

HAYNES BOONE

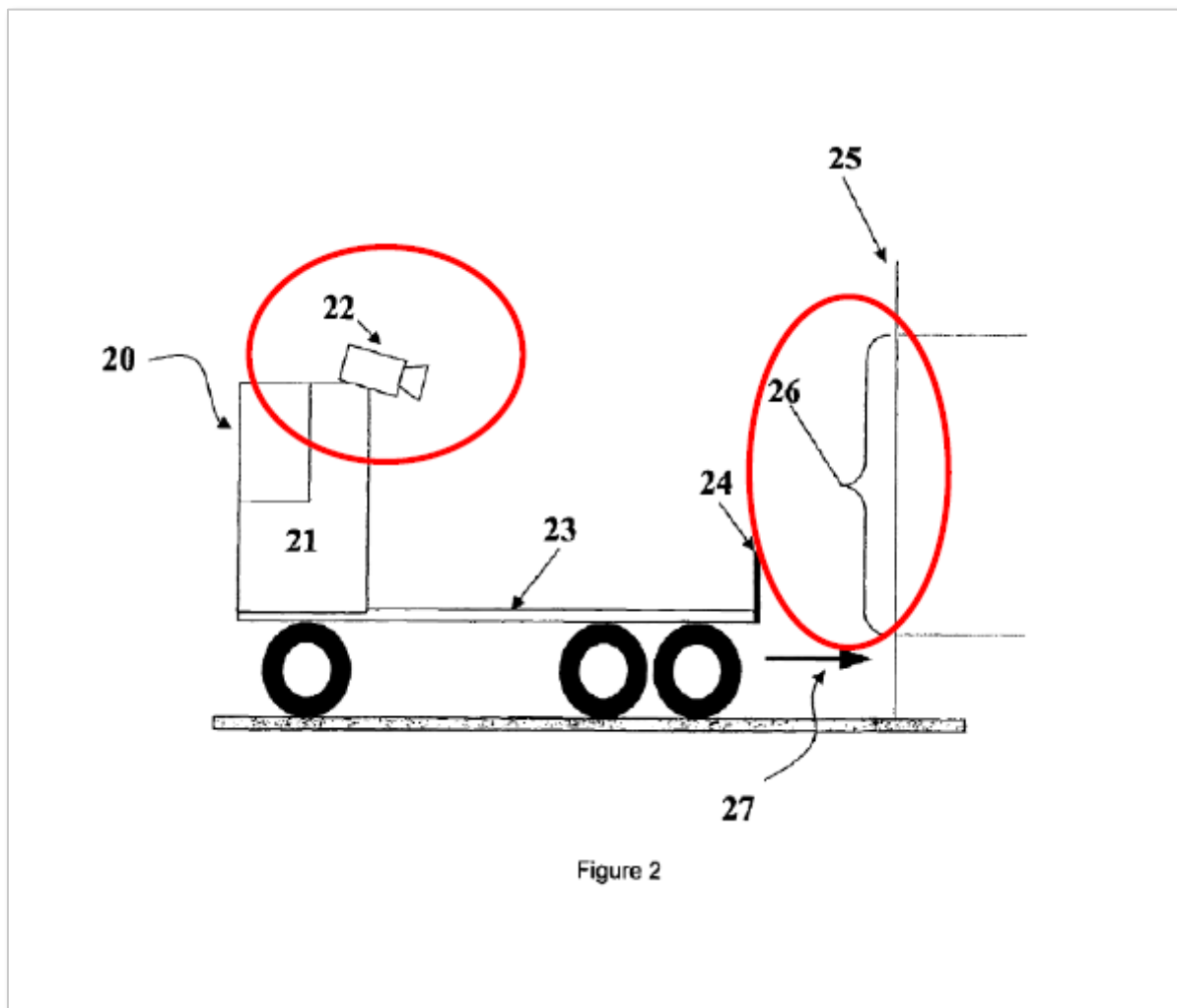
***TESLA, INC. V. INTELLECTUAL
VENTURES II LLC***

IPR2025-00342 (7,336,805)

Gregory P. Webb, Jonathan Bowser
Counsel for Petitioner



The '805 Patent



Ex.1001, FIG. 2; '805 Petition, 6.

'805 Patent IPR Grounds

Grounds	Claims	Pre-AIA Basis (§103)
#1	1-2, 9-10	Broggi, Huttenlocher, and Brady
#2	6-8, 11	Broggi, Huttenlocher, Brady, and Bertozzi

'805 Petition, 8.

The disputed claim limitations

'805 Patent, claim 1

1. A method for assisting guidance of a motor vehicle on the basis of image data, the method comprising:
acquired image data using an imaging sensor from a surrounding field of the motor vehicle;
extracting from the acquired image data positional parameters of at least one potential destination relative to the motor vehicle; and
calculating at least one trajectory describing an optimized travel path using the positional parameters so as to assist a subsequent vehicle guidance for at least one of the potential destinations,

wherein the extracting includes:

performing an edge detection and edge segmentation on the image data so as to break down the image data into a plurality of edge segments and storing interrelationships of the plurality of edge segments in a mathematical tree structure;

analyzing the plurality of edge segments for the presence of a geometric object associated with a geometrical form that may at least partially describe a potential destination so as to identify one or more potential geometric objects;

analyzing the one or more potential geometric objects for plausibility using a matching algorithm so as to identify one or more plausible objects;

performing an additional acceptance analysis so as to identify at least one accepted object, the additional acceptance analysis including analyzing a shape of the image formation of each object in the image data based on knowledge of at least one imaging property of the imaging sensor relative to the surrounding field; and
storing at least one accepted object that corresponds to a most proximate destination together with corresponding relative positional data in an object list.

Issue 1:

“mathematical tree structure”

('805 patent, claim element [1.4.0])

Issue 1 Summary:

■ Mathematical Tree Structure:

- IV alleges that a “*mathematical tree structure*” is a single, connected hierarchical structure, not a forest of disconnected trees
- In fact,
 - ❖ the single tree, non-forest requirement IV attempts to limit the claims to is not described or claimed by the '805 patent; and
 - ❖ the prior art meets IV's improper construction

Claim construction of “*mathematical tree structure*”

Claim Language	Tesla’s Construction	IV’s Construction
<i>“a mathematical tree structure”</i>	Plain and ordinary meaning	a single, connected hierarchical structure, not a forest of disconnected trees

’805 POR 18, 25; ’805 Reply, 12.

Claim construction of “*mathematical tree structure*”

'805 Patent, claim 1

performing an edge detection and edge segmentation on the image data so as to break down the image data into a plurality of edge segments and storing interrelationships of the plurality of edge segments in a **mathematical tree structure**;

Ex. 1001, 8:2-6; '805 Petition, 6, 38-43; '805 Reply, 12.

Claim construction of “*mathematical tree structure*”

'805 Patent

image data. In this context, based on the knowledge of their position and location, the extracted edges and segments are able to be advantageously stored in a hierarchically organized tree structure in the image data. Many different proven methods for creating and organizing such a hierarchical tree structure are available to one skilled in the art; reference is made here exemplarily to the comprehensive compilation and discussion of widely varying tree structures by Robert Sedgewick (R. Sedgewick, *Algorithms in C*, Chapter 4, Addison-Wesley Pub. Comp. Inc., 1990). Based on the

Ex. 1001, 4:42-51; '805 POR, 15-16.

Claim construction of “*mathematical tree structure*”

Sedgewick, *Algorithms in C*, Chapter 4

4

Trees

Ex. 2006, 35; '805 Reply, 11-12.

Trees

43

always appropriate, and there are two other commonly used solutions. One option is to use a different type of node for external nodes, one with no links. Another option is to mark the links in some way (to distinguish them from other links in the tree), then have them point elsewhere in the tree; one such method is discussed below. We will revisit this issue in Chapters 14 and 17.

Representing Forests

Figure 4.1). That is, any forest can be represented as a binary tree by making the left link of each node point to its leftmost child, and the right link of each node point to its sibling on the right. (This fact is often surprising to the novice.)

Thus, we may as well use forests whenever convenient in algorithm design. When working from the bottom up, the parent link representation makes forests easier to deal with than nearly any other kind of tree, and when working from the top down, they are essentially equivalent to binary trees.

Ex. 2006, 43; '805 Reply, 11-12.

Ex. 2006, 44; '805 Reply, 11-12.

Claim construction of “*mathematical tree structure*”

Institution Decision

Ex. 1001, 4:42–51. Importantly, the reference to Sedgewick is made “exemplarily,” not definitionally. Patent Owner’s attempt to limit the claimed “hierarchal tree structure” to a particular definition stands in contrast to the specification’s instruction that skilled artisans understood “[m]any different proven methods for creating and organizing” the claimed structure. We conclude that the specification uses “hierarchical tree structure” in a broader sense than whatever Sedgewick may provide.

Even Sedgewick itself does not support Patent Owner’s narrow construction. While Sedgewick states that “the defining property of a tree is

’805 ID, 9.

Huttenlocher teaches a “mathematical tree structure”

Huttenlocher

ments. Since coarser scales of smoothing do not introduce zero crossings which were not present at finer scales, the hierarchy **forms a tree of segments** from coarser to finer scales.

The three segmentations in Figure 3 form **a (multi-rooted) tree**, where each region at a coarse scale corresponds to one or more regions at each finer scale. **Figure 4 shows this scale-space segment tree**. Each segment in **the tree** is indicated by its label from Figure 3, and by the type of segment: straight, curve, and open-curve.

Ex.1006, 373; '805 Petition, 12-13, 15, 40-42; '805 Reply, 22-24.

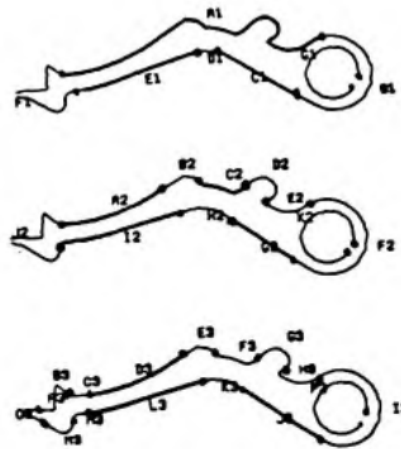


Figure 3. A simple curvature scale-space segmentation of a widget.

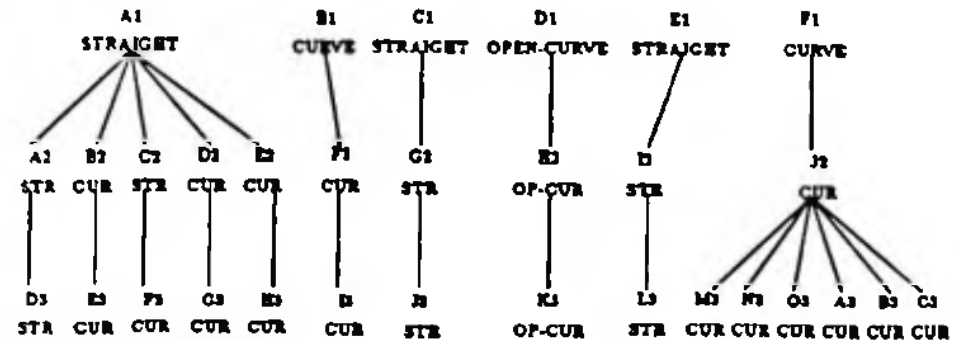


Figure 4. **Multi-scale segmentation tree** corresponding to the curvature scale-space segmentation in Figure 3.

Ex.1006, Figs. 3-4; '805 Petition, 13, 40-41; '805 Reply, 22-25.

Issue 2:

“potential destination”

(’805 patent, claim element [1.2])

Issue 2 Summary:

■ Potential Destination:

- IV alleges that a “*potential destination*” is a fixed, physically meaningful endpoint discoverable from geometric cues in the image, not a moving vehicle
- In fact,
 - ❖ IV’s unduly narrow interpretation contradicts IV’s infringement contentions and is not supported by the claims, the specification, or the prosecution history; and
 - ❖ the prior art meets IV’s improper construction

Claim construction of “*potential destination*”

Claim Language	Tesla’s Construction	IV’s Construction
“ <i>potential destination</i> ”	Plain and ordinary meaning	a fixed, physically meaningful endpoint discoverable from geometric cues in the image, not a moving vehicle (POR, 21)

'805 Reply, 14.

Claim construction of “potential destination”

PO’s Infringement Contentions for [1.2]

Claim 1	Example Evidence of Tesla Automotive Vehicles – U.S. Patent No. 7,336,805
	Autopilot Features This topic describes how to enable and use the following driver assistance features. Note <i>Depending on market region, vehicle configuration, options purchased, and software version, your vehicle may not be equipped with the following features, or a feature may not operate exactly as described.</i> • Traffic-Aware Cruise Control: Like traditional cruise control, Traffic-Aware Cruise Control maintains a set driving speed. However, Traffic-Aware Cruise Control also slows down or accelerates Model 3 as needed to maintain the following distance from the vehicle in front of you. While Traffic-Aware Cruise Control is engaged, you are still responsible for steering Model 3 (see Traffic-Aware Cruise Control). • Autosteer: Like Traffic-Aware Cruise Control, Autosteer maintains a set speed (if there is not a vehicle in front of you) or a set following distance (if there is a vehicle in front of you). In addition, <u>Autosteer detects lane markings, road edges, and the presence of vehicles and objects to intelligently keep Model 3 in its driving lane (see Autosteer).</u> Source: https://www.tesla.com/ownersmanual/model3/en_us/ (last accessed on April 10, 2024). • Auto Lane Change: <u>When you engage a turn signal while Autosteer is active, Auto Lane Change moves Model 3 into the adjacent lane</u> in the direction indicated by the turn signal (see Auto Lane Change). Source: https://www.tesla.com/ownersmanual/model3/en_us/ (last accessed on April 10, 2024).

Ex. 1016, 10; '805 Reply, 15.

Claim construction of “*potential destination*”

’805 Patent

A camera-based position detection and lane control system for motor vehicles that is rugged with respect to obscuration and soiling of the visual signatures, is described

Ex. 1001, 1:50-54; ’805 Reply, 15.

image in the image data. It is assumed exemplarily that, after processing of the image data in image-processing unit (11) and of the tree traversal algorithm in unit (12), objects 32, 33, 34a and 34b are identified as geometric objects typically corresponding to a potential destination. It is assumed that object 32 corresponds to the image of cargo door (26) sought as a destination. Object 33 corresponds to another rectan-

Ex. 1001, 7:25-31; ’805 Petition, 31; ’805 Reply, 25.

31). Apparent objects 34a and 34b do not represent images of real objects, but rather result from interference in the image data which coincidentally produces edge sections and segments of a kind that results in the tree traversal algorithm piecing them together to form a potential destination object.

Ex. 1001, 7:37; ’805 Reply, 25.

Claim construction of “*potential destination*”

'805 Patent, claim 1

acquired image data using an imaging sensor from a surrounding field of the motor vehicle;
extracting from the acquired image data positional parameters of at least one **potential destination** relative to the motor vehicle; and

Ex. 1001, 8:2-6; '805 Reply, 12.

Claim construction of “*potential destination*”

Institution Decision

We agree with Petitioner. The specification broadly states that the invention is “for assisting a motor vehicle guidance on the basis of image data” and raises “maneuvering trucks toward docking stations” as a “particular” application. *E.g.*, Ex. 1001, 1:6–8. Similarly, it refers to a docking station for trucks as a “typical destination” used only “for example.” *Id.* at 3:43–44. Patent Owner does not point to anything in the prosecution history that would inform the construction of “potential destination.” The intrinsic record does not support Patent Owner’s narrow construction.

Thus, for purposes of this decision, we do not construe “potential destination” as limited to a fixed location. No other aspect of the

’805 ID, 8.

The prior art teaches identifying a “*potential destination*”

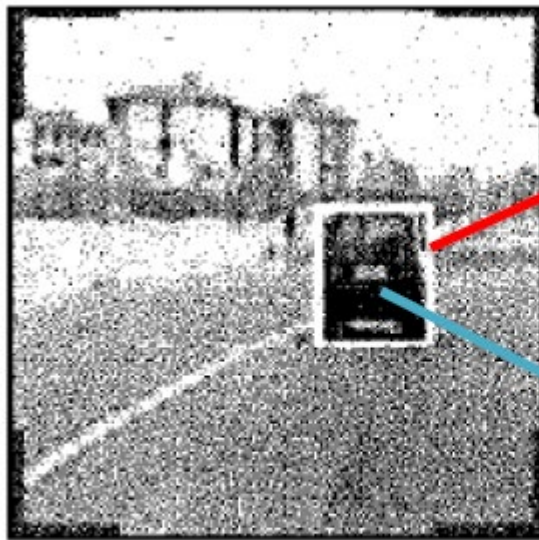
Petition

Second, the location of a preceding vehicle is a *potential destination relative to the motor vehicle* because “[w]hen the [p]latooning functionality is activated, the target point is centered on the preceding vehicle[.]” Ex.1005, 174; Ex.1003, ¶88. Thus, the extracted positional parameters (location and distance) of the preceding vehicle represent at least one potential destination relative to the following motor vehicle. The *potential destination* being an object—e.g., a preceding vehicle—is consistent with how the ’805 patent uses the term “destination,” referring to a destination as an object (e.g., cargo door of a dock). Ex.1001, 7:25-31, 7:50; Ex.1003, ¶88.

’805 Petition, 31.

The prior art teaches identifying a “*potential destination*”

Broggi



Ex.1005, Fig. 16 (annotated)

'805 Petition, 31, *see also* 29-32.



Fig. 17. Distance refinement: (a) left and right stereo images; (b) incorrect result of the detection step (the lower part of the bounding box indicates a wrong distance); (c) superimposition of stereo images with a null offset; and (d) superimposition of correctly shifted stereo images.

Ex.1005, Fig. 17

The prior art teaches identifying a “*potential destination*”

Petitioner Reply

Ex.1001, 7:37 (“a **potential destination object**”). The Petition explains how the “location of preceding vehicle in a platoon” is “a potential destination of the [following] motor vehicle.” Pet. 28-32 The location of the preceding vehicle is a “*potential destination*” because it represents where the following motor vehicle is potentially going and is identified in the manner required by the claims of the ’805 patent. Ex.1072, ¶62. Like the cargo door example, a motor vehicle in the platoon of the prior art will automatically drive toward the location of the preceding vehicle but will not run into the preceding vehicle. *Id.* The prior art identifies and operates with respect to a “*potential destination*” in the same manner as the ’805 patent and

’805 Reply, 25.

The prior art teaches identifying a “*potential destination*” under IV’s improper construction

Petitioner Reply

Finally, IV’s expert, Dr. Majumder, confirmed that a stopped vehicle can be a “*potential destination*” under IV’s proposed construction. Ex.1073, 50:3-51:7. Accordingly, at least in instances when the preceding vehicle in Broggi’s platoon is stopped (e.g., due to a stop sign, a red light, or while waiting to make a turn), the preceding vehicle is a “*potential destination*” under IV’s proposed construction and the prior art as set forth in the Petition meets IV’s unnecessarily narrow construction of “*potential destination*.” Ex.1072, ¶64.

Ex.1073, 50:3-51:7; ‘805 Reply, 26-27.

Issue 3:

“performing an additional acceptance analysis”

(’805 patent, claim element [1.4.3])

Issue 3 Summary:

■ Performing an Additional Acceptance Analysis:

- IV's prior art arguments are entirely dependent upon its narrow claim construction
- IV's claim construction is wrong because it:
 - ❖ imports multiple limitations that are not recited or required by the claims; and
 - ❖ contradicts the explicit claim language, the specification, and the prosecution history; and
- The prior art meets IV's improper construction

Claim construction of “*performing an additional acceptance analysis*”

Claim Language	Tesla’s Construction	IV’s Construction
<i>“performing an additional acceptance analysis”</i>	Plain and ordinary meaning	“a separate, subsequent analysis step that operates only on the set of objects previously found plausible by the matching algorithm and evaluates those objects against image-formation constraints determined by the imaging sensor’s properties relative to the scene; only objects that pass this analysis are designated ‘accepted objects’ and stored for trajectory computation” (POR, 14)

’805 Reply, 2.

Claim construction of “performing an additional acceptance analysis”

’805 Patent, claim 1

IV’s Construction

“a separate, subsequent analysis step that operates only on the set of objects previously found plausible by the matching algorithm and evaluates those objects against image-formation constraints determined by the imaging sensor’s properties relative to the scene; only objects that pass this analysis are designated ‘accepted objects’ and stored for trajectory computation” (POR, 14)

wherein the extracting includes:
performing an edge detection and edge segmentation on the image data so as to break down the image data into a plurality of edge segments and storing interrelationships of the plurality of edge segments in a mathematical tree structure;
analyzing the plurality of edge segments for the presence of a geometric object associated with a geometrical form that may at least partially describe a potential destination so as to identify one or more potential geometric objects;
analyzing the one or more potential geometric objects for plausibility using a matching algorithm so as to identify one or more plausible objects;
performing an additional acceptance analysis so as to identify at least one accepted object, the additional acceptance analysis including analyzing a shape of the image formation of each object in the image data based on knowledge of at least one imaging property of the imaging sensor relative to the surrounding field; and storing at least one accepted object that corresponds to a most proximate destination together with corresponding relative positional data in an object list.

Ex. 1001, 3:39-43; ’153 Reply, 5.

Claim construction of *“performing an additional acceptance analysis”*

IV's Construction

“a separate, subsequent analysis step that operates only on the set of objects previously found plausible by the matching algorithm and evaluates those objects against image-formation constraints determined by the imaging sensor's properties relative to the scene; only objects that pass this analysis are designated ‘accepted objects’ and stored for trajectory computation” (POR, 14)

'805 Patent

using a matching algorithm. These plausible objects undergo an additional acceptance analysis to the effect that, based on the knowledge of the imaging properties of the imaging sensor in relation to its surrounding field, the shape of the image formation of the objects in the image data is analyzed.

Ex. 1001, 2:43-44; '805 POR, 10.

The geometric objects pieced together by the tree traversal algorithm, in connection with the rules derived from the geometric shape of the destination, undergo an additional acceptance analysis. In this connection, the image data are

Ex. 1001, 5:19-22; '805 Reply, 6.

Claim construction of “performing an additional acceptance analysis”

'805 POR

IV's Construction

“a separate, **subsequent** analysis step that operates only on the set of objects previously found plausible by the matching algorithm and evaluates those objects against image-formation constraints determined by the imaging sensor's properties relative to the scene; only objects that pass this analysis are designated ‘accepted objects’ and stored for trajectory computation” (POR, 14)

The Summary of the Invention reinforces this order expressly.

'805 POR, 10.

'805 Patent

SUMMARY OF THE INVENTION

stored in a mathematical tree structure. Subsequently, these edge segments are then analyzed to check for the presence of a geometric object that is similar to a geometric form which, typically, at least partially describes a potential destination. The detected geometric objects that correspond to the typical geometric form are analyzed for plausibility using a matching algorithm. These plausible objects undergo an additional acceptance analysis to the effect that, based on the knowledge of the imaging properties of the imaging sensor in relation to its surrounding field, the shape of the image formation of the objects in the image data is analyzed.

Ex. 1001, 2:13, 37-47; '805 POR, 10.

Claim construction of *“performing an additional acceptance analysis”*

'805 POR

the Examiner credited the '805 Patent's additional acceptance analysis as a point of patentable distinction, which presupposes that the claimed acceptance analysis operates after candidate identification and after plausibility matching, not as a substitute for or part of those earlier steps (EX2009, 6:10–44; 7:1–38; 8:36–67).

'805 POR, 13.

Claim construction of “performing an additional acceptance analysis”

Allowable Subject Matter

Reasons of Allowance:

1. Claims 1-19 are allowed.

The following is an examiner's statement of reasons of allowance:

Both the instant invention and the closest prior art Ninomiya et al., U.S. Patent No. 5,220,508 are directed to vehicle guidance using image analysis and image processing which further includes extracting from the acquired image data positional parameters of at least one potential destination relative to the motor vehicle. However, in the instant invention the extracting of the parameters further includes edge detection and segmentation on the image data along with performing an additional acceptance analysis so as to identify at least one accepted object, the additional acceptance analysis including analyzing a shape of the image formation of each object in the image data based on the knowledge of at least one imaging property of the imaging sensor relative to the surrounding field and storing at least one accepted object that corresponds to a most proximate destination together with corresponding relative positional data in an object list in combination with other limitations in claims 1 and 13, which is not taught by the prior art of record. Therefore claims 1 and 13 are allowed. All other claims depending on claims 1 and 13 are allowable at least by dependency on claims 1 and 13.

Ex.1002, 31; '805 Reply, 8.

The prior art teaches

“performing an additional acceptance analysis”

'805 Patent, claim 1

wherein the extracting includes:
performing an edge detection and edge segmentation on the image data so as to break down the image data into a plurality of edge segments and storing interrelationships of the plurality of edge segments in a mathematical tree structure;
analyzing the plurality of edge segments for the presence of a geometric object associated with a geometrical form that may at least partially describe a potential destination so as to identify one or more potential geometric objects;
analyzing the one or more potential geometric objects for plausibility using a matching algorithm so as to identify one or more plausible objects;
performing an additional acceptance analysis so as to identify at least one accepted object, the additional acceptance analysis including analyzing a shape of the image formation of each object in the image data based on knowledge of at least one imaging property of the imaging sensor relative to the surrounding field; and
storing at least one accepted object that corresponds to a most proximate destination together with corresponding relative positional data in an object list.

'805 Petition

[1.4.0]

Perform edge detection and segmentation (per Broggi and Huttenlocher) and store the interrelationships of edge segments in a hierarchical tree (per Huttenlocher)

'805 Petition, 38-43.

[1.4.1]

Utilize Huttenlocher's coarse-scale analysis to identify the presence of potential bottom corners of a preceding vehicle (per Broggi)

'805 Petition, 43-46.

[1.4.2]

Score the potential bottom corners (identified in [1.4.1]) using Huttenlocher's fine-scale matching step to identify bottom corners of a plausible preceding vehicle (per Broggi)

'805 Petition, 46-48.

[1.4.3]

Detect the top part (per Broggi alone or Broggi + Huttenlocher) associated with the bottom corners of the plausible preceding vehicle (identified in [1.4.2]) based on perspective and size constraints and vehicle aspect ratio and perform distance refinement (per Broggi)

'805 Petition, 48-54.

The prior art teaches “*performing an additional acceptance analysis*” under IV’s improper construction

’805 Petition

IV’s Construction

“a separate, subsequent analysis step that operates only on the set of objects previously found plausible by the matching algorithm and evaluates those objects against image-formation constraints determined by the imaging sensor’s properties relative to the scene; only objects that pass this analysis are designated ‘accepted objects’ and stored for trajectory computation” (POR, 14)

This process is followed by the detection of the top part of the bounding box, which is looked for in a specific region whose location is again determined by perspective and size constraints. Fig. 15 shows the search area.

Ex.1005, 171, Fig. 15; ’805 Petition, 49-50.

field. Ex.1003, ¶119. Broggi describes after locating the bottom corners of a vehicle, the “process is followed by the detection of the top part of the bounding box[.]” Ex.1005, 171. This identification of the “top part of the bounding box” is an *additional acceptance analysis* because it is an additional analysis step of Broggi’s vehicle detection that confirms the relevant portion of the image includes the top of the preceding vehicle associated with the previously detected bottom corners, which completes the bounding box. See Ex.1005, 170; Ex.1003, ¶119.

’805 Petition, 49.



Fig. 15. Search area for the upper part of the bounding box is shown in dark gray. It takes into account knowledge about the typical vehicles’ aspect ratio.

The prior art teaches “*performing an additional acceptance analysis*” under IV’s improper construction

’805 Petition

IV’s Construction

“a separate, subsequent analysis step that operates only on the set of objects previously found plausible by the matching algorithm and evaluates those objects against image-formation constraints determined by the imaging sensor’s properties relative to the scene; only objects that pass this analysis are designated ‘accepted objects’ and stored for trajectory computation” (POR, 14)

in order to increase the detection robustness. Once the width and position of the symmetrical area have been detected, a new search begins, aimed at the detection of the two bottom corners of a rectangular bounding box. Finally, the top horizontal limit of the vehicle is searched for, and the preceding vehicle localized.

⁶ For purposes of this Petition, “each object in the image data” is understood to include the claimed “one or more plausible objects.” See Ex.1003, ¶118.

’805 Petition, 48, n.6.

box[.]” Ex.1005, 171. This identification of the “top part of the bounding box” is *an additional acceptance analysis* because it is an additional analysis step of Broggi’s vehicle detection that confirms the relevant portion of the image includes the top of the preceding vehicle associated with the previously detected bottom corners, which completes the bounding box. See Ex.1005, 170; Ex.1003, ¶119.

’805 Petition, 49.



Fig. 15. Search area for the upper part of the bounding box is shown in dark gray. It takes into account knowledge about the typical vehicles’ aspect ratio.

Ex.1005, 170, Fig. 15; ’805 Petition, 49-50.

The prior art teaches “*performing an additional acceptance analysis*” under IV’s improper construction

’805 Petition

IV’s Construction

“a separate, subsequent analysis step that operates only on the set of objects previously found plausible by the matching algorithm and evaluates those objects against image-formation constraints determined by the imaging sensor’s properties relative to the scene; only objects that pass this analysis are designated ‘accepted objects’ and stored for trajectory computation” (POR, 14)

field because the top of the bounding box is “looked for in a specific region whose location is again determined by perspective and size constraints.” Ex.1005, 171, 172 (describing the “Distance Refinement” step of the “Vehicle Detection Processing Steps”); Ex.1003, ¶121. Further, Broggi explains that, based on these perspective and size constraints, the search area is analyzed to identify a shape corresponding to the top of the vehicle by taking “into account knowledge about the typical vehicles’ aspect ratio.” Ex.1005, 172, Fig. 15; Ex.1003, ¶121. The

’805 Petition, 49.

This process is followed by the detection of the top part of the bounding box, which is looked for in a specific region whose location is again determined by perspective and size constraints. Fig. 15 shows the search area.

Ex.1005, 170, Fig. 15; ’805 Petition, 49-50.

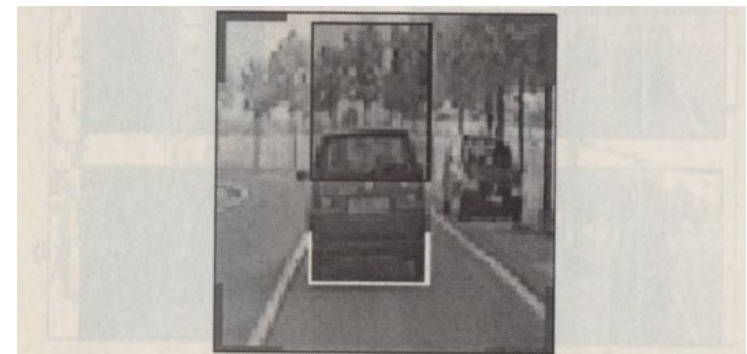


Fig. 15. Search area for the upper part of the bounding box is shown in dark gray. It takes into account knowledge about the typical vehicles’ aspect ratio.

The prior art teaches “*performing an additional acceptance analysis*” under IV’s improper construction

’805 Petition

IV’s Construction

“a separate, subsequent analysis step that operates only on the set of objects previously found plausible by the matching algorithm and evaluates those objects against image-formation constraints determined by the imaging sensor’s properties relative to the scene; **only objects that pass this analysis are designated ‘accepted objects’ and stored for trajectory computation”** (POR, 14)

3) Backtracking: Sometimes it may happen that in correspondence to the symmetry maximum no correct bounding boxes exist. Therefore, a backtracking approach is used: the symmetry map is again scanned for the next local maximum and a new search for a bounding box is performed. Fig. 16

Ex.1005, 171-172; ’805 Petition, 49-50.

so as to identify at least one accepted object because **if the top of the bounding box/preceding vehicle is unable to be located then the plausible object** (identified as corresponding to the bottom corners of a preceding vehicle as discussed in [1.4.1]-[1.4.2]) **is not accepted**. See Ex.1005, 171-172; Ex.1003, ¶120. For instance, Broggi explains that if “no correct bounding boxes exist,” then “a backtracking approach is used” where a different location is checked. Ex.1005, 171 (“a new search for a bounding box is performed”). On the other hand, **if the top part of the vehicle is identified, then this completes the bounding box for the preceding vehicle**. See Ex.1005, 1725, Fig. 16; Ex.1003, ¶120.

’805 Petition, 49-50.

most proximate destination by **storing a preceding vehicle identified using Broggi’s bounding box detection** (implementing Huttenlocher’s pattern matching technique). See *supra* [1.4.3]; Ex.1003, ¶128. The identified preceding vehicle

’805 Petition, 54.

Issue 4:

Application of *Revvo* and *Tesla*

Issue 4 Summary:

- **Revvo and Tesla:**

- IV alleges the Board should vacate the institution decision
- In fact,
 - Recent Director and PTAB decisions confirm the Board lacks the authority to grant IV's request;
 - The present case satisfies at least two of the exceptions to *Revvo/Tesla*; and
 - IV waived this argument

Recent Director and PTAB Decisions

Savant Technologies LLC v. Feit Electric Company, Inc. IPR2024-01357

III. ANALYSIS

We find that we lack authority to grant the relief Patent Owner requests. *See Berkshire Hathaway Energy Co. v. Birchtech Corp.*, IPR2025-00274, Paper 76 (PTAB Mar. 4, 2026) (denying motion to terminate because the Board lacked authority to decide discretionary issues), *cited with approval in Berkshire Hathaway Energy Co. v. Birthtech Corp.*, IPR2025-00274, Paper 81 (Director Mar. 27, 2026) (noting “the Board correctly determined that it lacked the authority in these IPRs to terminate parallel proceedings challenging the same patents because, under current policy, the Director makes determinations on discretionary issues”). On March 26, 2025, the Acting Director issued a Memorandum on Interim Processes for

IPR2024-01357, Paper 69 (PTAB April 9, 2026), 8.

Notwithstanding the alleged indefiniteness, a POSITA understands the prior art satisfies the claim limitations

Specifically, Petitioner argued that the terms “may at least partially describe,” “plausibility,” and “plausible objects” were indefinite because of the lack of clarity as to how to determine or measure when the limitation is satisfied. The Petition showed that—despite the potential indefiniteness—a person of ordinary skill in the art would have understood the prior art taught each of the disputed limitations. Pet., 43-48.

Patent Owner has never disputed the prior art relied upon in the Petition teaches all the aspects of limitations [1.4.1] and [1.4.2]. *See generally*, Preliminary Response (POPR), Patent Owner’s Pre-Institution Sur-Reply, POR, Supplemental POR (all not contesting that the features of limitations [1.4.1] and [1.4.2] are taught

’805 Reply to Supplemental POR, 5-6.

The District Court Rejected Tesla's Indefiniteness Arguments

Second, in *Revvo Techs.*, the Director noted that a petitioner may rely on different claim construction positions when a district court declines to adopt a party's construction and that party advances the court-adopted construction in the proceeding before the Board. *Revvo Techs.*, Paper 20 at 5 (citing *Sun Pharm. Indus. Inc. v. Nivagen Pharm., Inc.*, IPR2025-00893, Paper 18 at 3 (Director Sept. 19, 2025)). That is precisely the current situation here.

'805 Reply to Supplemental POR, 6.

IV waived any argument based on allegedly inconsistent claim construction positions

- IV was aware of the issue prior to filing all its papers in this IPR;
- This IPR and *Tesla* (IPR2025-00340) are involved in the same district court proceeding with common claim construction briefing;
 - IV repeatedly raised the argument it is now attempting to raise in IPR2025-00340
 - IV's strategic choice not to raise the issue in this IPR is waiver

Appendix

Broggi's "Reactive Platooning" Operates in the Same Manner as the Claimed Invention

'805 POR

3. Broggi's Reactive Platooning Is Not the Claimed Destination-Based Optimized Trajectory Using Accepted-Object Parameters Under [1.3]

'805 POR, 13.

In the course of the lateral guidance, it is particularly advantageous for the trajectory to be constantly readapted with the aid of a Kalman filter and on the basis of a continuous image analysis (temporal updating), in order to substantially eliminate interference effects in the image data.

Ex.1001, 6:63-67, '805 Reply, 26.

It is also intended, during the vehicle guidance, for the position of the objects stored as potential destinations in the object list to be continuously monitored, so that, in the event that the originally most proximate destination can no longer be easily reached due to circumstances, that potential destination is selected as a new, most proximate destination, which, on the basis of the active position of the motor vehicle, may best be reached in consideration of its steering properties and capabilities. If a new destination is thus ascertained to be the nearest destination to the vehicle, then, on the basis of the active position, a trajectory describing an optimized travel path to this destination must be computed.

Ex.1001, 7:1-12, '805 Reply, 26.

Huttenlocher's Tree is Traversed

'805 Petition

A POSITA would have understood that starting with the “coarse level descriptions” of the tree structure and then using the corresponding “fine scale model features” represents a traversal of the tree structure using a tree traversal algorithm because it starts on one end of the tree (top of Fig. 4) and proceeds towards another end of the tree (bottom of Fig. 4). See Ex.1006, 374, Fig. 4.

Further, Huttenlocher explains that “coarse level descriptions are [] used to determine which model features can potentially match which image features. These possible matching features form the set of pairs, P , for the alignment algorithm.” Ex.1006, 374. Then fine-scale matching is utilized to score how likely or plausible a “potential match” (from the coarse scale alignment) is to being an actual match for an object. Ex.1006, 374; Ex.1003, ¶133. This approach is like the '805 patent,

'805 Petition, 57.

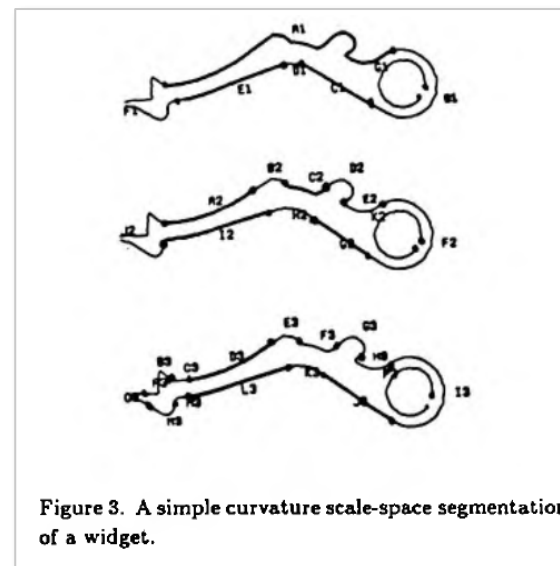


Figure 3. A simple curvature scale-space segmentation of a widget.

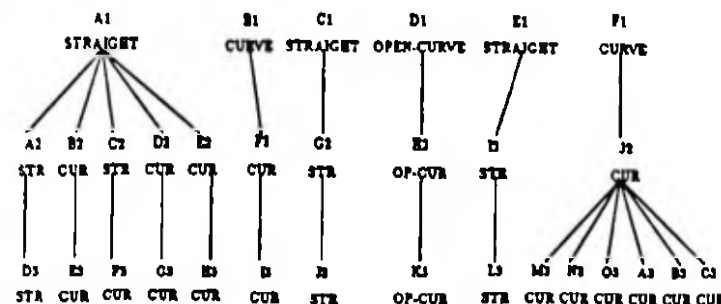


Figure 4. Multi-scale segmentation tree corresponding to the curvature scale-space segmentation in Figure 3.

Ex.1006, Figs. 3-4;

'805 Petition, 13, 40-41; '805 Reply, 22-25.