

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.,
Petitioner

v.

AUTONOMOUS DEVICES, INC.,
Patent Owner

Case: IPR2023-01169
U.S. Patent No. 10,607,134

**PETITIONER'S SUR-REPLY TO PATENT OWNER'S REPLY TO
OPPOSITION TO MOTION TO AMEND**

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EXHIBIT LIST

TESLA-1001	U.S. Patent No. 10,607,134
TESLA-1002	Prosecution File History for U.S. Patent No. 10,607,134
TESLA-1003	Declaration of Jason Janet, Ph.D.
TESLA-1004	Curriculum Vitae of Jason Janet, Ph.D.
TESLA-1005	U.S. Patent No. 8,142,268 (“Thomas”)
TESLA-1006	U.S. Patent No. 9,434,072 (“Buehler”)
TESLA-1007	U.S. Patent No. 9,008,840 (“Ponulak”)
TESLA-1008	U.S. Patent App. Pub. No. 2003/0171146 A1
TESLA-1009	U.S. Patent App. Pub. No. 2003/0032467 A1
TESLA-1010	U.S. Patent No. 9,195,934
TESLA-1011	Silva, Marty, <i>A Visual History of American Football Games</i> , IGN, July 8, 2013, available at, https://www.ign.com/articles/2013/07/08/a-visual-history-of-football-video-games
TESLA-1012	Macy, Seth G., <i>A Visual History of Racing Games</i> , IGN, updated Sept. 6, 2017, available at, https://www.ign.com/articles/2015/03/27/a-visual-history-of-racing-games
TESLA-1013	<i>Final Fantasy XI Released</i> , IGN, updated June 16, 2012, available at, https://www.ign.com/articles/2003/10/29/final-fantasy-xi-released
TESLA-1014	Ellis, Tim, et al., <i>Ellipse Detection and Matching with Uncertainty</i> , pp. 137-144

TESLA-1015	Pomerleau, Dean A., <i>Neural Network Perception for Mobile Robot Guidance</i> , Feb. 16, 1992
TESLA-1016	Lee, Ten-min, et al., <i>Computer Simulation of Learning Experiments with Autonomous Mobile Robots</i> (Univ. of Manchester, March 26, 1999)
TESLA-1017	Durrant-Whyte, Hugh, et al., <i>Simultaneous Localisation and Mapping (SLAM): Part I The Essential Algorithms</i>
TESLA-1018	Smith, Randall, et al., <i>Estimating Uncertain Spatial Relationships in Robotics</i> , pp. 167-193
TESLA-1019	Zimmer, Kyle, <i>Evolution of the Game Console</i> , available at citadel.sjfc.edu/students-virtual/k/knz03095/public_html/imd/museum/index.html
TESLA-1020	Stuart, Keith, <i>PS4 and Xbox One: so why aren't they backwards compatible?</i> , The Guardian, December 12, 2023, available at https://www.theguardian.com/technology/2013/dec/12/ps4-and-xbox-one-so-why-arent-they-backwards-compatible
TESLA-1021	Christian, Mark, <i>Saved Game History: Battery Backups, Memory Cards, and the Cloud</i> , Mailchimp, Feb. 21, 2019, available at https://tedium.co/2019/02/21/video-game-save-state-history/
TESLA-1022	Second Declaration of Dr. Jason Janet
TESLA-1023	Transcript of Dr. Eli Saber Deposition
TESLA-1024	Patent Owner's Response (Paper 26) in IPR2023-01055 on U.S. Patent 11,238,344
TESLA-1025	U.S. Patent No. 7,399,224 to Hirai ("Hirai")
TESLA-1026	Excerpt from Merriam-Webster's Collegiate Dictionary (2014)
TESLA-1027	Navarro, Alex, <i>ESPN NFL 2K5 Review</i> , July 21, 2004, available at https://www.gamespot.com/reviews/espn-nfl-2k5-review/1900-6103135/

I. INTRODUCTION

In response to Petitioner’s Opposition (“**Opposition**,” Paper 30) to Patent Owner’s Motion to Amend (Paper 25), Patent Owner (“**PO**”) in its Reply in Support of Contingent Motion to Amend (“**Reply**,” Paper 33) presents factually incorrect arguments that are premised on a misreading of the art, and arguments that fail to appreciate the robust disclosure in the art and the corresponding explanation presented in the Opposition. As will be demonstrated here, both Patent Owner and the Preliminary Guidance¹ (“**Guidance**,” Paper 31) erred in concluding that Thomas or the Thomas-Hirai combination does not render obvious the Substitute Claims.

II. PATENT OWNER’S ARGUMENTS REGARDING THOMAS’S ALLEGED FAILURE TO RENDER OBVIOUS 3D OBJECTS OF AN APPLICATION ARE BASED ON A FLAWED READING OF THOMAS

Patent Owner’s Reply states that “neither Thomas nor Hirai (nor the Thomas-Hirai combination) discloses 3D objects at all, much less an object representation representing a 3D object,” mirroring similar conclusions reached in

¹ The Board has previously reversed its findings in a Preliminary Guidance and should do the same in this proceeding. *Medytox, Inc. v. Galderma S.A.*, no. 22-1165 (Fed. Cir. Jun. 27, 2023), affirming *Galderma, S.A. v. Medy-Tox Inc.*, PGR2019-00062, Paper 66 (PTAB July 16, 2021).

the Preliminary Guidance. Reply, 5; *see* Guidance, 12-13. These arguments, though, are based on an incorrect reading of Thomas and a flawed understanding of the mapping between Thomas / Thomas-Hirai and the features of the Substitute Claims. Read properly, Petitioner’s mappings of Thomas / Thomas-Hirai to the elements of the claims are robust and renders the Substitute Claims obvious, for the reasons discussed below.

A. Overview of prior art mapping to features of the substitute claims

For clarity, an overview of certain mappings presented in the Petition (Paper 1) and Opposition is set forth in the following table, followed by a detailed discussion of the flaws in Patent Owner’s Reply (and in the Preliminary Guidance).

Claim feature	Example in Thomas / Thomas-Hirai	Support
“an application”	Video game, <i>e.g.</i> , the NFL 2K5 video game	Petition, 31, 49 Opposition, 14
“one or more objects of the application”	Defensive player avatars in a video game such as NFL 2K5	Petition, 29-30 Opposition, 14
“a first / second three dimensional (3D) object of the application”	3D players in the NFL 2K5 video game	Opposition, 14

B. Patent Owner’s argument regarding 3D objects of the application relies on an incorrect characterization of the relationship between Thomas’s computer program and the NFL 2K5 video game

The arguments presented both in Patent Owner’s Reply and in the Preliminary Guidance regarding Petitioner’s mapping of the player avatars in the NFL 2K5 game (as disclosed in Thomas) to the *3D objects of the application*

recited in the Substitute Claims is premised on an incorrect interpretation of Thomas's disclosure. When interpreted consistent with the plain language of Thomas, Petitioner's position regarding the claimed 3D objects is not "incoherent," as Patent Owner alleges, but instead is thoroughly consistent with Thomas's disclosures surrounding the NFL 2K5 game.

Patent Owner's argument, as well as the conclusions drawn in the Preliminary Guidance, is based on the assertion that "the ESPN NFL 2K5 video game is in Thomas' computer program." Reply, 6 (emphasis added); *see* 7 ("the NFL 2K5 game, which is in program 110"); *see* Guidance, 12 ("we observe that the ESPN NFL 2K5 video game resides in Thomas's computer program 110"). This is simply wrong. In fact, Thomas discloses the exact opposite of what Patent Owner asserts: "NFL 2K5 includes a computer program 110." TESLA-1005, 8:60-61. That is, while Patent Owner appears to believe Thomas to disclose that the NFL 2K5 video game is a part of Thomas's computer program 110, the actual disclosure of Thomas is that Thomas's computer program 110 is in the NFL 2K5 video game.

This error infects the entirety of Patent Owner's argument, which collapses under the proper reading of Thomas.

As noted in the table *supra* and as explained in the Opposition, the NFL 2K5 game, disclosed by Thomas as being "currently available in the market,"

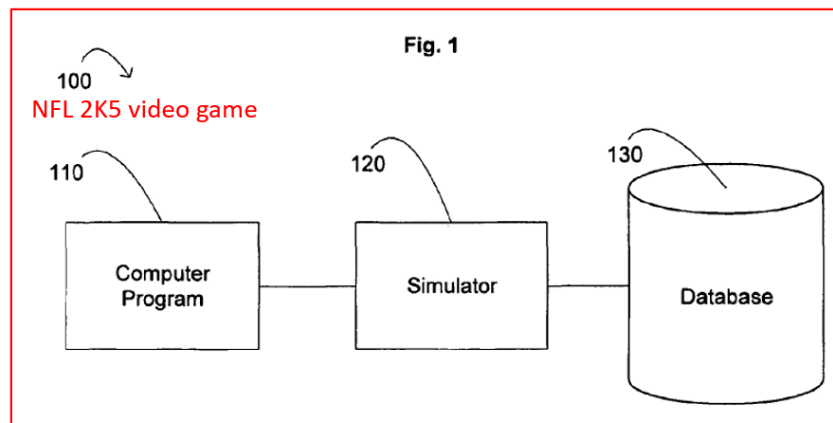
corresponds to the claimed ***application***, and the player avatars of the NFL 2K5 game correspond to the claimed ***3D objects of the application***—*i.e.*, objects of the NFL 2K5 game. TESLA-1005, 8:59-60; *see* Opposition, 14; Petition, 29-31.

Led astray by its misreading of Thomas, Patent Owner refuses to acknowledge this straightforward mapping. Instead, Patent Owner argues that “the parts of Thomas that it mapped to the claimed 3D objects of the application”—*i.e.*, player avatars of the NFL 2K5 game—“are generated by simulator 120,” which “is not in program 110.” Reply, 7. As best understood, Patent Owner thus uses this misconception to conclude the player avatars in Thomas’s NFL 2K5 game do not correspond to 3D objects of an application. *See id.*

As an initial matter, the Substitute Claims impose no requirement on where the objects of the application are generated, and thus whether or not Thomas’s simulator 120 is part of the NFL 2K5 game is irrelevant to the question of whether the player avatars are 3D objects of the application. Player avatars in a video game are objects of an application, as set forth in the Petition (and which Patent Owner did not dispute). *See* Petition, 29-30; Opposition, 14. And the player avatars in the NFL 2K5 application are three dimensional. *See* Opposition, 14; TESLA-1005, 8:55-65; TESLA-1022, ¶¶78-79. Thus, it is evident that, regardless where they are generated, Thomas’s three dimensional player avatars in the NFL 2K5 video game properly correspond to ***3D objects of the application***.

Nevertheless, even to the extent that the location of the generation of the objects is pertinent, Patent Owner's aforementioned error in interpreting Thomas renders moot its argument that the characters of the NFL 2K5 video game are not 3D objects of an application because they are generated by Thomas's simulator 120, which is not in the program 110. *See Reply*, 5-7.

Thomas's computer system 100 includes a computer program 110, a simulator 120, and a database 130, as shown in Thomas's FIG. 1, cited in the Opposition and reproduced *infra*. *See Opposition*, 6; TESLA-1005, 3:40-50.



Thomas, FIG. 1 (annotated)

Thomas identifies the NFL 2K5 video game as an example of its computer system 100 (outlined in red in FIG. 1): “Another example embodiment of a computer system 100 is a video game system that simulates an American football game ... and which is embodied in Visual Concepts’ ESPN NFL 2K5™ (‘NFL 2K5’) video game.” TESLA-1005, 8:55-60. That is, not only does “NFL 2K5

include[] a computer program 110,” as previous discussed (and counter to Patent Owner’s erroneous statements), but it also includes the other elements of the computer system 100, such as the simulator 120 and the database 130. And this makes sense as, for example, simulator 120 merely represents a subset of the code of the NFL 2k5 video game, *i.e.*, a portion of code that enables the game to have realistic single player operation through realistic simulation of a second human player. *See, e.g.*, claim 1 of Thomas, which characterizes simulator processing as first and second processes implemented as sequences of instructions (*i.e.*, code) of a computer program.

With this correct understanding of the architecture of Thomas’s computer system, the flaws in Patent Owner’s argument become apparent. Specifically, Patent Owner’s argument that Thomas’s player avatars in the NFL 2K5 game are not 3D objects of the application because they are generated in the simulator 120 (*see* Reply, 7) is inaccurate. The simulator 120 is part of the computer system 100, which is embodied by the NFL 2K5 video game (*the application*), and thus the player avatars are generated by an element of the NFL 2K5 video game. As such, even were the Substitute Claims to somehow impose a requirement regarding generation of the objects, Petitioner’s identification of the player avatars in the NFL 2K5 game as rendering obvious *3D objects of the application* is robust and consistent with the disclosure of Thomas.

C. Patent Owner’s misreading of Thomas infects its argument that object representations representing the 3D objects are not rendered obvious by Thomas or Thomas-Hirai

Patent Owner argues that “the portions of Thomas that Petitioner mapped to ... object representations are not disclosed as representing 3D avatars of the NFL 2K5 game.” Reply, 7. But Patent Owner does not contest that the object representations represent player avatars. And because, as discussed *supra*, Thomas’s player avatars do indeed correspond to the claimed 3D objects of the application, the portions of Thomas mapped to the claimed object representations represent those 3D objects of the application.

Elsewhere, Patent Owner appears to believe that the object representations themselves must be generated by and/or stored in the application, stating that “Thomas’s simulator 120, which generates the user’s profile including sub-profiles 665/675 [*i.e.*, mapped to the claimed object representations] is not in program 110, and neither is database 130, which stores the user’s profile.” Reply, 6. This is irrelevant. The Substitute Claims impose no requirement on where the object representations are generated or stored. In fact, the Substitute Claims do not even require that the object representations be “of the application,” as they do for the 3D objects discussed *supra*. Patent Owner’s arguments in this regard are divorced from the claim language and should be discarded. Nevertheless, even to the extent some such requirement regarding generation of object representations by the

application or their storage in the application is (improperly) read into the claim language, Thomas or Thomas-Hirai nevertheless satisfies this requirement: the user profile is generated by simulator 120 and stored in database 130, both of which are elements of the NFL 2K5 game, as discussed *supra*.

III. PATENT OWNER OVERLOOKS DISCLOSURE DEMONSTRATING THAT THOMAS'S OR THOMAS-HIRAI'S DATA STRUCTURES ARE GENERATED IN RESPONSE TO PROCESSING TYPE AND LOCATION OF OBJECTS

Patent Owner's assertion that "Thomas and Thomas-Hirai fail to disclose/suggest generating either of these data structures *in response to the claimed processing of a type and a location*" ignores the disclosure of Thomas and the Opposition's explanation of the same. Reply, 9.

As stated in the Opposition, Thomas describes that "one or more current circumstances during the occurrence of the event are analyzed and stored." TESLA-1005, 9:57-59; *see* Opposition, 19. Thomas is explicit that "[c]urrent circumstances can also include the spatial location of individual avatars, such as the linebacker or defensive back," *i.e.*, ***a location of the first 3D object***. TESLA-1005, 9:51-53; *see* Opposition, 19-20 (also citing TESLA-1005, 4:19-24, 4:37-39, 7:56-59, 8:8-11). These current circumstances also include "archetype of the avatar," such as player's position/role, *i.e.*, ***a type of the first 3D object***. TESLA-1005, 4:16-20, 45-51; *see* Opposition, 20-21 (also citing TESLA-1005, 4:31-39, 7:55-64, 8:8-11). Thus, Thomas's analysis of the current circumstances (which

include avatar location and archetype) corresponds to the Substitute Claims’

“processing of a type and a location of the first 3D object.”

Contrary to Patent Owner’s argument that “Petitioner ignores the clear causative relationship expressed in this claim limitation” (Reply, 9), the Opposition explains that the Thomas or Thomas-Hirai data structures are generated in response to this processing of object type and location. Thomas discloses that the analysis of current circumstances (*i.e.*, the ***processing*** of the Substitute Claims) is performed by “the simulator 120” “[d]uring learning mode.” TESLA-1005, 9:35-36; *see* Opposition, 18-19. Thomas also states that “[d]uring operation” in learning mode, “the simulator 120 ... creates ... a user profile,” *i.e.*, generates a data structure that stores those parameters defining the current circumstances (*e.g.*, type and location). TESLA-1005, 4:60-62; *see* Opposition, 18-19. As set forth in the Opposition, in light of this disclosure of Thomas, a POSITA would have recognized generating at least a portion of the user profile specifically in response to processing object type and location—*e.g.*, in order to store that processed data—to be an obvious implementation detail. *See* Opposition, 18-19.

IV. PATENT OWNER’S ARGUMENTS REGARDING CORRELATION BETWEEN DATA STRUCTURES AND INSTRUCTION SETS IGNORES RELEVANT CONTENT IN BOTH THE PETITION AND THE OPPOSITION

In its Reply, Patent Owner argues that the Opposition provided “no analysis or explanation” demonstrating Thomas or Thomas-Hirai’s satisfaction of the

feature [SUB.6] (“wherein the first data structure and the second data structure are correlated with the first one or more instruction sets for operating the first avatar of the application”). Reply, 11. This assertion ignores both the specific explanation regarding this element provided in the Opposition and relevant discussion in the Petition that was referenced in the Opposition. *See* Opposition, 28; Petition, 28-31.

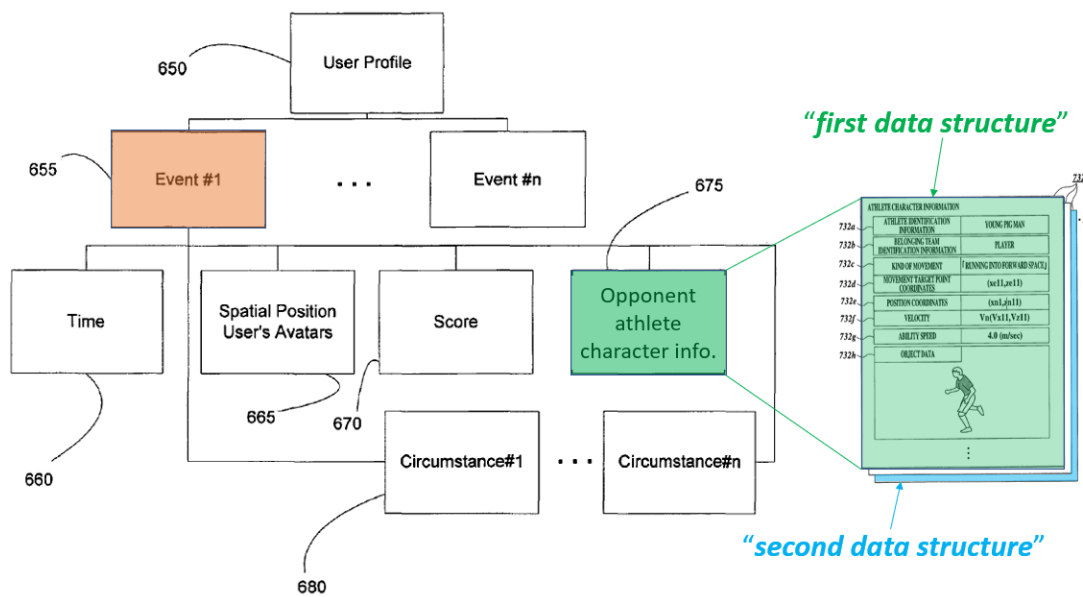
As an initial matter, feature [SUB.6] does not require the existence of any new correlation that was not previously recited in the original Challenged Claims. The Challenged Claims recited that “a first one or more object representations [are] ***correlated with*** a first one or more instruction sets for operating a first avatar of an application,” and the Petition previously established that this feature is disclosed by Thomas. *See* Petition, 28-31; Institution Decision, 26-27. The Substitute Claims merely specify that these first one or more object representations include a first data structure and a second data structure. *See* [SUB.1] (“wherein the first one or more object representations comprise: a first object representation ... and a second object representation ... wherein the first object representation includes a first data structure ... and wherein the second object representation includes a second data structure”). Thus, the first and second data structures of Thomas or Thomas-Hirai are ***correlated with*** the first one or more instruction sets at least because these data structures constitute elements of Thomas’s first one or more

object representations, which (as previously established) are themselves correlated with the first one or more instruction sets.

Nevertheless, the application of Thomas or Thomas-Hirai to feature [SUB.6] was discussed in more detail in the Opposition, yet this explanation was disregarded by Patent Owner. Notably, the treatment of feature [SUB.6] in the Opposition referenced, and is fully consistent with, the Petition's discussion of the correlation between the first one or more object representations and the first one or more instruction sets. *See* Opposition, 28, citing Petition 28-31 (discussing claim element [1.3]).

As set forth in the Petition, in Thomas, the situation/circumstances surrounding occurrence of an event are associated (*correlated*) with a user input (*i.e., the first one or more instruction sets*) responsive to that event. *See, e.g.,* TESLA-1005, 9:35-61; Petition, 28-31. Specifically, a situation is defined by parameters stored in data structures of a user profile, such as parameters specifying position and type of the opposing-team avatars—*i.e., object representations*. *See* Opposition, 28 (citing TESLA-1005, 4:23-24 (“Each event 685 and situation 655 are defined by a set of one or more parameters”), 16-18 (explaining that parameters defining a situation are stored in the data structures of Thomas's user profile). And Thomas also describes that the user profile (*data structures*) containing these parameters defining a situation (*i.e., object representations*) is *correlated* with user

inputs (*i.e.*, ***instruction sets***). See Opposition, 28 (citing TESLA-1005, 5:9-13 (“when a user responds to an event, the user’s response, when recorded, is not only associated with the occurrence of that event, but also with the situation during the occurrence of that event”). Indeed, this correlation is illustrated unambiguously in the composite figure generated in the Opposition and reproduced again *infra*, which shows a correlation between first and second data structures (green and blue, respectively) representing two opposing-team avatars (*i.e.*, object representations) and an event, shown in orange (*i.e.*, the one or more instruction sets). See Opposition, 28; *see also id.*, 27 (annotating FIG. 4 of Thomas).



Thomas-Hirai composite figure based on Thomas, FIG. 4; *see* Opposition, 28

Respectfully submitted,

Dated: 9-16-24

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(1) and 42.6(e)(4)(iii), the undersigned certifies that on September 16, 2024, a complete and entire copy of this Petitioner's Sur-Reply to Patent Owner's Reply to Opposition to Motion to Amend was provided via email to the Patent Owner by serving the email correspondence addresses of record as follows:

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