

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK

HAYDEN AI TECHNOLOGIES, INC.,

Plaintiff,

-against-

SAFE FLEET HOLDINGS LLC, SAFE FLEET
ACQUISITION CORP. and SEON DESIGN
(USA) CORP.,

Defendants.

MEMORANDUM
AND ORDER

No. 23-CV-3471-EK-JRC

JAMES R. CHO, United States Magistrate Judge:

This Order sets forth the Court’s patent claim constructions pursuant to *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996).¹ Plaintiff Hayden AI Technologies, Inc. (“plaintiff” or “Hayden AI”) alleges that defendants Safe Fleet Holdings LLC, Safe Fleet Acquisition Corp. and Seon Design (USA) Corp. (collectively, “defendants” or “Safe Fleet”) infringed upon its interest in U.S. Patent No. 11,003,919 (“the ’919 patent”), Dkts. 144-2, 145-1, which describes “Systems and Methods for Detecting Traffic Violations Using Mobile Detection Devices,” and U.S. Patent No. 11,164,014 (“the ’014 patent”), Dkts. 144-3, 145-2, which describes “Lane Violation Detection Using Convolutional Neural Networks.” *See generally* Fourth Am. Compl. (“FAC”), Dkt. 172.² As explained in further detail below, the parties dispute the appropriate construction of eleven terms in the patent claims. *See* Parties’ Revised Joint Claim Construction Chart (“Joint Claim Construction Chart”), Dkt. 141-1.

On January 17, 2025, the parties filed their opening claim construction briefs. *See* Dkts. 142, 144, 145. On January 31, 2025, both parties filed their responsive claim construction briefs.

¹ The parties consented to the undersigned for purposes of claim construction. *See* Dkt. 185-1.

² Hayden AI also alleges trade secret misappropriation. *See* FAC ¶ 7.

See Dkts. 150, 151. The undersigned held a day-long *Markman* hearing on February 21, 2025.

See Min. Entry dated Feb. 21, 2025; Tr. of *Markman* Hearing (“Tr.”), Dkt. 163.

For the reasons set forth below, the Court construes the disputed terms as follows:

1. “Edge device[s]” as “a mobile edge device”;
2. “Bounding box” or “bounding boxes” (with or without modifiers) as “rectangular or quadrilateral shapes enclosing a detected object”;
3. “Vehicle attributes” according to its plain and ordinary meaning³;
4. “Computer vision library” according to its plain and ordinary meaning;
5. “Plurality of functions” according to its plain and ordinary meaning;
6. “Docker container image” as “a lightweight, standalone, and executable package of software or data that comprises everything needed to run the software or read or manipulate the data including the software code, runtime instructions, system tools, system libraries, and system settings” and “docker container” according to its plain and ordinary meaning; and
7. The “bounding” limitations as follows:
 - a. “Bounding, using the one more processors of the [first or second] edge device, the vehicle and the restricted road area in the [first or second] frame in a plurality of [first or second] bounding boxes outputted by the deep learning model”;
 - b. “Bounding the vehicle and the restricted road area further comprises bounding the vehicle using a vehicular bounding box and bounding the restricted road area using a road bounding box outputted by the deep learning model”;
 - c. “Bound the vehicle in the first frame using a vehicular bounding box; bound the restricted road area in the first frame using a road bounding box outputted by the deep learning model”;
 - d. “Bound the vehicle and the restricted road area in the [first or second] frame in a plurality of [first or second] bounding boxes outputted by the deep learning model”; and
 - e. “Bound the vehicle in the frames with a vehicular bounding box and bound the restricted road area in the frames with a road bounding box outputted by

³ For the reasons discussed below, the Court finds that the plain and ordinary meaning of “attribute” is “a quality, character, or characteristic.”

the deep learning model.”

Background

Hayden AI is “the leading provider of mobile automated bus lane and bus stop enforcement systems in the United States.” FAC ¶ 4. Defendants compete with Hayden AI for government contracts for automated bus lane enforcement services. *See* Defs.’ Opening Claim Constr. Br. (“Defs.’ Br.”) at 1, Dkt. 142. Hayden AI alleges that Safe Fleet’s “ClearLane” automated bus lane enforcement system infringes upon one or more claims in the ’919 and ’014 patents. *See* FAC ¶¶ 1, 5, 6.

1. The ’919 Patent

The ’919 patent has 32 claims, including independent claims 1, 11, and 20. The patent describes “systems and methods for detecting traffic violations using mobile detection devices.” ’919 patent⁴ col.1 ll.8–10; *see also* FAC ¶ 94 (“The ’919 Patent is generally directed to systems and methods for detecting traffic violations involving a vehicle and a restricted road area, using mobile detection devices and the construction of semantic annotated maps using data and information received from the mobile detection devices.”). The invention uses deep learning models and computer vision technologies to analyze video images captured by the mobile detection devices to identify potential traffic violations. *See id.* ¶¶ 95, 98. The invention therefore reduces the high false positive rates associated with “logic-based” bus lane enforcement technologies. *See id.* ¶ 96; ’919 patent col.1 ll.40–44.

The invention also improves upon “[t]raditional traffic enforcement technology and approaches” that often use “traffic enforcement cameras . . . set up near crosswalks or intersections and [that] are not suitable for enforcing lane violations beyond the cameras’ fixed

⁴ Citations to the patents refer to numbered columns and line numbers, rather than page numbers.

field of view.” ’919 patent col.1 ll.35–40. Plaintiff’s claimed invention solves for this problem by “using a mobile edge device mounted to carrier vehicle to detect when other vehicles are in a restricted road area (*e.g.*, a bus lane).” Pl.’s Opening Claim Constr. Br. (“Pl.’s Br.”) at 5, Dkt. 144. The edge device captures videos of vehicles and restricted road areas, and the location of the vehicle is determined using a positioning unit. *Id.*; *see* ’919 patent col.1 l.59–col.2 l.43. “The edge device identifies vehicles and restricted road areas in the video using a plurality of functions from a computer vision library and a deep learning model.” Pl.’s Br. at 5; *see* ’919 patent col.1 l.59–col.2 l.43. Both the identified vehicle and the restricted road area are bound using “bounding boxes.” *See* Pl.’s Br. at 6. The system identifies potential traffic violations based on the overlap between the bounding boxes. *See id.*

2. The ’014 Patent

Like the ’919 patent, the ’014 patent describes a system for detecting traffic lane violations. *See* ’014 patent col.1 ll.15–17. The ’014 patent is designed to solve for the same limitations of the prior art. *See id.* col.1 ll.43–54. In addition, the ’014 patent notes that “lane detection, in particular, is challenging because models trained for recognizing objects such as vehicles, pedestrians, or traffic lights are often not suitable for detecting lanes on a roadway[,]” and because “almost all roadways have multiple lanes . . . traffic enforcement tools often have difficulty distinguishing between such lanes.” *Id.* col.1 ll.55–61.

“The claims of the ’014 patent are directed to improvements in technologies that are used to detect bus lane infractions[,]” and “[t]he invention of the ’014 patent combines unconventional elements into a mobile, physical edge device, and arranges them to perform an unconventional arrangement of steps (designed to quickly and robustly detect lane violations while using a minimal, portable computing device) to achieve this improvement.” FAC ¶ 128; *see also* Pl.’s

Br. at 6; '014 patent col.2 ll.8–47. The edge device captures videos of vehicles and restricted road areas using image sensors, and those videos are then cropped and resized. Pl.'s Br. at 6. The edge device detects both vehicles and roadways, and uses a separate convolutional neural network to bound each of these using either a “vehicle” bounding box or a lane-of-interest (LOI) polygon. *Id.* The system detects potential traffic violations based on any overlap between the “vehicle” bounding box and the LOI polygon. *Id.*

Legal Standards⁵

Claim construction is an issue of law, and is therefore “exclusively for the court” to decide. *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 970–71 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996). When construing the meaning of patent claims, courts look “first to the intrinsic evidence of record, *i.e.*, the patent itself, including the claims, the specification and, if in evidence, the prosecution history.” *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). If intrinsic evidence alone—namely, the patent’s claims, specification, and prosecution history—does not resolve ambiguity regarding a disputed term, the *Markman* court may also consider extrinsic evidence. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1317 (Fed. Cir. 2005) (“Although we have emphasized the importance of intrinsic evidence in claim construction, we have also authorized district courts to rely on extrinsic evidence”); *BASF Agro B.V. v. Makhteshim Agan of N. Am., Inc.*, 519 F. App’x 1008, 1015–16 (Fed. Cir. 2013) (“Where a patent’s claims, written description, and prosecution history are complete and unambiguous, a court need not resort to extrinsic evidence.”). Extrinsic

⁵ When deciding issues in a patent case, a district court applies the law of the circuit in which it sits to nonpatent issues and the law of the Federal Circuit to issues of substantive patent law.” *Revlon Consumer Prods. Corp. v. Estee Lauder Cos., Inc.*, No. 00-CV-5960, 2003 WL 21751833, at *7 (S.D.N.Y. July 30, 2003) (citing *In re Cambridge Biotech Corp.*, 186 F.3d 1356, 1368 (Fed. Cir. 1999)).

evidence “consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” *Markman*, 52 F.3d at 980.

“The purpose of claim construction is to give claim terms the meaning understood by a person of ordinary skill in the art at the time of invention.” *Massachusetts Inst. of Tech. v. Shire Pharms., Inc.*, 839 F.3d 1111, 1118 (Fed. Cir. 2016); *see Home Diagnostics, Inc. v. LifeScan, Inc.*, 381 F.3d 1352, 1355 (Fed. Cir. 2004) (“[N]ormal rules of usage create a ‘heavy presumption’ that claim terms carry their accustomed meaning in the relevant community at the relevant time.”). Here, the parties stipulate that the relevant person of ordinary skill in the art (often referred to as a “POSITA” or “Skilled Artisan”) is an individual with “(1) a bachelor’s of science degree in computer engineering, computer science, or a comparable field of study, and (2) between two and five years of professional experience with artificial intelligence and/or machine learning programming techniques related to computer vision.” Pl.’s Br. at 7 (quoting Dkt. 27-3 at ECF page⁶ 11, ¶ 9).

The presumption in favor of giving terms their ordinary and customary meaning applies unless (1) the “patentee sets out a definition and acts as his own lexicographer,” or (2) “the patentee disavows the full scope of the claim term either in the specification or during prosecution.” *Golden Bridge Tech., Inc. v. Apple Inc.*, 758 F.3d 1362, 1365 (Fed. Cir. 2014). “Absent implied or explicit lexicography or disavowal,” the plain and ordinary meaning of the claim terms govern. *Trs. of Columbia Univ. v. Symantec Corp.*, 811 F.3d 1359, 1364 n.2 (Fed. Cir. 2016).

A patentee acts as its own lexicographer when the patentee “clearly set[s] forth a definition of the disputed claim term” and “clearly express[es] an intent to redefine the term.”

⁶ References to “ECF page” refer to the page designation issued by the Court’s Electronic Case Filing system.

Thorner v. Sony Comput. Entm't Am. LLC, 669 F.3d 1362, 1365 (Fed. Cir. 2012) (internal quotations and citation omitted). “[T]he inventor’s written description of the invention, for example, is relevant and controlling insofar as it provides clear lexicography . . .” *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 862 (Fed. Cir. 2004).

A patentee has limited the full scope of the claim term when it makes a clear disavowal, either in the specification or in the prosecution history, that the invention does not include a particular feature. *See SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1341 (Fed. Cir. 2001) (“Where the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question.”); *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002) (“The patentee may demonstrate intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.”). “Absent a clear disavowal in the specification or the prosecution history, the patentee is entitled to the full scope of its claim language.” *Home Diagnostics, Inc. v. LifeScan, Inc.*, 381 F.3d 1352, 1358 (Fed. Cir. 2004).

Thus, the standards for lexicography and disavowal are exacting, and require the patentee to express clearly an intent to deviate from the plain and ordinary meaning of a term. *See GE Lighting Sols., LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014); *see also Poly-Am., L.P. v. API Indus., Inc.*, 839 F.3d 1131, 1136 (Fed. Cir. 2016) (“[T]he standard for disavowal is exacting, requiring clear and unequivocal evidence that the claimed invention includes or does not include a particular feature. Ambiguous language cannot support disavowal.”).

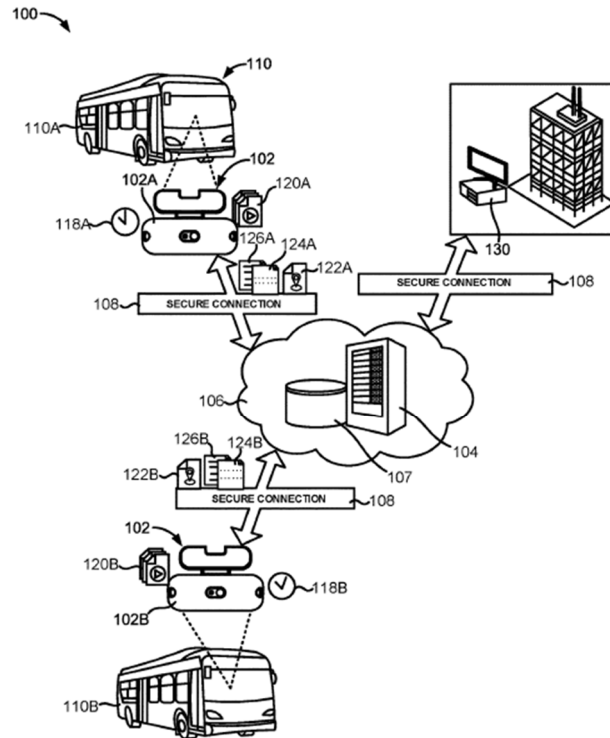
Discussion

The parties dispute the appropriate construction of eleven terms in the '919 and '014 patent claims.⁷ Because terms seven through eleven (the “bounding” limitations) present the same issues, the Court will address these five terms together as the parties did during the *Markman* hearing.

1. “Edge device(s)”

The parties first dispute the appropriate construction of the term “edge device(s),” which appears in claims 1, 2, 5, 6, 10, 11, 12, 15, 16, 21, 24, 25, 28, and 32 of the '919 patent and claims 1, 5, 8, 9, 10, 12, 18, 20, and 25 of the '014 patent. *See* Joint Claim Construction Chart, Dkt. 141-1 at ECF page 1. The “edge device” is identified as element “102” in the '919 and '014 patents, as depicted below. *See* '919 patent Fig. 1A; '014 patent Fig. 1A.

⁷ The parties have agreed to the construction of the following terms: “[first or second] positioning unit”; “license plate recognition engine model”; “deep learning model”; “kernel-level watchdog”; “inter-process communication protocol”; “bound a plurality of lanes of a roadway detected from the one or more video frames in a plurality of polygons, wherein the plurality of lanes are detected and bounded using multiple heads of a multi-headed second convolutional neural network separate from the first convolutional neural network, and wherein at least one of the polygons is a lane-of-interest (LOI) polygon bounding a LOI”; “bounding a plurality of lanes of a roadway detected from the one or more video frames in a plurality of polygons, wherein the plurality of lanes are detected and bounded using multiple heads of a multi-headed second convolutional neural network separate from the first convolutional neural network, and wherein at least one of the polygons is a lane-of-interest (LOI) polygon bounding a LOI.” Dkt. 141.



A. The Parties' Positions

Plaintiff contends that “edge device” should be construed as “a device coupled to a carrier vehicle” because “[e]very embodiment in the [’919 patent] specification contemplates ‘edge devices’ coupled to carrying vehicles,” and “[t]he ’014 patent also repeatedly and consistently describes ‘edge devices’ as coupled to a carrier vehicle.” Pl.’s Br. at 10. Plaintiff further argues that “edge device” should be construed as “a device coupled to a carrier vehicle” because it is consistent with the purpose of the invention—namely to solve a limitation of the prior art. *See Sequoia Tech., LLC v. Dell, Inc.*, 66 F.4th 1317, 1326 (Fed. Cir. 2023) (“express purpose of the invention informs the proper construction of claim terms”). Specifically, plaintiff argues that prior traffic enforcement systems were limited by the fact that the cameras were set up in stationary areas not suited for detecting or enforcing lane violations. *See* Pl.’s Br. at 11. Plaintiff also points to the prosecution history of the ’919 patent claiming that it previously

distinguished the '919 patent from a prior art by explaining that the prior art used a fixed camera attached to a building. *See id.* at 12. Looking to the patent claims themselves, plaintiff argues that “the claims as a whole support Hayden AI’s construction,” and argues that the language of the claims would make little sense absent the inference that the edge devices referenced are coupled to separate carrier vehicles. *Id.* at 8. Finally, plaintiff emphasizes that the title of the '919 patent refers to “systems and methods for detecting traffic violations using *mobile* detection devices.” *See* Pl.’s Br. at 7 (emphasis added); Tr. at 36:11–24; *see also* Decl. of Matthew Turk (“Turk Decl.”) ¶ 33, Dkt. 144-4.

Defendants ask this Court to construe “edge device” according to its plain and ordinary meaning. *See* Defs.’ Br. at 19–20. According to defendants, this construction of “edge device(s)” would not limit edge devices to only those devices “coupled to a carrier vehicle.” *See id.* Defendants point to the fact that the '919 patent specification also discloses “edge devices” that are—in defendants’ view—not coupled to a carrier vehicle, such as wired connections and smart phones. *See id.* The specification notes that in one “alternative embodiment of the edge device,” as depicted in Figure 6, “the edge device 102 is a personal communication device such as a smartphone or tablet computer.” '919 patent col.29 ll.39–41.

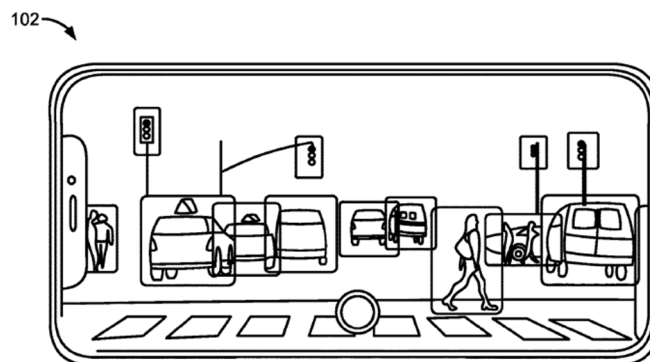


FIG. 6

“[I]n this embodiment the smartphone or tablet computer serving as the edge device 102 can also wirelessly communicate or be communicatively coupled to the server 104 via the secure connection 108 . . . [and] [t]he smartphone or tablet computer can also be positioned near a windshield or window of a carrier vehicle 110 via a phone or tablet holder coupled to the windshield, window, dashboard, deck, mount, or body of the carrier vehicle 110.” ’919 patent col.29 ll.50–57. Plaintiff contends that the embodiment of “edge devices” using smartphones or tablets “makes clear that these devices are still coupled to carrier vehicles.” Pl.’s Responsive Claim Construction Brief (“Pl.’s Resp.”) at 5, Dkt. 150.

Defendants also note that only the *dependent* claims in the ’919 and ’014 patents refer specifically to edge devices that are “coupled to a carrier vehicle.” *See* Defs.’ Br. at 19, 36. Defendants therefore argue that claim differentiation applies and the term “edge device” should not be limited to edge devices that are “coupled to a carrier vehicle.” *Id.* at 19, 36; Tr. at 68:8–16 (arguing that because the dependent claims, such as claim 7, refer to edge devices that are coupled to carrier vehicles, “that language suggests and reinforces that claim 1 is broader”).

B. Analysis

In determining the scope of the term “edge device,” we start with the language of the claims. *See Virnetx, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1316 (Fed. Cir. 2014) (“The process of construing a claim term begins with the words of the claims themselves.”); *see also Vitronics*, 90 F.3d at 1582; *Phillips*, 415 F.3d at 1312–14.

The term “edge device” appears in claims 1, 2, 5, 6, 10, 11, 12, 15, 16, 21, 24, 25, 28, and 32 of the ’919 patent and claims 1, 5, 8, 9, 10, 12, 18, 20, and 25 of the ’014 patent. The ’919 patent claims refer to a first and second edge device and describe using both edge devices to capture video image data of the same vehicle and restricted road area. *See* Pl.’s Br. at 8–9.

However, as defendants correctly note, only the dependent claims in the '919 and '014 patents refer specifically to edge devices that are “coupled to a carrier vehicle.” *See* Defs.’ Br. at 19, 36. For example, claim 7 describes “[t]he method of claim 1, wherein the first edge device is configured to be coupled to a first carrier vehicle, wherein the first edge device comprises a first vehicle bus connector for obtaining wheel odometry data from a wheel odometer of the first carrier vehicle, and wherein the step of determining the location of the vehicle further comprises using in part the wheel odometry data from the first carrier vehicle.” ’919 patent col.37 ll.43–49.

Similarly, claim 21 describes “[t]he method of claim 1, wherein the first video is captured using the one or more video image sensors of the first edge device *when the first edge device is coupled to a first carrier vehicle while the first carrier vehicle is in motion*, and wherein the second video is captured using the one or more video image sensors of the second edge device *when the second edge device is coupled to a second carrier vehicle while the second carrier vehicle is in motion*.” ’919 patent col.40 ll.11–18 (emphasis added).

Defendants correctly note that “the doctrine of claim differentiation disfavors reading a limitation from a dependent claim into an independent claim.” *Virnetx*, 767 F.3d at 1316; *see* Defs.’ Br. at 19 (“[T]he claims supports a broader construction than that proposed by Hayden under the claim differentiation doctrine.”). However, as plaintiff notes, the reference to an edge device coupled to a carrier vehicle in dependent claims 7 and 21 is not the only meaningful difference between these two claims and independent claim 1. *See* Tr. at 59:19–60:13.

Specifically, claim 7 states:

The method of claim 1, wherein the first edge device is configured to be coupled to a first carrier vehicle, wherein *the first edge device comprises a first vehicle bus connector for obtaining wheel odometry data* from a wheel odometer of the first carrier vehicle, and wherein the step of determining the location of the vehicle further comprises using in part the wheel odometry data from the first carrier vehicle.

'919 patent col.37 ll.43–49 (emphasis added). Similarly, claim 21 states:

The method of claim 1, wherein the first video is captured using the one or more video image sensors of the first edge device when the first edge device is coupled to a first carrier vehicle *while the first carrier vehicle is in motion*, and wherein the second video is captured using the one or more video image sensors of the second edge device when the second edge device is coupled to a second carrier vehicle *while the second carrier vehicle is in motion*.

'919 patent col.40 ll.11–18 (emphasis added); *see also id.* col.39 ll.38–43; *id.* col.40 ll.44–51.

“Although claim differentiation is not a ‘hard and fast rule of construction,’ it is applicable where ‘there is a dispute over whether a limitation found in a dependent claim should be read into an independent claim, and that limitation is the only meaningful difference between the two claims.’” *RF Delaware, Inc. v. Pac. Keystone Techs., Inc.*, 326 F.3d 1255, 1263 (Fed. Cir. 2003) (quoting *Wenger Mfg., Inc. v. Coating Mach. Sys., Inc.*, 239 F.3d 1225, 1233 (Fed. Cir. 2001)).

The Court declines to apply the doctrine of claim differentiation here given that dependent claims 7, 17, 21 and 25 contain other “meaningful difference[s]” from independent claim 1.

The Court therefore turns to the language of the specification and the patent as a whole. *See Phillips*, 415 F.3d at 1313 (“[T]he [POSITA] is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.”); *Virnetx*, 767 F.3d 1308 at 1316 (“[T]he claims ‘must be read in view of the specification, of which they are a part.’”). Read in the context of the specification and the patent as a whole, this Court finds that the term “edge device” refers to a *mobile* edge device. For example, the title of the '919 patent refers to “systems and methods for detecting traffic violations using *mobile* detection devices.” *See* '919 patent col.1 ll.59–60 (“Disclosed are systems and methods for detecting traffic violations using *mobile* detection devices.” (emphasis added)). Similarly, a stated limitation of the prior art is the fact that “most traffic enforcement cameras are set up near crosswalks or intersections and are not suitable for

enforcing lane violations beyond the cameras' *fixed field of view*." *Id.* col.1 ll.35–40 (emphasis added); *Sequoia Tech.*, 66 F.4th at 1326 ("express purpose of the invention informs the proper construction of claim terms" (internal quotations and citation omitted)). This Court therefore agrees with plaintiff's position that a stated purpose of the invention is to solve for the limitations of "[t]raditional traffic enforcement technology," including the limitations associated with having a *fixed* camera with a fixed field of view. *See* '919 patent col.1 ll.35-40; Tr. at 37:20 ("[T]he patent is denigrating fixed camera systems.").

The Court finds, however, that the intrinsic evidence does not support plaintiff's position that the edge device must be coupled to a carrier vehicle. Although the specifications of both patents refer to edge devices that are "coupled to a carrier vehicle," the Court finds that these refer to preferred embodiments and are therefore not definitional. *See Phillips*, 415 F.3d at 1323 ("[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments."); *Cont'l Cirs. LLC v. Intel Corp.*, 915 F.3d 788, 797 (Fed. Cir. 2019) ("To disavow claim scope, the specification must contain 'expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.'" (quoting *Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1306 (Fed. Cir. 2011))).

Indeed, even where a specification refers to only one embodiment, a Court may not construe a claim term as being limited to that embodiment. *See Phillips*, 415 F.3d at 1323 ("[W]e have expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment."). Further, as plaintiff notes in its brief, expressions such as "can be configured to" are not definitional and do not "clearly and unmistakably limit" a term to the embodiment described in

the specification. *See* Pl.’s Br. at 19 (citing *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004)); *Electro Med. Sys., S.A., v. Cooper Life Scis., Inc.*, 34 F.3d 1048, 1054 (Fed. Cir. 1994)); *see also Profectus Tech. LLC v. Huawei Techs. Co.*, 823 F.3d 1375, 1381 (Fed. Cir. 2016) (describing “configured to” as “words that embrace broader meaning” and do not delimit the claim term).

Here, the ’919 patent specification describes edge devices that “*can be* configured to be coupled to a . . . carrier vehicle.” *See, e.g.*, ’919 patent col.3 ll.47–48; *id.* col.6 ll.5–8. For example, “the edge device . . . *can be* secured or otherwise coupled to a windshield, window, or dashboard/deck of the carrier vehicle . . .”; “secured or otherwise coupled to a handlebar/handrail of a micro-mobility vehicle serving as the carrier vehicle . . .”; or “secured or otherwise coupled to a mount or body of a UAV or drone serving as the carrier vehicle . . .” *Id.* col.8 ll.48–55 (emphasis added). However, the ’919 patent specification also provides that “[t]he first edge device can be configured to be coupled to a first carrier vehicle *or device* and the second edge device can be configured to be coupled to a second carrier vehicle *or device*.” *Id.* col.6 ll.5–8 (emphasis added). Thus, the ’919 patent specification suggests that the edge device could be coupled to a device other than a carrier vehicle.

Similarly, the ’014 patent specification describes an edge device that “*can be* coupled to a carrier vehicle.” *See* ’014 patent col.5 ll.27–28 (emphasis added). The ’014 patent also notes that “video [of the vehicle and restricted roadway] can be captured using the one or more video image sensors of the edge device while the carrier vehicle is in motion.” *Id.* col.5 ll.28–30. “In certain embodiments, both the carrier vehicle carrying the edge device and the offending vehicle can be in motion.” *Id.* col.5 ll.32–34. The specification also provides that “the edge device 102 *can be* detachably or removably coupled to the carrier vehicle . . .” *Id.* col.22 ll.39–40

(emphasis added).

Thus, notwithstanding the repeated and consistent reference to edge devices that are coupled to a carrier vehicle, *see* Pl.’s Br. at 9–11, this Court finds that the language of the ’919 and ’014 patents does not limit edge devices to only edge devices that are coupled to a carrier vehicle. *Compare GPNE Corp. v. Apple Inc.*, 830 F.3d 1365, 1370 (Fed. Cir. 2016) (“We have recognized that when a patent ‘repeatedly and consistently’ characterizes a claim term in a particular way, it is proper to construe the claim term in accordance with that characterization.”), *Virnetx*, 767 F.3d at 1318 (“The fact that anonymity is ‘repeatedly and consistently’ used to characterize the invention strongly suggests that it should be read as part of the claim.”), and *Chewy, Inc. v. Int’l Bus. Machines Corp.*, 94 F.4th 1354, 1359 (Fed. Cir. 2024) (construing advertising objects as requiring “prefetching” where the “written description consistently describe[d] the invention as including pre-fetching of advertising objects.”), *with Medegen MMS, Inc. v. ICU Med., Inc.*, 317 F. App’x 982, 985–86 (Fed. Cir. 2008) (reversing the district court’s construction of the term “plug” as an elastomeric plug despite the patent’s repeated and consistent reference to elastomeric plugs). In *Medegen*, the parties disputed the appropriate construction of the term “plug,” and specifically whether the term should be limited by certain limitations referenced in the specification and the claims, including the characterization of the “plug” as an elastomeric plug. *See Medegen MMS, Inc. v. ICU Med., Inc.*, No. SA CV 06-619, 2007 WL 5760836, at *6 (C.D. Cal. June 21, 2007) (“The main issue surrounding the construction of the term ‘plug’ is the extent to which the definition of the term should include the limitations of being ‘elastomeric,’ ‘pivoting about a reduced diameter portion,’ or ‘buckling.’”). The district court acknowledged that “the preferred embodiment of the invention, as discussed throughout the specification and claims, all consistently discuss a plug with these characteristics

or limitations.” *Id.* The district court further noted that the asserted patent “nowhere describes a non-elastomeric or rigid plug, nor does it teach how any such plug would work with the claimed device” *Id.* The district court therefore found that “the specification unambiguously and repeatedly refers to the plug as being elastomeric, whose proximal end pivots or buckles to establish fluid flow,” and construed the term “plug” as “an elastomeric part that either pivots about a reduced diameter portion or buckles, to establish a fluid flow path.” *Id.* at *7–9. The Federal Circuit reversed, however, finding that “[t]he term ‘plug’ [was] not expressly limited by the language of the claims—that is, the elastomeric limitation is not found within the claim itself.” *Medegen*, 317 F. App’x at 986. The Federal Circuit also noted that “there [was] no contention that the ordinary meaning of the term ‘plug’ does not include a rigid plug or that it has a special meaning in the medical field that requires elastomericity, or that there was any clear disclaimer of non-elastomeric plugs in the specification.” *Id.*

Here, like in *Medegen*, the at-issue patents repeatedly and consistently describe “edge devices” as being “coupled to a carrier vehicle.” *See* Pl.’s Br. at 9–11; Tr. at 30:21–31:7. However, like in *Medegen*, the language of the ’919 and ’014 patents makes clear that the reference to edge devices coupled to a carrier vehicle illustrates a preferred embodiment but does not “[reveal] a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess.” *Phillips*, 415 F.3d at 1316; *see* ’014 patent col.5 ll.27–28 (“In *some* embodiments, the edge device can be coupled to a carrier vehicle.” (emphasis added)); ’919 patent col.6 ll.5–8 (“The first edge device *can be* configured to be coupled to a first carrier vehicle *or device* and the second edge device *can be* configured to be coupled to a second carrier vehicle *or device*.”).

This Court therefore finds that plaintiff has not overcome the presumption that the term

“edge device” is controlled by its plain and ordinary meaning to a POSITA. *See Medegen*, 317 F. App’x at 986 (refusing to limit the term “plug” to an elastomeric plug where “[t]he term ‘plug’ [wa]s not expressly limited by the language of the claims—that is, the elastomeric limitation is not found within the claim itself.”); *IQRIS Techs. LLC v. Point Blank Enters., Inc.*, 130 F.4th 998, 1004–05 (Fed. Cir. 2025) (refusing to limit the term “pull cords” to pull cords that do not include a handle where the “high bar” for disavowal was not met because “at most, the specification identifies shortcomings in the prior art that are not specifically directed to the handle”).

However, in light of the purpose of the invention, the specification, and reading the patent as a whole, the Court finds that the scope of “edge device(s),” as would be understood by a POSITA in light of the intrinsic evidence, is limited to mobile edge devices—*i.e.*, edge devices not affixed to a stationary object such as a building or a pole. *See Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1305 (Fed. Cir. 2011) (“In reviewing the intrinsic record to construe the claims, we strive to capture the scope of the actual invention, rather than strictly limit the scope of claims to disclosed embodiments or allow the claim language to become divorced from what the specification conveys is the invention.”); *Acufloor, LLC v. EvenTile, Inc.*, No. 2023-1887, 2025 WL 1513766, at *5 (Fed. Cir. May 28, 2025) (“The context in which the term is used in the patent’s claims and specification is strong evidence of how a person of ordinary skill would understand the term.”); *see also Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1218 (Fed. Cir. 2014) (noting that there is “a fine distinction” between improperly reading limitations from the specification into the claims and following the *Phillips* court’s guidance that “the specification is the single best guide to the meaning of the claim terms,” and holding that the court “must . . . draw this distinction from the point of view of a

person of ordinary skill in the art”).

For these reasons, the Court construes the term “edge device” to refer to “a mobile edge device,” but does not limit the term to require that the edge device be “coupled to a carrier vehicle.”

2. “Bounding box(es)”⁸

The parties dispute the appropriate construction of the term “bounding box(s),” which appears in claims 1, 4, 11, 14, 20, and 31 of the ’919 patent and claims 1, 2, 3, 5, 13, 14, 15, 17, 20, 21, 22, and 24 of the ’014 patent. *See* Joint Claim Construction Chart, Dkt. 141-1 at ECF pages 1–2. The “bounding boxes” are identified as elements “900” and “902” in the ’919 patent and as elements “800,” “1202” and “1214” in the ’014 patent, as depicted below.⁹ *See* ’919 patent Fig. 9; ’014 patent Figs. 8, 12A, 12B & 12D.

⁸ The parties refer to this term as “bounding box or bounding boxes (with and without modifiers).” *See* Joint Claim Construction Chart, Dkt. 141-1 at ECF page 1 (internal quotation marks omitted).

⁹ Specifically, element 900 in the ’919 patent depicts a “vehicular bounding box”; element 902 in the ’919 patent depicts a “road bounding box”; element 800 in the ’014 patent depicts a “vehicle bounding box”; element 1202 in the ’014 patent depicts a “lower bounding box”; and element 1214 in the ’014 patent depicts a “three-dimensional (3D) bounding box.” *See, e.g.*, ’919 patent col.19 l.34; ’919 patent col.19 l.36; ’014 patent col.26 l.53; ’014 patent col.37 l.18; ’014 patent col.39 l.44.

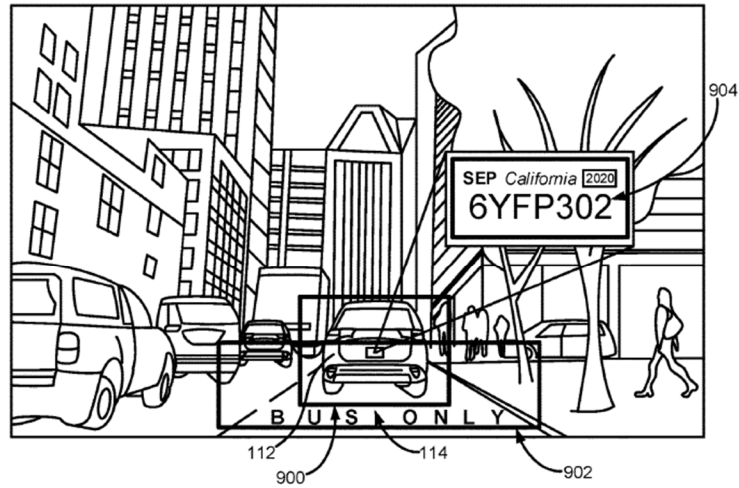


FIG. 9

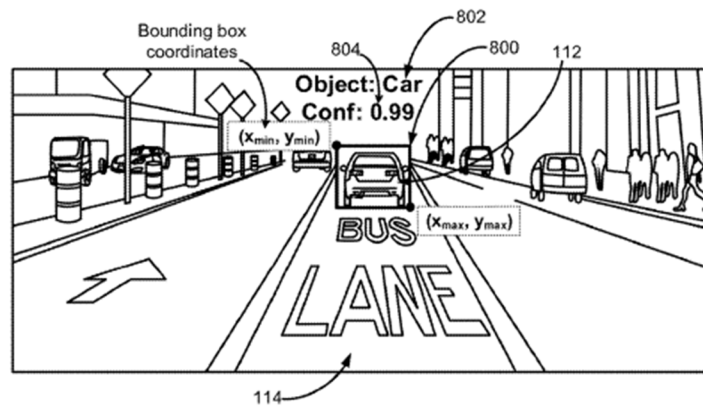
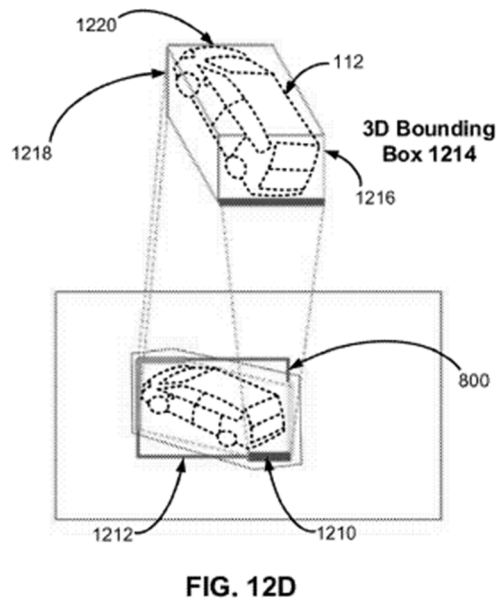
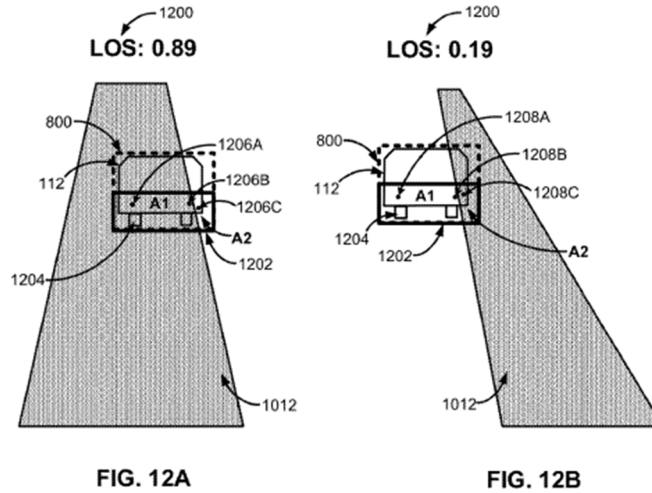


FIG. 8



A. The Parties' Positions

The parties dispute whether bounding boxes, as referred to in the '919 and '014 patent claims, must be "rectangular," and whether the alleged rectangle surrounding the identified object must be the "smallest" possible rectangle that could fully enclose that object.

Plaintiff argues that "nothing in the '919 or '014 patents limits 'bounding box' to the *smallest* rectangle enclosing a detected object in a frame." Pl.'s Br. at 20. Plaintiff also notes that Figure 9 (depicted above) shows a bounding box that is *not* the smallest possible rectangle

that could enclose the vehicle depicted in the center of the image. *See id.* Finally, plaintiff argues that bounding boxes need not be rectangular, and that the YOLO object detection model referenced in the patents can be used with circular bounding boxes as well. *See id.* at 21.

Defendants argue that one of the purposes of the invention—to reduce false positives in traffic violation detection—necessitates construing “bounding box” as the *smallest* possible rectangle enclosing an object. *See* Defs.’ Br. at 29–31; *see also* ’919 patent col.1 ll.40–44 (“While some municipalities have deployed automated camera-based solutions to enforce traffic violations beyond intersections and cross-walks, such solutions are often logic-based and can result in detections with up to 80% false positive detection rate.”). Defendants maintain that allowing for larger-than-necessary bounding boxes would increase the rate of false-positives and run counter to a stated purpose of the invention. *See* Defs.’ Br. at 26–27, 29–31. Defendants also argue that their proposed construction comports with the “traditional meaning” (also referred to by defendants as the “traditional definition” or “ordinary sense”) of the term “bounding box,” and point to extrinsic evidence in support of the position that a “bounding box” refers to the smallest rectangle enclosing an object. *See id.* at 32–33.

B. Analysis

Looking first to the language of the claims, this Court finds that the ’919 and ’014 patent claims do not expressly limit “bounding box(es)” to rectangular bounding boxes, nor do they require rectangular bounding boxes that are the smallest possible rectangle enclosing a detected object. Specifically, nothing in the ’919 and ’014 patent claims suggests that Hayden intended to depart from the plain and ordinary meaning of the term “bounding box(es).”

The term “bounding box(es)” appears in claims 1, 4, 11, 14, 20, and 31 of the ’919 patent and claims 1, 2, 3, 5, 13, 14, 15, 17, 20, 21, and 24 of the ’014 patent. The ’919 patent claims

describe using a plurality of first and second bounding boxes to bound the vehicle and the restricted road area, and detecting a potential traffic violation based on the overlap of the bounding boxes. *See, e.g.*, '919 patent col.36 ll.35–43. The claims in the '919 patent further describe using a “vehicular bounding box” to bound the vehicle and a “road bounding box” to bound the road area, and detecting a potential traffic violation based on the overlap of the vehicular bounding box and the road bounding box. *See, e.g., id.* col.37 ll.23–29.

Claim 1 of the '014 patent claims refers to “bounding, using one or more processors of the edge device, a vehicle detected from the one or more video frames of the video in a vehicle bounding box, and wherein the vehicle is detected and bounded using a first convolutional neural network.” '014 patent col.47 ll.18–22. Claim 1 further describes “detecting, using the one or more processors, a potential traffic violation based in part on an overlap of at least part of the vehicle bounding box and at least part of the LOI polygon.” *Id.* col.47 ll.35–38.

The claims in the '919 or '014 patents do not refer to *rectangular* bounding boxes, and do not refer to bounding boxes that are the *smallest* possible rectangle enclosing the detected object. The Court therefore turns to the language in the specification. The '919 patent specification does not contain any language that would support defendants' proposed construction. Specifically, nowhere in the '919 patent does the specification describe bounding boxes as “rectangular.”¹⁰ The '014 patent, meanwhile, does contain a reference to rectangular bounding boxes. There, the specification describes two “more specific example[s]” where “the lower bounding box . . . can be a rectangular bounding box” *See id.* col.37 ll.31–38. However, the Federal Circuit has

¹⁰ Defendants maintain that the reference to YOLOv3 in the '919 patent supports their proposed construction of the term “bounding box(es)” because “[t]he YOLO founders describe and illustrate YOLOv3 as predicting rectangular bounding boxes to detect an object using an x any y coordinate (tx, ty of a corner), the box width (tw) and the box height (th).” Defs.' Br. at 28. Plaintiff, meanwhile, argues that “the YOLO object detection model can be used with at least rectangular and *circular* bounding box tools in detecting objects.” Pl.'s Br. at 21 (emphasis in original).

repeatedly cautioned against limiting the claimed invention to a preferred embodiment or specific example. *See, e.g., Comark Communications, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186 (Fed. Cir. 1998).

This Court therefore turns next to defendants’ argument that one of the stated purposes of the invention—to reduce the number for false positives—requires that the bounding boxes be the *smallest* possible rectangles enclosing the detected object. *See* Defs.’ Br. at 26–27 (“Since the bounding boxes are compared for detection, the smallest rectangle that encloses the vehicle and the restricted road area only makes sense because otherwise there would be a large amount of false positives, which is counter to the ’919 patent’s teachings.”).

Although the “express purpose of the invention informs the proper construction of claim terms,” *Sequoia Tech.*, 66 F.4th at 1326, the ’919 and ’014 patents contain graphical depictions of bounding boxes that are not the smallest possible rectangles enclosing the detected objects. *See, e.g.,* ’919 patent Fig. 9; ’014 patent Figs. 8, 12A, 12B & 12D. Further, “claim construction is a function of the words of the claim not the purpose of the invention,” *Source Vagabond Sys. Ltd. v. Hydrapak, Inc.*, 753 F.3d 1291, 1301 (Fed. Cir. 2014) (internal quotation marks and citation omitted), and “it is generally not appropriate to limit claim language to exclude particular devices because they do not serve a perceived purpose of the invention.” *Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1325 (Fed. Cir. 2008) (internal quotation marks and citation omitted); *see also Storage Tech. Corp. v. Cisco Sys., Inc.*, 329 F.3d 823, 832 (Fed. Cir. 2003) (holding that a district court may not “limit claim scope based on the purpose of the invention”). Thus, the Court finds that the invention’s stated purpose does not require the limitation of bounding boxes to the smallest possible rectangle enclosing a detected object.

Defendants further argue that extrinsic evidence supports their proposed construction of

the term “bounding box(es).” Defendants cite various articles and dictionaries that define bounding boxes as rectangular. *See, e.g.*, Defs.’ Ex. AB, Dkt. 145-27; Defs.’ Ex. AC, Dkt. 145-28; Defs.’ Ex. AD, Dkt. 145-29; Defs.’ Ex. AE, Dkt. 145-30; Defs.’ Ex. AF, Dkt. 145-31; Defs.’ Ex. AG, Dkt. 145-32. For example, the Microsoft Computer Dictionary refers to “bounding boxes” in its definition of “graphic limits,” stating that “[i]n some graphics environments the limits of a graphic consist of the smallest rectangle that can completely enclose it, called its *bounding rectangle* or *bounding box*.” Defs.’ Ex. AB, Dkt. 145-27 at ECF page 5. Similarly, the Python Deep Learning textbook refers to a bounding box as “[t]he coordinates of the rectangular region of the image where the object is located.” Defs.’ Ex. AC, Dkt. 145-28 at ECF page 3.

Although “[e]xtrinsic evidence, including expert and inventor testimony, dictionaries, and treatises, is ‘less significant than the intrinsic record in determining the legally operative meaning of claim language,’” *ParkerVision, Inc. v. Qualcomm Inc.*, 116 F.4th 1345, 1357 (Fed. Cir. 2024) (quoting *Phillips*, 415 F.3d at 1317), in this instance the extrinsic evidence cited by defendants informs the Court’s determination of how a POSITA would understand the plain and ordinary meaning of the term “bounding box(es).” *See Phillips*, 415 F.3d at 1322 (“Dictionaries or comparable sources are often useful to assist in understanding the commonly understood meaning of words and have been used both by [the Federal Circuit] and the Supreme Court in claim interpretation.”). Defendants argue that the “traditional” or “ordinary” meaning of the term “bounding box” is “the smallest rectangle(s) that enclosed a detected object in a frame.” *See* Defs.’ Br. at 26, 29. Plaintiff, meanwhile, argues that the term “bounding box” “should be given its plain and ordinary meaning,” and contends that “bounding boxes are **not** the smallest boundary around the detected person or thing.” Pl.’s Br. at 20 (emphasis in original). In support

of its position, plaintiff points to 3D bounding boxes as an example of non-rectangular bounding boxes disclosed in the '014 patent. *See* Pl.'s Br. at 22 (“A 3D bounding box can consist of several different angled faces that are not always rectangular in shape when projected on a 2D frame.”).

Because the parties dispute the “ordinary” meaning of the term bounding boxes, the Court must construe the term. *See O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1361 (Fed. Cir. 2008) (“A determination that a claim term ‘needs no construction’ or has the ‘plain and ordinary meaning’ may be inadequate when a term has more than one ‘ordinary’ meaning or when reliance on a term’s ‘ordinary’ meaning does not resolve the parties’ dispute.”).

Taking into account the specification of the '014 patent as well as the extrinsic evidence cited by defendants, this Court construes the term “bounding box” or “bounding boxes” (with or without modifiers) as “rectangular or quadrilateral shapes enclosing a detected object.”¹¹

3. “Vehicle attributes”

The parties dispute the appropriate construction of the term “vehicle attributes,” which appears in claims 1 and 11 of the '919 patent. *See* Joint Claim Construction Chart, Dkt. 141-1 at ECF page 2. “Vehicle attributes” are identified as elements “126A” and “126B” in the '919 patent. The '919 patent refers to a “first set of vehicle attributes” (element “126A”) and a “second set of vehicle attributes” (element “126B”), and describes using a deep learning model to identify vehicle attributes from a video frame. *See, e.g.*, '919 patent col.10 l.9–17; col.11 l.65–col.12 l.1. The '919 patent further describes using the first and second set of vehicle

¹¹ The Court rejects plaintiff’s position that bounding boxes can be circular based on the reference to YOLOv3 in the '014 patent, as the YOLOv3 version cited by plaintiff in support of this position is designed specifically to identify tomatoes—not cars and roadways, as relevant to plaintiff’s invention. *See* Pl.’s Ex. 8, Dkt. 144-9 (describing “YOLO-Tomato: A Robust Algorithm for Tomato Detection Based on YOLOv3”).

attributes to determine whether a traffic violation has occurred. *See id.* col.2 l.63–col.3 l.2. The ’919 patent notes that vehicle attributes “can include a color of the vehicle . . . , a make and model of the vehicle . . . , and a vehicle type (e.g., a personal vehicle or a public service vehicle such as a fire truck, ambulance, parking enforcement vehicle, police car, etc.).” *Id.* col.10 ll.12–16; *see also id.* col.12 ll.1–6.

In the decision denying Hayden AI’s request for a preliminary injunction, the District Judge adopted defendants’ proposed construction of the term “vehicle attributes.” *See Hayden AI Techs., Inc. v. Safe Fleet Holdings LLC*, No. 23-CV-3471, 2024 WL 1018589, at *6 (E.D.N.Y. Mar. 9, 2024) (“I conclude, in concurrence with Safe Fleet, that the word ‘attribute’ refers to qualities inherent in the vehicle.”). However, “findings of fact and conclusions of law made by a court during a preliminary injunction proceeding are not binding on the court during trial.” *Transonic Sys., Inc. v. Non-Invasive Med. Techs. Corp.*, 75 F. App’x 765, 774 (Fed. Cir. 2003). Thus, a district court “is at liberty to change the construction of a claim term as the record in a case evolves after a preliminary injunction appeal.” *Id.* The Court is therefore not bound by its prior construction of “vehicle attributes.” *See Ecolab Inc. v. JohnsonDiversey, Inc.*, 95 F. App’x 322, 331 (Fed. Cir. 2004) (recognizing that, “in a preliminary injunction proceeding, claim construction is often tentative and is subject to revision following more plenary proceedings” and that “further proceedings in this case, such as a claim construction hearing, may shed additional light on the claim construction inquiry”).

A. The Parties’ Positions

The parties dispute whether the term “attributes,” as included in the claim term “vehicle attributes,” requires construction.¹² Plaintiff maintains that the term is “straightforward and

¹² *See* Tr. at 133:25 (noting that “there’s no dispute” that “vehicle” should be interpreted in accordance with its plain and ordinary meaning), Dkt. 163.

easily understood” and therefore requires no construction. *See* Pl.’s Br. at 23. Plaintiff also relies on testimony from its expert, Dr. Matthew Turk, who testified that a POSITA would interpret the term “attributes” according to its plain and ordinary meaning, which according to Dr. Turk is broader than defendants’ proposed construction. *See* Turk Decl. ¶¶ 79–80, Dkt. 144-4 at ECF page 27-28. Plaintiff also argues that defendants’ proposed construction, discussed below, is improper because it “improperly split[s] the term into separate words.” Pl.’s Br. at 23; *see IGT v. Bally Gaming Int’l, Inc.*, 659 F.3d 1109, 1117 (Fed. Cir. 2011) (“Extracting a single word from a claim divorced from the surrounding limitations can lead construction astray.”); *Hockerson-Halberstadt, Inc. v. Converse Inc.*, 183 F.3d 1369, 1374 (Fed. Cir. 1999) (“Proper claim construction . . . demands interpretation of the entire claim in context, not a single element in isolation.”).

Defendants argue that the term “attributes” should be construed as “[a] quality intrinsic, inherent, naturally belonging to a thing or person.” *See* Defs.’ Br. at 21–22. Defendants argue that both intrinsic and extrinsic evidence supports their proposed construction. The construction of “attributes” that defendants propose comes from a general-purpose dictionary, which defines attributes as “[a] quality intrinsic, inherent, naturally belonging to a thing or person.” *See id.*; Defs.’ Ex. O, Dkt. 145-14. During the *Markman* hearing, defendants argued that this definition is appropriate because it has “been around for a long time” and defendants “don’t think the meaning of attributes has changed a whole lot.” *See* Tr. at 134:1–5, Dkt. 163. Defendants refer to their proposed construction as the “plain meaning” for the term attributes, and argue that the ’919 patent claims and specification use the term “attributes” in a manner that is consistent with defendants’ proposed construction. *See* Defs.’ Br. at 21.

B. Analysis

Neither the '919 patent claims nor the '919 patent specification limits the scope of the term “vehicle attributes.” Thus, the term should be construed in accordance with its plain and ordinary meaning. *See Thorner*, 669 F.3d at 1367 (citing *Phillips*, 415 F.3d at 1316) (“Our case law is clear, claim terms must be given their plain and ordinary meaning to one of skill in the art.”). However, where the parties dispute the scope of a claim term, the district court must resolve the dispute and, if necessary, determine the plain and ordinary meaning of a claim term. *See O2 Micro*, 521 F.3d at 1362 (“When the parties present a fundamental dispute regarding the scope of a claim term, it is the court’s duty to resolve it.”); *Eon Corp. IP Holdings v. Silver Spring Networks*, 815 F.3d 1314, 1319 (Fed. Cir. 2016) (holding that the district court erred “[b]y determining only that the terms should be given their plain and ordinary meaning” because it left th[e] question of claim scope unanswered, leaving it for the jury to decide”). “This duty resides with the court because, of course, ‘the ultimate question of construction [is] a legal question.’” *Eon Corp.*, 815 F.3d at 1318 (alteration in original) (quoting *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 333 (2015)).

Because Hayden AI argues that plain and ordinary meaning should control the scope of the term “vehicle attributes,” and because defendants refer to their proposed construction of the term “attributes” as “the plain meaning,” the parties appear to dispute the plain and ordinary meaning of the term “attributes,” and the court focuses its analysis on that dispute. As Hayden AI notes in its opening claim construction brief, defendants’ proposed construction of the term attributes is drawn from Webster’s Third New International Dictionary. *See* Pl.’s Br. at 24; Defs.’ Ex. O, Dkt. 145-14. However, as plaintiff’s expert points out, the definition defendants have chosen is merely one possible “plain meaning” definition of the term “attributes.” *See Turk*

Decl. ¶ 80, Dkt. 144-4 at ECF pages 27–28. Specifically, the first definition of “attribute” listed in Webster’s Third New International Dictionary is “a quality, character, or characteristic” *See id.*; Defs.’ Ex. O, Dkt. 145-14. Because the ’919 patent claims do not limit the scope of the term “vehicle attributes,” and the specification merely provides examples of possible attributes, the Court construes the term “vehicle attributes” in accordance with its plain and ordinary meaning. Specifically, the Court finds that the appropriate plain and ordinary meaning of the term “attribute” is “a quality, character, or characteristic.”

4. “Computer vision library”

The parties dispute the appropriate construction of the term “computer vision library,” which appears in claims 1, 11, and 20 of the ’919 patent. *See* Joint Claim Construction Chart, Dkt. 141-1 at ECF pages 2–3. The “computer vision library” is identified as element “312” in the ’919 patent. The ’919 patent describes a method for detecting a traffic violation that can include “identifying . . . the vehicle, the restricted road area, a first set of vehicle attributes of the vehicle, and a first alphanumeric string representing a license plate number of the vehicle . . . by applying a plurality of functions from a computer vision library” ’919 patent col.36 ll.26–31.

A. The Parties’ Positions

As with most of the other disputed terms, plaintiff argues that “computer vision library” should be given its plain and ordinary meaning. Plaintiff argues that “[i]n the image processing field, ‘computer vision library’ simply refers to a library of computer vision functions or tools.” Pl.’s Br. at 18. Plaintiff also notes that defendants’ own expert, Dr. Sanjay Ranka, opined that the term “computer vision” could be understood by a person of ordinary skill in the art in question. *See* Pl.’s Br. at 18; Decl. of Sanjay Ranka (“Ranka Decl.”) at ¶ 34, Dkt. 27-3 at ECF

page 20.

Defendants argue that “computer vision” is a concept and that therefore, in order for it to satisfy the definiteness standard, it must be defined in the intrinsic record. *See* Defs.’ Br. at 22. Defendants urge the Court to use the language in the specification to define “computer vision.” *See id.* at 22–23. Specifically, defendants ask the Court to define “computer vision” as the corresponding functions attributed to it in the ’919 patent specification, which describes using functions from the computer vision library to “(i) automatically segment video frames at the pixel-level; (ii) extract salient points from the video frames; (iii) automatically identify objects shown in the video frames using the salient points; and (iv) semantically annotate or label the objects.” *See id.*

Defendants maintain that “library” should be defined as an organized collection of predefined functions. *Id.* at 23. Specifically, defendants ask the Court to construe “library” as “[a] set of precompiled routines that may be linked with a program at compile time or loaded at load time or dynamically at run time.” *Id.* at 23–24. Defendants argue that the claims in the ’919 patent support this construction because they describe that the “computer vision library” as a “plurality of functions” for “applying.” *Id.* According to defendants, the patent specification also supports their proposed construction because it provides examples of computer vision libraries that are organized, predefined software collections. *Id.* at 24.

B. Analysis

As both parties appear to agree, the claims of the ’919 patent neither define nor limit the scope of the term “computer vision libraries.” *Compare* Pl.’s Br. at 18 (arguing that “[n]othing [in the patent] limits the term to the four functionalities in Defendants’ proposed construction”), *with* Defs.’ Br. at 22 (“[T]he claims provide no further illumination on the meaning of ‘computer

vision.”). The Court therefore turns to the extrinsic evidence. *See Phillips*, 415 F.3d at 1319 (“[E]xtrinsic evidence can help educate the court regarding the field of the invention and can help the court determine what a person of ordinary skill in the art would understand claim terms to mean . . .”).

During preliminary injunction briefing, defendants’ expert opined that the term “computer vision libraries” “is used in the artificial intelligence field and was known to a POSITA prior to October 16, 2020 in connection with object detection.” Ranka Decl. ¶ 34, Dkt. 27-3 at ECF page 20. Plaintiff’s expert similarly stated in his claim construction declaration that the term “computer vision library” is “a well-known term of art.” Turk Decl. ¶ 62, Dkt. 144-4. Plaintiff’s expert argues that the ’919 patent supports a broader construction of “computer vision library” than the one proposed by defendants because “the ’919 patent contemplates several computer vision libraries including OpenCV, TensorFlow, and SimpleCV[,]” and a POSITA would “know that these libraries contain hundreds of functions, not limited to the four chosen by Defendants.” *Id.* ¶ 63, Dkt. 144-4.

In light of the above, the Court construes the term “computer vision library” according to its plain and ordinary meaning to a POSITA, and finds that the plain and ordinary meaning is broader than the four functions proposed by defendants.

5. “Plurality of functions”

The parties dispute the appropriate construction of the term “plurality of functions,” which appears in claims 1, 11, and 20 of the ’919 patent. *See* Joint Claim Construction Chart, Dkt. 141-1 at ECF page 3. As noted above, the ’919 patent describes “identifying . . . the vehicle, the restricted road area, a first set of vehicle attributes of the vehicle, and a first alphanumeric string representing a license plate number of the vehicle . . . by applying a plurality

of functions from a computer vision library.” ’919 patent col.36 ll.26–31.

A. The Parties’ Positions

Defendants argue that the term “plurality of functions” fails for indefiniteness under 35 U.S.C. § 112(b). *See* Defs.’ Br. at 25. Defendants argue that the term “plurality of functions” is indefinite because the ’919 patent claims “provide no description of what the claimed ‘plurality of functions’ are other than that they are ‘from a computer vision library.’” Defs.’ Br. at 25. Defendants further argue that “the patent specification does not provide reasonable certainty or any objective constraints on what ‘plurality of functions’ . . . are claimed.” *Id.*

Plaintiff disagrees and contends that “‘plurality of functions’ can be understood by Skilled Artisans and lay jurors.” Pl.’s Br. at 14. Plaintiff supports this position by citing to expert testimony, noting that Dr. Turk “expressly testified that a Skilled Artisan would be able to determine with reasonable certainty the boundaries of what constitutes a plurality of functions.” *Id.* (internal quotation marks and citation omitted). Plaintiff further argues that defendants’ failure to provide expert testimony in support of their indefiniteness argument “is fatal because ‘indefiniteness is decided from the viewpoint of persons skilled in the field of the invention.’” *Id.* (quoting *Nature Simulation Sys. Inc. v. Autodesk, Inc.*, 50 F.4th 1358, 1360 (Fed. Cir. 2022)).

B. Analysis

Because defendants’ only challenge to plaintiff’s proposed construction is that the term “plurality of functions” is indefinite, the Court turns first to defendants’ indefiniteness challenge. *See ePlus, Inc. v. Lawson Software, Inc.*, 700 F.3d 509, 517 (Fed. Cir. 2012) (“[I]ndefiniteness is a question of law and in effect part of claim construction.”).

Section 112(b) requires that a patent specification “conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint

inventor regards as the invention.” 35 U.S.C. § 112(b). “[I]ndefiniteness is a question of law and in effect part of claim construction.” *ePlus, Inc. v. Lawson Software, Inc.*, 700 F.3d at 517. “Indefiniteness must be proven by clear and convincing evidence.” *Sonix Tech. Co. v. Publ’ns Int’l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017). The relevant question when assessing a challenge of indefiniteness is whether the patent “would have allowed a skilled artisan to know the scope of the claimed invention with reasonable certainty.” *Nature Simulation Sys.*, 50 F.4th at 1364. In other words, indefiniteness is judged from the perspective of a POSITA. *See Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1381 (Fed. Cir. 2015) (“Indefiniteness is a legal determination; if the court concludes that a person of ordinary skill in the art, with the aid of the specification, would understand what is claimed, the claim is not indefinite.” (quoting *Freeny v. Apple Inc.*, No. 13-CV-00361, 2014 WL 4294505, at *4 (E.D. Tex. Aug. 28, 2014))). For example, in *Akzo Nobel Coatings, Inc. v. Dow Chemical Co.*, the Federal Circuit affirmed the district court’s finding that the challenged claim limitation was not indefinite where the party challenging the limitation had “provided no evidence to show that a person of ordinary skill in the art would not know with reasonable certainty the steps to which the limitation . . . applies.” *Akzo Nobel Coatings, Inc. v. Dow Chem. Co.*, 811 F.3d 1334, 1338 (Fed. Cir. 2016).

Here, the parties have agreed that a person of ordinary skill in the field of the invention would have “(1) a bachelor’s of science degree in computer engineering, computer science, or a comparable field of study, and (2) between two and five years of professional experience with artificial intelligence and/or machine learning programming techniques related to computer vision.” Pl.’s Br. at 7 (quoting Dkt. 27-3 at ECF page 11, ¶ 9). Plaintiff’s expert, who completed a doctorate in Media Arts and Sciences at the Massachusetts Institute of Technology with a focus on computer vision, opined that a person of ordinary skill in the field of computer

vision would understand what the term “plurality of functions” means in the context of the ’919 patent. *See* Turk Decl. ¶¶ 9, 66 (“[A] Skilled Artisan would be able to determine with reasonable certainty the boundaries of what constitutes a ‘plurality of functions,’ based on the claim language, specification, and prosecution history.”), Dkt. 144-4. Defendants have not provided the Court with a contrary expert opinion, and the Court therefore finds that defendants have not met their burden of showing that the term “plurality of functions,” when read in the context of the ’919 patent,¹³ would not “allow[] a skilled artisan to know the scope of the claimed invention with reasonable certainty.” *Nature Simulation Sys.*, 50 F.4th at 1364.

The Court therefore construes the term “plurality of functions” according to its plain and ordinary meaning to a POSITA, and rejects defendants’ argument that the term fails for indefiniteness under 35 U.S.C. § 112(b).

6. “Docker container image / docker container”

The parties dispute the appropriate construction of the term “docker container image / docker container,” which appears in claims 8, 9, 18, and 25 of the ’014 patent. *See* Joint Claim Construction Chart, Dkt. 141-1 at ECF page 3. The “docker container images” are identified as element “350” in the ’014 patent. The ’014 patent claims describe, *inter alia*, “creating a first docker container based on the first docker container image or creating a second docker container based on the second docker container image” ’014 patent col.49 ll.9–11. The ’014 patent specification provides that “[f]or purposes of this disclosure, a *docker container image* . . . can be defined as a lightweight, standalone, and executable package of software or data that comprises everything needed to run the software or read or manipulate the data including software code,

¹³ Claim 1 refers to a “plurality of functions from a computer vision library,” and the specification gives examples of the types of computer vision libraries contemplated by the invention, including OpenCV and SimpleCV. *See* ’919 patent col.36 l.31; *id.* col.18 ll.14–19; *see also* Pl.’s Br. at 15.

runtime instructions, system tools, system libraries, and system settings.” *Id.* col.21 ll.28–34 (emphasis added). The specification further explains that “[d]ocker container images . . . can be used to generate or create docker containers on the edge device For example, *docker containers* can refer to containerized software or data run or stored on the edge device” *Id.* col.21 ll.34–37 (emphasis added).

A. The Parties’ Positions

Plaintiff argues that the term “docker container image / docker container” requires no further construction and that the term should be interpreted in accordance with its plain and ordinary meaning to a POSITA. *See* Pl.’s Br. at 26. Plaintiff argues that “[d]efendants’ proposed constructions impermissibly limit claims to a single embodiment in the specification[.]” *Id.*

Defendants ask the Court to construe the term “docker container image” according to the definition provided in the ’014 patent specification, namely as “a lightweight, standalone, and executable package of software or data that comprises everything needed to run the software or read or manipulate the data including the software code, runtime instructions, system tools, system libraries, and system settings.” *See* Defs.’ Br. at 41–42. Defendants similarly ask the Court to construe the term “docker container” according to the exemplary definition in the specification, which provides that “docker containers can refer to containerized software or data run or stored on the edge device.” *Id.* at 42. Defendants therefore ask the Court to construe the term “docker container” as a “containerized software or data run or stored on a device.” *See* Joint Claim Construction Chart, Dkt. 141-1 at ECF page 3.

B. Analysis

The parties dispute whether the descriptions of “docker container images” and “docker

containers” found in the ’014 patent specification are exemplary or definitional in nature.

Compare Pl.’s Br. at 26 (“The specification discloses one example of a docker container image. But it does not limit the claims to this example.”), *with* Defs.’ Br. at 42 (“As the ’014 patent applicants were their own lexicographers, their definitions should govern.”).

“To act as its own lexicographer, a patentee must clearly set forth a definition of the disputed claim term other than its plain and ordinary meaning” and must “clearly express an intent to redefine the term.” *Thorner*, 669 F.3d at 1365; *see also Merck & Co. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1370 (Fed. Cir. 2005) (“When a patentee acts as his own lexicographer in redefining the meaning of particular claim terms away from their ordinary meaning, he must clearly express that intent in the written description.”). “[T]he statement in the specification must have sufficient clarity to put one reasonably skilled in the art on notice that the inventor intended to redefine the claim term.” *Merck & Co.*, 395 F.3d at 1370. The standard for lexicography is exacting, and the Federal Circuit has “expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment.” *Liebel-Flarsheim*, 358 F.3d at 906; *see Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014) (“The standards for finding lexicography and disavowal are exacting.”). Thus, unless a patentee clearly disavows the scope of a claim term or acts as its own lexicographer, “[c]laim terms are generally given their plain and ordinary meaning, which is the meaning one of ordinary skill in the art would ascribe to a term when read in the context of the claim, specification, and prosecution history.” *Kyocera Senco Indus. Tools Inc. v. Int’l Trade Comm’n*, 22 F.4th 1369, 1378 (Fed. Cir. 2022).

Here, the descriptions of “docker container images” and “docker containers” contained in the ’014 patent specification are followed by permissive/exemplary language. *See* ’014 patent

col.21 ll.28–34 (“For purposes of this disclosure, a docker container image . . . *can be* defined as a lightweight, standalone, and executable package of software or data that comprises everything needed to run the software or read or manipulate the data including the software code, runtime instructions, system tools, system libraries, and system settings.” (emphasis added)); *id.* col.21 ll. 36–37 (“*For example*, docker containers *can* refer to containerized software or data run or stored on the edge device”). In the claim construction context, words such as “can” and “may” typically signal exemplary, non-limiting definitions. *See, e.g., Game & Tech. Co. v. Wargaming Grp. Ltd.*, 942 F.3d 1343, 1351 (Fed. Cir. 2019) (“The use of the word ‘may’ in the definition strongly implies that the pilot does not *necessarily* control the motions of the unit.”); *Absolute Software, Inc. v. Stealth Signal, Inc.*, 659 F.3d 1121, 1137 (Fed. Cir. 2011) (finding that where the patent described “features that *can* be included in the *present invention*,” the features described were “optional”); *see also Medtech Prods. Inc. v. Ranir, LLC*, No. 07-CV-3302, 2009 WL 3672496, at *7 (S.D.N.Y. Nov. 5, 2009) (“[T]he Court reads the specification, including the preferred embodiments, as shedding light on what [the claim term means], but declines to impose structural limitations on the term based on exemplary language and illustrations in the specification.”).

However, with respect to the term “docker container images,” the definitional language in the specification—specifically the phrases “[f]or purposes of this disclosure” and “can be defined as”—suggest to this Court that the patentee intended to define the term “docker container images” according to the definition given in the specification. *Cf. Absolute Software*, 659 F.3d 1121 at 1136 (“[I]n some circumstances, a patentee’s consistent reference to a certain limitation or a preferred embodiment as ‘this invention’ or the ‘present invention’ can serve to limit the scope of the entire invention, particularly where no other intrinsic evidence suggests

otherwise.”); *Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1308 (Fed. Cir.2007) (“When a patent thus describes the features of the ‘present invention’ as a whole, this description limits the scope of the invention.”).

With respect to “docker container,” however, the “[f]or example” phrase preceded the definitional language suggesting that the definition given in the specification is merely an embodiment of a docker container. *See Phillips*, 415 F.3d at 1313 (“[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments.”).

Thus, this Court construes “docker container image” as “a lightweight, standalone, and executable package of software or data that comprises everything needed to run the software or read or manipulate the data including the software code, runtime instructions, system tools, system libraries, and system settings,” but construes “docker container” according to its plain and ordinary meaning.

7. “Bounding” limitations

The parties dispute the appropriate construction of the following terms, collectively referred to as the “bounding” limitations¹⁴:

1. “Bounding, using the one more processors of the [first or second] edge device, the vehicle and the restricted road area in the [first or second] frame in a plurality of [first or second] bounding boxes”;
2. “Bounding the vehicle and the restricted road area further comprises bounding the vehicle using a vehicular bounding box and bounding the restricted road area using a road bounding box”;
3. “Bound the vehicle in the first frame using a vehicular bounding box; bound the restricted road area in the first frame using a road bounding box”;

¹⁴ Both parties addressed these terms together in their briefs, and the Court adopts defendants’ terminology of referring to them collectively as the “bounding” limitations. *See* Defs.’ Br. at 34; *see also* Pl.’s Br. at 28.

4. “Bound the vehicle and the restricted road area in the [first or second] frame in a plurality of [first or second] bounding boxes”; and
5. “Bound the vehicle in the frames with a vehicular bounding box and bound the restricted road area in the frames with a road bounding box.”

See Joint Claim Construction Chart, Dkt. 141-1 at ECF pages 3–5. The “bounding” limitations appear in claims 1, 4, 11, 14, and 20 of the ’919 patent.

A. The Parties’ Positions

The parties dispute whether “bounding” with “bounding boxes” should be construed as the output of the “deep learning models.” Plaintiff asks the Court to construe the “bounding” limitations according to their plain and ordinary meaning, whereas defendants asks the Court to construe, for example, the “bounding” limitations as “bounding, using the one more processors of the [first or second] edge device, the vehicle and the restricted road area in the [first or second] frame in a plurality of [first or second] bounding boxes *outputted by the deep learning model.*” See Pl.’s Br. at 28; Defs.’ Br. at 34 (emphasis added).

Plaintiff argues that there is no intrinsic evidence in the record that supports adding the phrase “outputted by the deep learning model” to the relevant claims, and argues that “deep learning model” is used in conjunction with “identification,” not “bounding.” See Pl.’s Br. at 28–29. Plaintiff contends that “bounding” does not require the use of a deep learning model, and during the *Markman* hearing plaintiff explained that “bounding” can also be done using programming or a computer vision library. See Tr. at 201:1–17, Dkt. 163. Specifically, plaintiff contends that “an edge device can be programmed to bound the vehicle.” *Id.* at 201:3–4. Alternatively, “the computer vision library can do the bounding.” *Id.* at 201:10.

Defendants contend that “[w]hile the claims do not expressly state that the claimed deep learning models ‘bound,’ bounding is part-and-parcel of the deep learning model” Defs.’ Br. at 34. Defendants argue that “[t]he described ‘deep learning models’ detect *and* bound,” and

that “the two go hand-in-hand.” *Id.* at 35 (emphasis added). Defendants further maintain that “‘bounding’ with the ‘deep learning model’ was what the ’919 patent characterized as solving the prior art problems of false-detections and not providing automatic detection.” *Id.*

B. Analysis

Looking first to the claims themselves, the Court agrees with plaintiff that the language of the claims does not require that bounding be done using a deep learning model. For example, claim 1 of the ’919 patent describes the invention as:

A method for detecting a traffic violation, comprising: [. . .] identifying, using one or more processors of the first edge device, the vehicle [and] the restricted road area, . . . by applying a plurality of functions from a computer vision library to the first video and passing at least some the frames of the first video including the first frame to a deep learning model running on the first edge device; bounding, using the one or more processors of the first edge device, the vehicle and the restricted road area in the first frame in a plurality of first bounding boxes[.]

’919 patent col.36 ll.18, 26–37. As plaintiff points out, the explicit language of the claims does not require that bounding—as opposed to identification—be done using a deep learning model. *See* Pl.’s Mem. at 29.

Defendants maintain that the patent as a whole supports their proposed construction because the deep learning model “is the only structure that’s disclosed in the patent as actually doing the bounding with bounding boxes.” Tr. at 195:22–24. During the *Markman* hearing, defendants explained that “what’s happening in the bounding, is that it’s bounding with the bounding boxes,” and defendants argue that the “bounding” limitations should be construed as the output of the deep learning model because “that is in accordance with the way the patentee described his invention.” *Id.* at 195:20–21, 196:13–16. For example, defendants point to language in the ’919 patent specification that states that “[t]he event detection engine . . . can pass video frames in real-time *to the deep learning model* . . . to detect objects in real-time *and*

apply bounding boxes . . . to such objects.” ’919 patent col.18 ll.56–59 (emphasis added). The ’919 patent further provides that “the deep learning model . . . can apply class labels to detected objects *and apply bounding boxes* around such detected objects.” *Id.* col.18 ll.59–61 (emphasis added); *see also id.* col.30 ll.28–30 (“The deep learning model . . . can detect the objects in the video frames and automatically *bound the detected objects in bounding boxes.*” (emphasis added)).

This Court agrees with defendants that a POSITA reading the “bounding” limitations in the context of the patent as a whole would understand “bounding” as a function performed by the deep learning model. Although plaintiff’s expert contends that “[a] Skilled Artisan would . . . understand that bounding can be done with standard computer vision functions and is not limited to using a deep learning model,” Turk Decl. ¶ 98, Dkt. 144-4 at ECF page 35, the ’919 patent describes bounding using a deep learning model that applies bounding boxes to objects in the video frame. Similarly, although it may be possible to use “pattern recognition with image processing and edge detection” to bound objects, as plaintiff’s expert describes, this is not the bounding method described in the ’919 patent specification. *See id.*; *Phillips*, 415 F.3d at 1318 (“[A] court should discount any expert testimony ‘that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history, in other words, with the written record of the patent.’” (quoting *Key Pharms. v. Hercon Lab’ys Corp.*, 161 F.3d 709, 716 (Fed. Cir. 1998))).

Thus, this Court construes the “bounding” limitations as bounding with “bounding boxes” that are the output of the deep learning model.

Conclusion

For the foregoing reasons, the Court construes the disputed terms as follows:

1. “Edge device[s]” as “a mobile edge device”;
2. “Bounding box” or “bounding boxes” (with or without modifiers) as “rectangular or quadrilateral shapes enclosing a detected object”;
3. “Vehicle attributes” according to its plain and ordinary meaning¹⁵;
4. “Computer vision library” according to its plain and ordinary meaning;
5. “Plurality of functions” according to its plain and ordinary meaning;
6. “Docker container image” as “a lightweight, standalone, and executable package of software or data that comprises everything needed to run the software or read or manipulate the data including the software code, runtime instructions, system tools, system libraries, and system settings” and “docker container” according to its plain and ordinary meaning; and
7. The “bounding” limitations as follows:
 - a. “Bounding, using the one more processors of the [first or second] edge device, the vehicle and the restricted road area in the [first or second] frame in a plurality of [first or second] bounding boxes outputted by the deep learning model”;
 - b. “Bounding the vehicle and the restricted road area further comprises bounding the vehicle using a vehicular bounding box and bounding the restricted road area using a road bounding box outputted by the deep learning model”;
 - c. “Bound the vehicle in the first frame using a vehicular bounding box; bound the restricted road area in the first frame using a road bounding box outputted by the deep learning model”;
 - d. “Bound the vehicle and the restricted road area in the [first or second] frame in a plurality of [first or second] bounding boxes outputted by the deep learning model”; and

¹⁵ The Court finds that the plain and ordinary meaning of “attribute” is “a quality, character, or characteristic.”

- e. “Bound the vehicle in the frames with a vehicular bounding box and bound the restricted road area in the frames with a road bounding box outputted by the deep learning model.”

SO ORDERED

Dated: Brooklyn, New York
August 13, 2026

s/ James R. Cho
James R. Cho
United States Magistrate Judge