

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

META PLATFORMS, INC.; INSTAGRAM, INC.; WHATSAPP LLC; META
PLATFORMS TECHNOLOGIES, LLC; AND GIPHY, INC.

Petitioners

v.

VL COLLECTIVE IP LLC

Patent Owner

U.S. PATENT NO. 7,436,980

Case IPR2023-00924

**PETITIONERS' OBSERVATIONS ON CROSS-EXAMINATION
TESTIMONY OF ELI SABER, PH.D.**

In accordance with the Board's Order dated July 3, 2024 (Paper 41), Petitioners respectfully submit the following observations on the August 13, 2024 cross-examination testimony of Patent Owner's expert, Eli Saber, Ph.D. (Ex. 1054) regarding his Supplemental Declaration (Ex. 2007) made in support of Patent Owner's July 24, 2024 Sur-Reply (Paper 44).

1. Testimony concerning the '980 Patent

In Exhibit 1054 at 316:1-4, 317:3-5, 317:19-20, 317:21–318:2, and 321:16-22, Dr. Saber testified that people have used different types of spatio-temporal models in doing object detection, and stated that the “context” of the '980 Patent supported Patent Owner's construction of the term “spatio-temporal model.” This testimony is relevant to Paragraphs 24–29 of Dr. Saber's Supplemental Declaration, where Dr. Saber states that the inventors “repeatedly and unambiguously defined ‘spatio-temporal model.’” This is contradictory, however, to the specification of the '980 Patent, which does not explicitly or clearly define the term “spatio-temporal model.” *See Thorner v. Sony Comput. Entertainment America*, 669 F.3d 1362, 1365 (Fed. Cir. 2012).

In Exhibit 1054 at 312:5-18 and 341:11-13, Dr. Saber testified and acknowledged that “graphical model” or two-layer model are not in the language of claims 1/9, claims 2/10, or claims 4/12 but “this invention obviously discusses graphical object models for detection and tracking.” This is relevant to Paragraphs

15, 26, 33, 68 of Dr. Saber's Supplemental Declaration, and further supports Petitioners' argument that "spatio-temporal model" of claims 1/9 is not a graphical model. *See* Paper 32 (Reply) at 4–5; *Trustees of Columbia Univ. in City of New York v. Symantec Corp.*, 811 F.3d 1359, 1364 (Fed. Cir. 2016).

In Exhibit 1054 at 490:2-12, Dr. Saber testified that the '980 Patent "looks at the object as a series of components." In addition, in Exhibit 1054 at 328:10-12 and 331:10-12, Dr. Saber testified that "the components have to *define* the object. So the components – I have an object and I have a collection of components that define the object" and "you need to be able to measure these collection of components." This testimony is relevant to Paragraphs 8–23 (particularly Paragraphs 8, 12, 14, 15) of Dr. Saber's Supplemental Declaration, where Dr. Saber opines that "object" in claim limitations 1/9[d] and 1/9[e] cannot be a "collection of components." *See* Ex. 2007, ¶ 14. This testimony supports Petitioners' argument as to the proper construction and meaning of claim limitation 1/9[e]. *See* Paper 32 (Reply) at 1–5.

Additionally, in Exhibit 1054 at 332:2–333:4 and 338:11-17, Dr. Saber testified that claims 2/10 of the '980 Patent comprises providing detectors for each of the collection of components, but that the '980 Patent "doesn't exclude from providing detectors for the object." This testimony is relevant to Paragraphs 15, 28, 69 of Dr. Saber's Supplemental Declaration and the contradicting disclosure in the specification versus explicit language in the claims.

In Exhibit 1054 at 467:12–468:7 (more broadly 465:7–468:14) and 462:17–463:7, Dr. Saber testified that even when $w = 1$ in the windowed smoothing algorithm disclosed in the '980 Patent, the configuration of the model changes from frame to frame. In Exhibit 1054 at 454:13–17, and 456:3–6, Dr. Saber also testified that “many applications used windowed smoothing algorithms.” This testimony is relevant to Paragraph 18–20 of Dr. Saber’s Supplemental Declaration, where Dr. Saber stated that a $w = 1$ scenario is excluded by the claimed subject matter of the '980 Patent. This testimony supports Petitioners’ argument that claim limitation 1/9[e] does not require multi-image analysis. *See* Paper 32 (Reply) at 1–2, 11; Ex. 1052, ¶¶ 14, 23–24, 28–35. This testimony further supports Dr. Bajaj’s opinion (Ex. 1052, ¶ 29) that in the case of $w = 1$, Belief Propagation is performed between the determination of likelihoods of multiple components present within the image frame, for their spatial location and spatial connectivity within the multi-component spatio-temporal model.

In Exhibit 1054 at 316:1–6, 316:19–317:5, 411:22–412:6, 426:20–427:13, 440:7–11, 441:3–11, 474:21–475:4, 476:20–477:4, 592:19–593:22, 595:12–17, and 603:13–18, Dr. Saber cited to the “context” of the '980 Patent. This testimony is relevant to Paragraphs 17 and 18 of Dr. Saber’s Supplemental Declaration, where he purportedly discusses the plain meaning or ordinary meaning of claim terms.

2. Testimony concerning Zhao (Ex. 1006)

In Exhibit 1054 at 441:12-22, 426:4–427:9, 418:7–421:12, and 435:1-9, Dr. Saber testified that Zhao “has a spatial model” with a “*temporal* part,” which is “a deterministic motion estimation...” and that “[t]here’s deterministic motion estimation from frame to frame” and that Zhao’s dynamic body model change from frame to frame. This testimony is relevant to Paragraphs 34–38 and 43–44 (particularly Paragraphs 36–37) of Dr. Saber’s Supplemental Declaration (Ex. 2007) regarding how a POSITA would have understood Zhao (Ex. 1006). Specifically, in his Supplemental Declaration, Dr. Saber stated that the “elements” of Zhao’s body model “have no temporal components at all.” Ex. 2007, ¶ 37. This is contrary to his deposition testimony. Further, Dr. Saber’s testimony supports Petitioners’ argument that Zhao does apply a temporal analysis “by incorporating motion information into the model.” *See* Paper 32 (Reply) at 8–11, 12–14; Ex. 1006 at Figure 5.7.

3. Testimony concerning Steffens (Ex. 1007)

In Exhibit 1054 at 592:5–593:7, Dr. Saber testified that the landmarks or features disclosed in Steffens (Ex. 1007) “would not be described as components of the face” because “[t]he word component doesn’t show up in Steffens.” This testimony is relevant to Paragraphs 48–51 (particularly Paragraph 51) of Dr. Saber’s Supplemental Declaration, where he states that Steffens’ wavelet-based approach is “incompatible” with Zhao. This testimony further supports Dr. Bajaj’s

Supplemental Declaration (Ex. 1052) at Paragraphs 42–44 and Petitioners' argument that a POSITA would have understood that Steffens' wavelet-based approach is not fundamentally different from Zhao's contour-based approach (Paper 32 at 14–18).

In Exhibit 1054 at 579:14–580:15, Dr. Saber testified that “the dot product between two vectors is essentially how much of Vector 1 is represented or rides along Vector 2. So it provides a sense of similarity between the vectors.” This testimony is relevant to Paragraphs 48–50 of Dr. Saber's Supplemental Declaration, where he states that the vectors of Steffens are not probabilities. This testimony supports and is consistent with Dr. Bajaj's Supplemental Declaration that the more similar two vectors are, the higher their dot product, which is a measure of probability of similarity between two entities. Ex. 1052, ¶¶ 42–45, 52; *see also* Ex. 1051 at 253:8–266:10; Ex. 1007 at 9:47-65, Figure 12.

4. Testimony concerning Ozer (Ex. 1008)

In Exhibit 1054 at 600:7-17, Dr. Saber testified that a model in a second frame would “model what has changed in that particular frame” and that the “only thing that's cross frames is the feature motion,” but that there is “no spatio-temporal models with probability.” This testimony is relevant (and contrary) to Paragraphs 57–58 of Dr. Saber's Supplemental Declaration, where he states that Ozer's motion classification over multiple images does not mean object detection spans multiple images. This testimony supports Dr. Bajaj's opinion and Petitioners' position that

the classifying of activities in Ozer involves detecting and tracking a moving object in multiple frames. *See* Ex. 1052, ¶¶ 58–59; Ex. 1004, ¶ 193; Paper 32 at 18–20.

In Exhibit 1054 at 609:3–610:5, Dr. Saber testified that Ozer teaches tracking “only objects that fit the model of the user defined subject.” This testimony is relevant to Paragraphs 57–58 of Dr. Saber’s Supplemental Declaration, and supports Dr. Bajaj’s opinion that “matched nodes” identified using the graph-matching algorithm of Ozer are “tracked by using ellipse parameters for the consecutive frames,” and that a POSITA would have understood that Ozer classifies and tracks objects parts over multiple frames. *See* Ex. 1008 at 7:25-31, 4:38-41; Ex. 1052, ¶¶ 60, 63–64.

5. Testimony concerning TLP (Ex. 1009)

In Exhibit 1054 at 567:16–568:10, 572:4–573:12, and 573:14–574:2, Dr. Saber testified that he had no personal knowledge regarding the circumstances of the two emails at Exhibits 2009 and 2010 and saw these for the first time after he was retained as an expert in this proceeding, and that he did not personally attend the 2004 Conference on Computer Vision and Pattern Recognition (“CVPR 2004”) or submit a paper to CVPR 2004. This testimony is relevant to Paragraphs 61–64 of Dr. Saber Supplemental Declaration, where he provided his opinion that TLP (Ex. 1009) was not made publicly accessible or disseminated based on his “inspect[ion].” This testimony further supports the Declaration of Petitioners’ expert, Dr. Chandrajit

Bajaj, and Petitioners' argument concerning the publicly availability of TLP at CVPR 2004. *See* Ex. 1004, ¶¶ 65–66; Paper 3 (Petition) at 6; Paper 32 (Reply) at 5–7.

In Exhibit 1054 at 611:1-15 and 612:5-17, Dr. Saber testified that TLP has a “probabilistic relationship between these joints and over time,” but that a joint is “not looking at the component.” This testimony is relevant to Paragraphs 75–77 of Dr. Saber's Supplemental Declaration where Dr. Saber opines that Dr. Bajaj and Petitioners remove any distinction between object and components. This testimony supports Dr. Bajaj's opinion and Petitioners' argument that TLP discloses a model with object-level nodes or object-level constraints. *See* Ex. 1052, ¶¶ 65–71, 75.

In Exhibit 1054 at 531:4-17, Dr. Saber testified that there is “no temporally compatibility in TLP” and the formulation “is strictly on a spatial-type compatibility and going across frames. So it's apples and oranges.” This testimony is relevant to Paragraph 70 of Dr. Saber's Supplemental Declaration. This testimony further supports Dr. Bajaj's opinion that TLP uses belief propagation to message between frames and that TLP's graphical model corresponds to position and angle relationships between adjacent body parts in space and time. *See* Ex. 1052, ¶¶ 69–71; Ex. 1009, Figure 1; Ex. 1019

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Respectfully submitted,

/s/ W. Todd Baker

W. Todd Baker (No. 45,265)
todd.baker@kirkland.com
Postal and Hand-Delivery Address:
KIRKLAND & ELLIS LLP
1301 Pennsylvania Ave., N.W.
Washington, D.C. 20004
T: (202) 389-5000
F: (202) 389-5200

Ellisen Shelton Turner (No. 54,503)
ellisen.turner@kirkland.com
Postal and Hand-Delivery Address:
KIRKLAND & ELLIS LLP
2049 Century Park East,
Los Angeles, CA 90067
T: (310) 552-4200
F: (310) 552-5900

Jonathan D. Brit (No. 75,646)
jonathan.brit@kirkland.com
Postal and Hand-Delivery Address:
KIRKLAND & ELLIS LLP
601 Lexington Avenue
New York, NY 10022
T: (212) 390-4209
F: (212) 446-4900

Yan-Xin Li (No. 76,981)
yanxin.li@kirkland.com
Postal and Hand-Delivery Address:
KIRKLAND & ELLIS LLP
555 California Street, 27th Floor
San Francisco, CA 94104
T: (415) 439-1400
F: (415) 439-1500

Jennifer R. Bush (No. 50,784)
jbush@fenwick.com
Postal and Hand-Delivery Address:
FENWICK & WEST LLP
801 California Street
Mountain View, CA 94041
T: (650) 988-8500

Attorneys for Petitioners

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing document was served on August 28, 2024, via electronic mail to counsel of record for the Patent Owner at the following:

Christine E. Lehman (Reg. No. 38,535)
clehman@reichmanjorgensen.com
Philip J. Eklem (Reg. No. 76,490)
peklem@reichmanjorgensen.com
REICHMAN JORGENSEN LEHMAN & FELDBERG LLP
1909 K Street, NW, Suite 800
Washington, DC 20006

Jaime F. Cardenas-Navia
jcardenas-navia@reichmanjorgensen.com
Michael Matulewicz-Crowley (Reg. No. 72,220)
mmatulewicz-crowley@reichmanjorgensen.com
REICHMAN JORGENSEN LEHMAN & FELDBERG LLP
400 Madison Avenue, Suite 14D
New York, NY 10017

RJ_VideoLabs-Facebook@reichmanjorgensen.com

/s/ W. Todd Baker

W. Todd Baker
(Reg. No. 45,265)