management software, in the United States District Court for the District of Delaware: *Commvault Systems, Inc. (Plaintiff and Counterclaim-Defendant), v. Rubrik Inc., (Defendant and Counterclaim-Plaintiff)*; Case No. 20-524-MN (April 2021 to August 2021)
- **MedImpact v. IQVIA** - Forensic Software Expert, contracted by JurisLogic, Pillsbury Winthrop Shaw Pittman counsel for the defendant, for trade secret litigation regarding health care management systems, in US District Court, Southern District of California: *MedImpact Healthcare Systems, Inc., et al. v. IQVIA Inc., et al.*; Case No. 19-cv-01865-GPC-DEB (February 2021 to November 2021)
- **Flexera** - Forensic Software Expert, contracted by Knobbe Martens, pre-litigation effort to evaluate copyright infringement contentions regarding commercial software packaging technologies (November 2020)
- **Facebook v. BlackBerry** - Forensic Software Expert, contracted by JurisLogic, Cooley counsel for the plaintiff, for trade secret litigation regarding vehicular Electronic Logging Devices (ELDs), in United States District Court for the Northern District of California: *Facebook, Inc. v. BlackBerry Limited and BlackBerry Corporation*; Case No. 4:18-cv-05434-JSW (August 2020 to December 2020)
- **JurisLogic** - Open Source Software Expert for a client in the desktop software space, contracted by JurisLogic (June 2020)
- **Qualcomm v. Apple** - Forensic Software Expert, contracted by JurisLogic, Fish & Richardson and Durie Tangri counsels for the defendant, for trade secret litigation

regarding a consumer device manufacturer and one of its electronic parts suppliers, in San Diego Superior Court: *Qualcomm Incorporated v. Apple Inc.*; Case No. San Diego Superior Court Case No. 37-2017-00041389-CU-BC-NC (December 2018 to April 2019)

- **Apple v. Qualcomm** - Forensic Software Expert, contracted by JurisLogic, Bois Schiller Flexner counsel for the plaintiff, for patent litigation regarding a consumer device manufacturer and one of its electronic parts suppliers, in the United States District Court for the Southern District of California: *Apple Inc. v. Qualcomm Incorporated*; Case No. 3:17-CV-1375-DMS-MDD (November 2018 to December 2018)
- **Motorola v. Hytera** - Forensic Software Expert, contracted by JurisLogic, Steptoe & Johnson counsel for the defendant, for trade secret and copyright litigation regarding commercial two-way radio technologies, in the United States District Court for the Northern District of Illinois, Eastern Division: *Motorola Solutions, Inc. et al. v. Hytera Communications Corporation Ltd., et al.*; Civil Action No.: 1:17-cv-01973 (October 2018 to March 2020)
- **TechDNA** - Open Source Software Expert and Software Security Expert for a client in the healthcare software space, contracted by TechDNA (August 2018)
- **Flexera** - Patent Portfolio Evaluator for a client in the digital rights management space, contracted by Knobbe Martens: *Flexera Software LLC* (August 2018)
- **TechDNA** - Open Source Software Expert and Software Security Expert for a client in the desktop software space, contracted by TechDNA (June 2018)
- **Boston Authentication Solutions v. Flexera** - Testifying Expert, contracted by Knobbe Martens, Knobbe Martens counsel for the defendant, for patent litigation regarding digital rights management technologies; case settled before expert report was due: *Boston Authentication Solutions, LLC v. Flexera Software LLC* (April 2018 to May 2018)
- **TechDNA** - Open Source Software Expert and Software Security Expert for a client in the desktop software space, contracted by TechDNA (March 2018 to July 2018)
- **Oracle v. Rimini Street** - Forensic Software Expert, contracted by JurisLogic, Morgan, Lewis & Bockius counsel for the counterclaimant, for copyright litigation regarding database management software, in the US District Court for the District of Nevada: *Rimini Street, Inc. (Plaintiff) v. Oracle International Corporation, et al. (Defendant)*; *Oracle America, Inc., et al. (Counterclaimants) v. Rimini Street, Inc., et al. (Counterdefendants)*; Civil Case No. 2:14-cv-01699 LRH-CWH (September 2017 to November 2022)
 - Was disclosed in the *May 4, 2018 Expert Report of Barbara Ann Frederiksen-Cross* as a colleague who aided in the analysis and wrote exhibit drafts for the export report.
- **Black Duck** - Open Source Software Expert for an open source security and license compliance provider, contracted by Black Duck (August 2017 to October 2017)

- **JLI** - Open Source Software Expert for clients in the internet software space, contracted by JLI (July 2017)
- **TechDNA** - Open Source Software Expert, contracted by TechDNA (July 2017)

Silicon Valley Experience

- **Flexera / Macrovision - San Jose, CA - Information Security Officer, Technology Officer, Vice President of Engineering (2001 - 2017)**
an intellectual property protection company
 - Technical forensic lead on many multi-year litigation proceedings involving Flexera's and Macrovision's patents, copyrights, trademarks, and software technologies, all resulting in favorable outcomes. Work included deep prior art research, giving three depositions, and managing subpoena responses.
 - Engaged as fact witness by Knobbe Martens, counsel for Flexera, deposed for patent litigation regarding digital rights management technologies
 - Engaged as fact witness by Knobbe Martens, counsel for Macrovision, deposed for copyright litigation regarding digital rights management technologies
 - Subject matter expert for Flexera's Legal team on all license agreement issues involving Flexera's technology.
 - Subject matter expert for Flexera's Engineering team on electronic license management security issues.
 - Created, and for 10 years managed, the Intellectual Property Office at Flexera, responsible for the prosecution and defense of the entire patent, copyright, trademark, and domain name portfolios.
 - Created, and for 9 years managed, the Open Source Usage Governance Program at Flexera, culminating in Flexera's acquisition of Palamida.
 - Led the technical and intellectual property due diligence of all Flexera target acquisitions, partners, and suppliers.
 - Managed the multi-year audit of Flexera's use of IBM's Cognos software, resulting in KPMG concluding that use to be fully compliant.
- **Virage - San Mateo, CA - Software Development Director (2000 - 2001)**
a digital video management company
- **Informix - Menlo Park, CA - Software Development Director, Software Development Manager, Program Manager (1992 - 2000)**
a database management company
- **Ingres - Alameda, CA - Software Development Manager (1990 - 1992)**
a database management company
- **Quintus - Palo Alto, CA - Software Development Manager, Software Developer (1985 - 1990)**
an artificial intelligence programming language company

Education

- **Master of Science in Computer Science, Stony Brook University (1985)**
 - Awarded full scholarship and salaried teaching assistant post
 - Course lecturer for assembly language software development classes
 - Thesis project: design and implementation of a compiler and runtime environment for the interpreted artificial intelligence computer programming language Prolog; including lexical analysis, syntactic analysis, and assembly code generation
- **Bachelor of Science in Mathematics, Ohio State University (1983)**
 - Discrete Math concentration
 - Minor in Computer Science

Technical Skills

- Written software in scikit-learn, Swift (iOS), C (UNIX, Windows, macOS), Golang/Go, Java, Python 3.x and 2.x, JavaScript, Node.js, TypeScript, SQL, PSQL, PL/SQL, Jet SQL, BASIC/VBA, Motorola 68000 assembly language, Sun SPARC assembly language, Bourne shell script (aka bash), OpenSCAD, FreeCAD, GCODE, CGI, PHP, XQuery, XSL/XSLT, XPath, awk, perl, make, Postscript, Prolog, Emacs Lisp, Pascal, Modula2, COBOL, PL/1, Fortran, JCL, NXT-G, Hypertalk, Ruby, HTML, XML, JSON
- Analyzed software written in PyTorch, TensorFlow/Keras, ONNX, C++, Objective-C, Verilog/RTL, Verilog-Perl, C#, Ember, React, Lua, Scala, Kotlin, Groovy, YAML, Kafka, Thrift, Proto, IA64 assembly language, and proprietary DSP assembly language
- Analyzed implementations of standards: DisplayPort, USB-C, PCIe, MoCA, H.264/AVC, H.265/HEVC, OM/AV1, 3GPP, 5G, 4G/LTE, 3G/WCDMA, XMPP, HTTP, HTTP/S, TCP, UDP, IP, MQTT, SSL, TLS, SPI, I2C, UART, Bluetooth Low Energy (BLE), OBD-II
- Litigations related to the following technologies: Artificial Intelligence, Neural Network Training and Inference/Prediction, Supervised Machine Learning, Electronic Logging Devices (ELDs), Database Management, Cellular Networks, Mobile Devices, Web Applications, Web Servers, Web Application Servers, Digital Rights Management, Medical Devices, Health Care Applications, Home Entertainment Devices, Home Entertainment Networks, Industrial Devices, Digital Video Formats, Digital Video Streaming, Customer Relationship Management (CRM), Point of Sale Devices, Social Media Services, Social Media Ad Platforms, Data Privacy, Smart Televisions, Smart Wearables, Online Wagering, Geolocation, Communication Infrastructure.
- Developed iOS app published on the Apple App Store

Patents

- 8,997,176 - Device Identification Based on Event Logs
- 8,918,371 - Event Log Compensation
- 7,849,017 - Enforced Seat-Based Licensing
- 11/069,736 - Authenticated and confidential communication between software components executing in un-trusted environments

Certifications

- Information Security Manager® (CISM), issued by ISACA, license number 1736381

Non-technical Skills

- Excellent verbal and written communication skills
- Frequent public speaker on technical topics
- Years of technical writing experience
- Team management, project management, and collaboration skills

Publications

- *"Software Defined Networking: Monetising and Entitlement,"* Network Computing July 2013 Network Computing. See: <http://www.btc.co.uk/Articles/index.php?mag=Networking&page=compDetails&link=2644&cat=Network>
- *"Flexera Software Joins Distributed Management Task Force (DMTF) to Help Develop Cloud Licensing Standards,"* Aug 2011 Macrovision (quoted in press release). See: <https://www.flexerasoftware.com/enterprise/company/news-center/press-releases/Flexera-Joins-DMTF-Cloud-Licensing-Standards-Task-Force.html>
- *"Visible Ops: Private Cloud,"* Apr 2011 IT Process Institute (quoted in book). See: https://www.amazon.com/s/ref=nb_sb_noss?url=search-alias%3Dstripbooks&field-keywords=visible+ops+private+cloud

- "Why Software Publishers are Migrating From Certificates to Activations," Oct 2010 Softsummit. See: <https://www.slideshare.net/flexerasoftware/why-software-publishers-are-migrating-from-certificates-to-activations>
- "Entitlement and Usage Management Headaches Part II: Too many product models," Aug 2010 Cambridge Network. See: <http://blogs.flexerasoftware.com/ecm/2010/08/entitlement-and-usage-management-headaches-part-ii-too-many-product-models-configurationsstrategies-for-reducing-skus.html>
- "Entitlement and usage management headaches - Part I: Too many product models," Aug 2010 Cambridge Network. See: <https://www.cambridgenetwork.co.uk/news/entitlement-and-usage-management-headaches-part-i-too-many/>
- "Managing Compliance and Software Lifecycles for Medical Device Manufacturers," Apr 2010 Medical Design Technology Magazine. See: <https://www.mdtmag.com/article/2010/04/managing-compliance-and-software-lifecycles-medical-device-manufacturers>
- "Thinking About Virtualization," Nov 2009 Softsummit (coauthor). See: http://www.softsummit.com/library/presentations/2009/Thinking%20About%20Virtualization_David%20Znidarsic.pdf
- "Entitlement-based, Field-upgradeable Hardware," Jun 2007 Flexera Software. Document no longer available on-line, but available upon request
- "Licensing in Virtual Environments," Oct 2006 Flexera Software. See: http://www.softsummit.com/library/presentations/2006/DavidZnidarsic_Macrovision.pdf
- "Setting a Course for SaaS," Oct 2006 Flexera Software. Document no longer available on-line, but full text is available here: <https://www.dropbox.com/s/zcpu8k880lejdg/Setting%20a%20Course%20for%20SaaS.docx?dl=0>
- "Beyond the Bells and Whistles; New Software Distribution Models," Jun 2006 Flexera Software. Document no longer available on-line, but available upon request

- "Getting it Wrong on Multicore," Apr 2005 CNET. See: <https://www.cnet.com/news/getting-it-wrong-on-multicore/>
- "Macrovision Calls for Value-Based Licensing in Wake of Multi-Core Processing Debate," Apr 2005 Macrovision (quoted in article). See: <https://www.flexerasoftware.com/producer/company/news-center/press-releases/Value-Based-Licensing-Multi-Core-Processing-Debate.html>
- Expert Source Code Analysis
 - o [Source Code Printouts](#)
 - o [Cite Lines](#)
 - o [The Ties that Bind](#)
 - o [Unboxing the Unboxed](#)
 - o [Thumbs Down to the Desktop Services Store](#)
 - o [The Workers' Place in History](#)
 - o [Get the Git](#)
 - o [Source of Source Code](#)
 - o [Scope of Source Code](#)
 - o [Source Code Comments not in Source Code](#)
 - o [Source Code GPS](#)
 - o [Truthy and Falsey Values](#)
- Information Security and Data Privacy
 - o [Practical guide to data privacy](#)
 - o [Practical proprietary and confidential information handling](#)
 - o [Reading the water for phish](#)
 - o [Gone phishin'](#)
 - o [Don't rely on password validity rules and mangling](#)
 - o [Personalized passphrase](#)
 - o [Beware of public Wi-Fi](#)
 - o [PII and Business Confidential Information \(BCI\)](#)
 - o [Tarred with the same brush](#)
 - o [Data Privacy Requires Data Security, Just Ask Equifax](#)
- Product Composition Risk Management
 - o [Product Composition Risk Management](#)
 - o [Crowdsourcing without the crowd](#)
 - o [Shadow Engineering](#)
 - o [Web APIs are the New Open Source Software](#)
 - o [We are all now in a Regulated Industry](#)
 - o [Open source governance hot potato](#)
 - o [Simple question, not so simple answer](#)
 - o [Assume Every Application is an On-Premises Application](#)
 - o [Assume Every Application is a Cloud Application](#)
 - o [Compliant? Sure, But with What?](#)
 - o [Best Technology Stack Transcends Language](#)
 - o [Can brand categorization inspire SCA innovation?](#)

Interests

- Furniture design and woodworking
- 3D printer construction, 3D model design, and 3D model printing
- Radio-controlled quadcopter and sailboat construction
- Sabermetrics