

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

Assignment ID: PATI552278

SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	
CONVEYING PARTY DATA		
Name		Execution Date
Argo AI, LLC		09/06/2024
RECEIVING PARTY DATA		
Company Name:	Volkswagen Group of America Investments, LLC	
Street Address:	1950 Opportunity Way	
Internal Address:	Suite 1500	
City:	Reston	
State/Country:	VIRGINIA	
Postal Code:	20190	
PROPERTY NUMBERS Total: 134		
Property Type	Number	
Application Number:	16155199	
Application Number:	16155229	
Application Number:	17461179	
Application Number:	17461252	
Application Number:	16407773	
Application Number:	16380180	
Application Number:	17314462	
Application Number:	16403937	
Application Number:	16403943	
Application Number:	17509136	
Application Number:	16660133	
Application Number:	17660841	
Application Number:	16556321	
Application Number:	16597283	
Application Number:	16425132	
Application Number:	17373090	
Application Number:	16535335	
Application Number:	17216848	
Application Number:	18053069	

PATENT

Property Type	Number
Application Number:	16547712
Application Number:	16547718
Application Number:	17352823
Application Number:	16797103
Application Number:	16722641
Application Number:	17484541
Application Number:	16797109
Application Number:	16720795
Application Number:	17030669
Application Number:	17074807
Application Number:	17970313
Application Number:	16885743
Application Number:	18318771
Application Number:	16802970
Application Number:	17397399
Application Number:	17009094
Application Number:	16928861
Application Number:	16928893
Application Number:	17060817
Application Number:	17207889
Application Number:	18178605
Application Number:	17030702
Application Number:	17034366
Application Number:	17060837
Application Number:	17087903
Application Number:	18317861
Application Number:	17060928
Application Number:	17115006
Application Number:	17244379
Application Number:	17090998
Application Number:	17147582
Application Number:	16951416
Application Number:	18363021
Application Number:	17124413
Application Number:	17125166
Application Number:	18061803
Application Number:	17160758
Application Number:	17664979

Property Type	Number
Application Number:	17075827
Application Number:	17179503
Application Number:	18363066
Application Number:	17141850
Application Number:	18467111
Application Number:	17101633
Application Number:	18364569
Application Number:	17471494
Application Number:	17178333
Application Number:	17162094
Application Number:	17179510
Application Number:	17409472
Application Number:	17144441
Application Number:	17976582
Application Number:	17234889
Application Number:	17148691
Application Number:	17150768
Application Number:	17404553
Application Number:	17394777
Application Number:	17394853
Application Number:	17244473
Application Number:	17486319
Application Number:	18300650
Application Number:	17315451
Application Number:	17315457
Application Number:	17315460
Application Number:	17241637
Application Number:	18066592
Application Number:	17236000
Application Number:	17387927
Application Number:	17490236
Application Number:	17323061
Application Number:	17508457
Application Number:	17647623
Application Number:	17650281
Application Number:	17650283
Application Number:	17650286
Application Number:	17650288

Property Type	Number
Application Number:	17650289
Application Number:	17652991
Application Number:	17654247
Application Number:	17818986
Application Number:	18146548
Application Number:	18051629
Application Number:	18156986
Application Number:	63393423
Application Number:	18321935
Application Number:	63359449
Application Number:	18147184
Application Number:	18154283
Application Number:	16995160
Application Number:	17069483
Application Number:	17512179
Application Number:	17035447
Application Number:	18104617
Application Number:	17069600
Application Number:	17993231
Application Number:	17079000
Application Number:	17017654
Application Number:	17963410
Application Number:	17027501
Application Number:	17027468
Application Number:	18298568
Application Number:	17027489
Application Number:	17028767
Application Number:	17020297
Application Number:	17844588
Application Number:	18348492
Application Number:	16993044
Application Number:	17746494
Application Number:	17073119
Application Number:	18330303
Application Number:	18254216
Application Number:	18348135
Application Number:	18256431
Application Number:	18259663

Property Type	Number
Application Number:	18270106

CORRESPONDENCE DATA

Fax Number: 6098961469
Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 6098963600
Email: ipdocket@foxrothschild.com
Correspondent Name: James M. Singer
Address Line 1: 212 Carnegie Center Drive
Address Line 4: Princeton, NEW JERSEY 08540

NAME OF SUBMITTER:	JENNIFER LUTZ
SIGNATURE:	JENNIFER LUTZ
DATE SIGNED:	10/09/2024

Total Attachments: 45

source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page1.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page2.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page3.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page4.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page5.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page6.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page7.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page8.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page9.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page10.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page11.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page12.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page13.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page14.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page15.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page16.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page17.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page18.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page19.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page20.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page21.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page22.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page23.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page24.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page25.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page26.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page27.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page28.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page29.tiff

source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page30.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page31.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page32.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page33.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page34.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page35.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page36.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page37.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page38.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page39.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page40.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page41.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page42.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page43.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page44.tiff
source=Argo AI LLC - VWGoA patent assignment - FINAL090624#page45.tiff

PATENT ASSIGNMENT AGREEMENT

This PATENT ASSIGNMENT AGREEMENT ("*Assignment*") is effective September 6, 2024 by and between:

- Argo AI, LLC, a limited liability company organized under the laws of the State of Delaware, U.S.A. with an address of 2545 Railroad Street, Suite 400, Pittsburgh, Pennsylvania 15222, U.S.A. ("*Assignor*"); and
- Volkswagen Group of America Investments, LLC, a limited liability company organized under the laws of the State of Delaware, U.S.A., and which has an address of 1950 Opportunity Way, Suite 1500, Reston, VA 20190, U.S.A. ("*Assignee*").

WHEREAS, Assignor and Assignee are parties to a separate agreement pursuant to which Assignor agreed to assign certain intellectual property assets to Assignee. Assignor and Assignee desire to implement the actions contemplated by that agreement through this Assignment.

In consideration of the mutual promises and covenants contained in this Assignment and in the agreement referenced above, Assignor and Assignee agree as follows:

1. Definition. As used in this Assignment, "*Patents*" means the patents, designs, pending patent applications and invention disclosures listed in **Exhibit A** to this Assignment, as well as all patents, patent applications and design applications or registrations resulting from the items listed in **Exhibit A**. "*Patents*" also includes but is not limited to any reissues, reexaminations, divisions, continuations, continuations-in-part, foreign counterparts, and extensions; patents and patent applications to which the items listed in **Exhibit A** claim priority; all rights to file and claim priority in domestic and foreign counterparts; and all patents, utility models, certificates of invention, or other registrations resulting from any of the above.
2. Assignment. For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor assigns and transfers to Assignee all of Assignor's right, title and interest in and to the Patents, including but not limited to renewal rights, rights to sue and recover any and all damages and profits, and rights to obtain any and all other remedies for past, present, or future infringements or other violations, all in Assignee's sole name.
3. Acceptance. By this Assignment, Assignee accepts the assignment of the Patents.
4. Cooperation. Assignor will cooperate with Assignee, at Assignee's expense, in any action Assignee reasonably requests that Assignor takes in order to carry out, or fulfill the parties' intent and/or Assignor's obligations under this Assignment. Such actions may include without limitation, the execution of any instruments and papers that are necessary to consolidate, confirm, vest and/or record Assignee's full and complete ownership of the Patents with, for example, the patent office of any jurisdiction.

5. Entire Agreement. This Assignment and the agreement referenced above contain the entire agreement of the parties with respect to the subject matter of this Assignment. No prior agreement or understanding pertaining to any such matter shall be effective.
6. Governing Law. This Assignment shall be governed by and construed under the laws of the State of Delaware, United States of America, excluding any conflicts of laws rule or principle that might refer the governance or construction of this Assignment to the law of another jurisdiction.
7. Severability. If any provision of this Assignment is deemed invalid or unenforceable by any court of competent jurisdiction, then that portion shall be deemed severed, and the remainder of this Assignment shall be enforceable in accordance with its terms.
8. Counterparts. This Assignment may be executed in counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.
9. Authorization. Assignor and Assignee each represent that their respective signatories below are authorized to execute this Assignment on behalf of that party and complete the transfer of Patents contemplated by this Assignment.

INTENDING TO BE LEGALLY BOUND, the parties have caused this Assignment to be duly executed on the day and year first above written.

REMAINDER OF PAGE LEFT INTENTIONALLY BLANK

PATENT ASSIGNMENT AGREEMENT BETWEEN ARGO AI, LLC
AND VOLKSWAGEN GROUP OF AMERICA INVESTMENTS, LLC

SIGNATURE PAGE 1 OF 2

Assignor: ARGO AI, LLC

By: 

Name: Laura Mullen

Title: VP of Legal & Compliance

PATENT ASSIGNMENT AGREEMENT BETWEEN ARGO AI, LLC
AND VOLKSWAGEN GROUP OF AMERICA INVESTMENTS, LLC

SIGNATURE PAGE 2 OF 2

Assignee: VOLKSWAGEN GROUP OF AMERICA INVESTMENTS, LLC


By: 
Name: Kevin Duke
Title: Vice President & Secretary

Exhibit A
Conveyed Patents

Issued and/or Filed Patent Families

Patent Family Number	Jurisdiction	Patent Number	Publication Number	Application Number	Patent Application Title
42	European Patent Office	n/a	3864544	19871470.1	EXECUTION SEQUENCE INTEGRITY MONITORING SYSTEM
42	United States	11,138,085	US-2020-0110684-A1	16/155,199	EXECUTION SEQUENCE INTEGRITY MONITORING SYSTEM
42	United States	11,144,375	US-2020-0110650-A1	16/155,229	EXECUTION SEQUENCE INTEGRITY PARAMETER MONITORING SYSTEM
42	United States	11,656,965	US-2021-0390025-A1	17/461,179	EXECUTION SEQUENCE INTEGRITY MONITORING SYSTEM
42	United States	11,561,847	US-2022-0032950-A1	17/461,252	EXECUTION SEQUENCE INTEGRITY PARAMETER MONITORING SYSTEM
48	China	n/a	CN11181602 0A	202010263651.5	TRANSFERRING SYNTHETIC LIDAR SYSTEM DATA TO REAL WORLD DOMAIN
48	European Patent Office	n/a	3723001	20168908.0	TRANSFERRING SYNTHETIC LIDAR SYSTEM DATA TO REAL WORLD DOMAIN
48	United States	11,016,496	US-2020-0326717-A1	16/380,180	TRANSFERRING SYNTHETIC LIDAR SYSTEM DATA TO REAL WORLD DOMAIN FOR AUTONOMOUS VEHICLE TRAINING APPLICATIONS
48	United States	n/a	US-2021-0263528-A1	17/314,462	TRANSFERRING SYNTHETIC LIDAR SYSTEM DATA TO REAL WORLD DOMAIN FOR AUTONOMOUS VEHICLE TRAINING APPLICATIONS
52	China	n/a	n/a	202010371703.0	METHOD AND SYSTEM FOR REAL-TIME DIAGNOSTICS AND FAULT MONITORING IN A ROBOTIC SYSTEM
52	European Patent Office	n/a	n/a	20173257.5	METHOD AND SYSTEM FOR REAL-TIME

					DIAGNOSTICS AND FAULT MONITORING IN A ROBOTIC SYSTEM
52	United States	11,164,403	US-2020-0357199-A1	16/403,937	METHOD AND SYSTEM FOR REAL-TIME DIAGNOSTICS AND FAULT MONITORING IN A ROBOTIC SYSTEM
53	United States	11,209,817	US-2020-0356089-A1	16/403,943	METHOD AND SYSTEM FOR REAL-TIME DIAGNOSTICS AND FAULT MONITORING IN A ROBOTIC SYSTEM
53	United States	n/a	US-2022-0043445-A1	17/509,136	METHOD AND SYSTEM FOR REAL-TIME DIAGNOSTICS AND FAULT MONITORING IN A ROBOTIC SYSTEM
54	European Patent Office	n/a	3947082	20801752.5	TIME MASTER AND SENSOR DATA COLLECTION FOR ROBOTIC SYSTEM
54	United States	n/a	US-2020-0357205-A1	16/407,773	TIME MASTER AND SENSOR DATA COLLECTION FOR ROBOTIC SYSTEM
55	European Patent Office	n/a	3959576	20813663.0	METHODS AND SYSTEMS FOR TRAJECTORY FORECASTING WITH RECURRENT NEURAL NETWORKS USING INERTIAL BEHAVIORAL ROLLOUT
55	United States	11,131,993	US-2020-0379461-A1	16/425,132	METHODS AND SYSTEMS FOR TRAJECTORY FORECASTING WITH RECURRENT NEURAL NETWORKS USING INERTIAL BEHAVIORAL ROLLOUT
55	United States	n/a	US-2021-0341920A1	17/373,090	METHODS AND SYSTEMS FOR TRAJECTORY FORECASTING WITH RECURRENT NEURAL NETWORKS USING INERTIAL BEHAVIORAL ROLLOUT
57	European Patent Office	n/a	4049097	20880051.6	CHECKPOINT-BASED TRACING FOR

					MONITORING A ROBOTIC SYSTEM
57	Qatar	n/a	n/a	QA/202204/000294	CHECKPOINT-BASED TRACING FOR MONITORING A ROBOTIC SYSTEM
57	United States	11,335,141	US-2021-0118251-A1	16/660,133	CHECKPOINT-BASED TRACING FOR MONITORING A ROBOTIC SYSTEM
57	United States	n/a	US-2022-0254204-A1	17/660,841	CHECKPOINT-BASED TRACING FOR MONITORING A ROBOTIC SYSTEM
59	European Patent Office	n/a	4018427	20856153.0	METHOD OF HANDLING OCCLUSIONS AT INTERSECTIONS IN OPERATION OF AUTONOMOUS VEHICLE
59	United States	11,332,132	US-2021-0061269-A1	16/556,321	METHOD OF HANDLING OCCLUSIONS AT INTERSECTIONS IN OPERATION OF AUTONOMOUS VEHICLE
61	European Patent Office	n/a	4042252	20874329.4	METHODS AND SYSTEMS FOR TOPOLOGICAL PLANNING IN AUTONOMOUS DRIVING
61	United States	n/a	US-2021-0108936-A1	16/597,283	METHODS AND SYSTEMS FOR TOPOLOGICAL PLANNING IN AUTONOMOUS DRIVING
62	European Patent Office	n/a	3869342	21158119.4	SYSTEMS AND METHODS FOR GENERATING SIMULATION SCENARIO DEFINITIONS FOR AN AUTONOMOUS VEHICLE SYSTEM
62	United States	n/a	US-2021-0261156-A1	16/797,103	SYSTEMS AND METHODS FOR GENERATING SIMULATION SCENARIO DEFINITIONS FOR AN AUTONOMOUS VEHICLE SYSTEM
63	European Patent Office	n/a	3869341	21157096.5	PLAY-FORWARD PLANNING AND CONTROL SYSTEM FOR AN AUTONOMOUS VEHICLE
63	United States	11,429,107	US-2021-0263524-A1	16/797,109	PLAY-FORWARD PLANNING AND CONTROL

					SYSTEM FOR AN AUTONOMOUS VEHICLE
66	European Patent Office	n/a	4017772	20854761.2	SYSTEMS AND METHODS FOR TRAJECTORY BASED SAFEKEEPING OF VEHICLES
66	United States	11,167,754	US-2021-0053557-A1	16/547,712	SYSTEMS AND METHODS FOR TRAJECTORY BASED SAFEKEEPING IN VEHICLES
66	United States	11,072,326	US-2021-0053558-A1	16/547,718	SYSTEMS AND METHODS FOR TRAJECTORY BASED SAFEKEEPING OF VEHICLES
66	United States	n/a	US-2021-0316722-A1	17/352,823	SYSTEMS AND METHODS FOR TRAJECTORY BASED SAFEKEEPING OF VEHICLES
67	European Patent Office	n/a	4078535	20901165.9	METHODS AND SYSTEMS FOR CONSTRUCTING MAP DATA USING POISSON SURFACE RECONSTRUCTION
67	United States	11,164,369	US-2021-0192841-A1	16/722,641	METHODS AND SYSTEMS FOR CONSTRUCTING MAP DATA USING POISSON SURFACE RECONSTRUCTION
67	United States	n/a	US-2022-0012942-A1	17/484,541	METHODS AND SYSTEMS FOR CONSTRUCTING MAP DATA USING POISSON SURFACE RECONSTRUCTION
93	European Patent Office	n/a	4004812	20850216.1	USING CAPTURED VIDEO DATA TO IDENTIFY ACTIVE TURN SIGNALS ON A VEHICLE
93	United States	11,003,928	US-2021-0042542-A1	16/535,335	USING CAPTURED VIDEO DATA TO IDENTIFY ACTIVE TURN SIGNALS ON A VEHICLE
93	United States	11,527,078	US-2021-0216798-A1	17/216,848	USING CAPTURED VIDEO DATA TO IDENTIFY POSE OF A VEHICLE
93	United States	n/a	n/a	18/053,069	USING CAPTURED VIDEO DATA TO IDENTIFY ACTIVE TURN SIGNALS ON A VEHICLE
103	European Patent Office	n/a	4078524	20903167.3	GROUND SURFACE IMAGING COMBINING

					LIDAR AND CAMERA DATA
103	United States	n/a	US-2021-0190956-A1	16/720,795	GROUND SURFACE IMAGING COMBINING LIDAR AND CAMERA DATA
106	United States	n/a	US-2022-0119006-A1	17/074,807	IN-VEHICLE OPERATION OF SIMULATION SCENARIOS DURING AUTONOMOUS VEHICLE RUNS
106	United States	11,403,943	US-2022-0020271-A1	17/970,313	IN-VEHICLE OPERATION OF SIMULATION SCENARIOS DURING AUTONOMOUS VEHICLE RUNS
106	European Patent Office	n/a	n/a	218835535.3	IN-VEHICLE OPERATION OF SIMULATION SCENARIOS DURING AUTONOMOUS VEHICLE RUNS
106	Patent Cooperation Treaty	n/a	WO/2022/086713	PCT/US2021/053898	IN-VEHICLE OPERATION OF SIMULATION SCENARIOS DURING AUTONOMOUS VEHICLE RUNS
106	China	n/a	n/a	202180071421.1	IN-VEHICLE OPERATION OF SIMULATION SCENARIOS DURING AUTONOMOUS VEHICLE RUNS
110	United States	n/a	US-2022-0019225-A1	16/928,844	SMART NODE FOR AUTONOMOUS VEHICLE PERCEPTION AUGMENTATION
110	United States	11,403,943	US-2022-0020271-A1	16/928,861	METHOD AND SYSTEM FOR VEHICLE NAVIGATION USING INFORMATION FROM SMART NODE
110	United States	n/a	US-2022-0017115-A1	16/928,883	SMART NODE NETWORK FOR AUTONOMOUS VEHICLE PERCEPTION AUGMENTATION
110	United States	11,473,917	US-2022-0018663-A1	16/928,893	SMART NODE FOR AUTONOMOUS VEHICLE PERCEPTION AUGMENTATION USING SMART NODES

110	Patent Cooperation Treaty	n/a	n/a	PCT/US2021/041541	METHOD AND SYSTEM FOR AUGMENTING AUTONOMOUS VEHICLE PERCEPTION USING SMART NODES
110	European Patent Office	n/a	n/a	EP21841636.0	SMART NODE FOR AUTONOMOUS VEHICLE PERCEPTION AUGMENTATION
114	European Patent Office	n/a	4058931	20886777.0	METHODS AND SYSTEMS FOR JOINT POSE AND SHAPE ESTIMATION OF OBJECTS FROM SENSOR DATA
114	United States	n/a	US-2021-0150228-A1	16/885,743	METHODS AND SYSTEMS FOR JOINT POSE AND SHAPE ESTIMATION OF OBJECTS FROM SENSOR DATA
114	United States	n/a	n/a	18/318,771	METHODS AND SYSTEMS FOR JOINT POSE AND SHAPE ESTIMATION OF OBJECTS FROM SENSOR DATA
115	European Patent Office	n/a	4058984	20887684.7	GEOMETRY-AWARE INSTANCE SEGMENTATION FOR AUTONOMOUS VEHICLES
115	United States	11,120,280	US-2021-0150227-A1	16/802,970	GEOMETRY-AWARE INSTANCE SEGMENTATION IN STEREO IMAGE CAPTURE PROCESSES
115	United States	n/a	US-2021-0365699-A1	17/397,399	GEOMETRY-AWARE INSTANCE SEGMENTATION IN STEREO IMAGE CAPTURE PROCESSES
116	United States	n/a	US-2022-0067181-A1	17/009,094	METHODS AND SYSTEMS FOR SECURE DATA ANALYSIS AND MACHINE LEARNING
116	Patent Cooperation Treaty	n/a	WO/2022/051237	PCT/US2021/048319	METHODS AND SYSTEMS FOR SECURE DATA ANALYSIS AND MACHINE LEARNING
116	European Patent Office	n/a	n/a	21864962,2	METHODS AND SYSTEMS FOR SECURE DATA ANALYSIS AND MACHINE LEARNING

116	China	n/a	n/a	202180072609.8	METHODS AND SYSTEMS FOR SECURE DATA ANALYSIS AND MACHINE LEARNING
118	United States	n/a	US-2022-0122620-A1	17/073,680	EMERGENCY SIREN DETECTION FOR AUTONOMOUS VEHICLES
118	Patent Cooperation Treaty	n/a	WO/2022/086722	PCT/US2021/054002	EMERGENCY SIREN DETECTION FOR AUTONOMOUS VEHICLES
118	European Patent Office	n/a	n/a	21883540,3	EMERGENCY SIREN DETECTION FOR AUTONOMOUS VEHICLES
118	China	n/a	n/a	202180071120.9	EMERGENCY SIREN DETECTION FOR AUTONOMOUS VEHICLES
119	United States	n/a	US-2022-0092291-A1	17/030,669	METHODS AND SYSTEMS FOR LABELING LIDAR POINT CLOUD DATA
119	Patent Cooperation Treaty	n/a	WO/2022/066547	PCT/US2021/051015	METHODS AND SYSTEMS FOR LABELING LIDAR POINT CLOUD DATA
119	European Patent Office	n/a	n/a	21873240,2	METHODS AND SYSTEMS FOR LABELING LIDAR POINT CLOUD DATA
119	China	n/a	n/a	202180072758.4	METHODS AND SYSTEMS FOR LABELING LIDAR POINT CLOUD DATA
132	United States	n/a	2022/0050188	16/995,160	ENHANCED MULTISPECTRAL SENSOR CALIBRATION
132	Patent Cooperation Treaty	n/a	WO/2022/040140	PCT/US2021/046236	Enhanced Multispectral Sensor Calibration
132	European Patent Office	n/a	n/a	21 858 936.4	ENHANCED MULTISPECTRAL SENSOR CALIBRATION
132	China	n/a	n/a	202180057020	ENHANCED MULTISPECTRAL SENSOR CALIBRATION
133	United States	11,163,551	n/a	17/069,483	SYSTEMS AND METHODS FOR IMPROVED SMART INFRASTRUCTURE DATA TRANSFER
133	United States	n/a	US-2022/0113956	17/512,179	SYSTEMS AND METHODS FOR IMPROVED SMART INFRASTRUCTURE DATA TRANSFER

133	Patent Cooperation Treaty	n/a	WO/2022/081421	PCT/US2021/054081	SYSTEMS AND METHODS FOR IMPROVED SMART INFRASTRUCTURE DATA TRANSFER
133	European Patent Office			21880816,0	SYSTEMS AND METHODS FOR IMPROVED SMART INFRASTRUCTURE DATA TRANSFER
133	China	n/a	n/a	202180076606,1	SYSTEMS AND METHODS FOR IMPROVED SMART INFRASTRUCTURE DATA TRANSFER
136	United States	11,358,598	US-2022-0105940-A1	17/060,817	METHODS AND SYSTEMS FOR PERFORMING OUTLET INFERENCE BY AN AUTONOMOUS VEHICLE TO DETERMINE FEASIBLE PATHS THROUGH AN INTERSECTION
136	United States	11,618,444	US-2022-0105928-A1	17/207,889	METHODS AND SYSTEMS FOR AUTONOMOUS VEHICLE INFERENCE OF ROUTES FOR ACTORS EXHIBITING UNRECOGNIZED BEHAVIOR
136	United States	n/a	n/a	18/178,605	METHODS AND SYSTEMS FOR AUTONOMOUS VEHICLE INFERENCE OF ROUTES FOR ACTORS EXHIBITING UNRECOGNIZED BEHAVIOR
136	Patent Cooperation Treaty	n/a	WO/2022/072412	PCT/US2021/052537	METHODS AND SYSTEMS FOR PERFORMING OUTLET INFERENCE BY AN AUTONOMOUS VEHICLE TO DETERMINE FEASIBLE PATHS THROUGH AN INTERSECTION
136	European Patent Office	n/a	n/a	21876345,6	METHODS AND SYSTEMS FOR PERFORMING OUTLET INFERENCE BY AN AUTONOMOUS VEHICLE TO DETERMINE FEASIBLE PATHS THROUGH AN INTERSECTION

136	China	n/a	n/a	202180067675.6	METHODS AND SYSTEMS FOR PERFORMING OUTLET INFERENCE BY AN AUTONOMOUS VEHICLE TO DETERMINE FEASIBLE PATHS THROUGH AN INTERSECTION
138	China	n/a	n/a	202111140902.1	ENHANCED POINTING ANGLE VALIDATION
138	European Patent Office	n/a	3974770	21199104.7	ENHANCED POINTING ANGLE VALIDATION
138	Korea	n/a	10-2022-4003033	2021-125171	ENHANCED POINTING ANGLE VALIDATION
138	United States	11,582,375	US-2022-0103730-A1	17/035,447	ENHANCED POINTING ANGLE VALIDATION
138	United States	n/a	n/a	18/104,617	ENHANCED POINTING ANGLE VALIDATION
144	United States	11,755,469	US-2022-0091973-A1	17/030,702	SYSTEM FOR EXECUTING STRUCTURED TESTS ACROSS A FLEET OF AUTONOMOUS VEHICLES
144	Patent Cooperation Treaty	n/a	WO/2022/066442	PCT/US2021/049877	SYSTEM FOR EXECUTING STRUCTURED TESTS ACROSS A FLEET OF AUTONOMOUS VEHICLES
144	China	n/a	n/a	202180070945.9	SYSTEM FOR EXECUTING STRUCTURED TESTS ACROSS A FLEET OF AUTONOMOUS VEHICLES
150	United States	n/a	US-2022-0097732-A1	17/034,366	METHOD AND SYSTEM FOR USING A REACTION OF OTHER ROAD USERS TO EGO-VEHICLE ACTIONS IN AUTONOMOUS DRIVING
150	Patent Cooperation Treaty	n/a	WO/2022/066458	PCT/US2021/050061	METHOD AND SYSTEM FOR USING A REACTION OF OTHER ROAD USERS TO EGO-VEHICLE ACTIONS IN AUTONOMOUS DRIVING
150	European Patent Office	n/a	n/a	21873204,8	METHOD AND SYSTEM FOR USING A REACTION OF OTHER ROAD USERS TO EGO-VEHICLE ACTIONS IN AUTONOMOUS DRIVING
150	China	n/a	n/a	202180066157,2	METHOD AND SYSTEM FOR USING A REACTION OF OTHER ROAD USERS TO EGO-VEHICLE ACTIONS IN AUTONOMOUS DRIVING

155	United States	n/a	US-2022-0105959-A1	17/060,837	METHODS AND SYSTEMS FOR PREDICTING ACTIONS OF AN OBJECT BY AN AUTONOMOUS VEHICLE TO DETERMINE FEASIBLE PATHS THROUGH A CONFLICTED AREA
155	Patent Cooperation Treaty	n/a	WO/2022/072414	PCT/US2021/052539	METHODS AND SYSTEMS FOR PREDICTING ACTIONS OF AN OBJECT BY AN AUTONOMOUS VEHICLE TO DETERMINE FEASIBLE PATHS THROUGH A CONFLICTED AREA
155	European Patent Office	n/a	n/a	21876347,2	METHODS AND SYSTEMS FOR PREDICTING ACTIONS OF AN OBJECT BY AN AUTONOMOUS VEHICLE TO DETERMINE FEASIBLE PATHS THROUGH A CONFLICTED AREA
155	China	n/a	n/a	202180067623,9	METHODS AND SYSTEMS FOR PREDICTING ACTIONS OF AN OBJECT BY AN AUTONOMOUS VEHICLE TO DETERMINE FEASIBLE PATHS THROUGH A CONFLICTED AREA
157	United States	n/a	US-2022-0139209-A1	17/087,903	SYSTEM AND METHOD FOR DATA OFFLOADING AND UPLOADING TO EXCHANGE DATA BETWEEN NODES OF A VEHICLE TRAFFIC INFRASTRUCTURE SYSTEM
157	United States	n/a	n/a	18/317,861	SYSTEM AND METHOD FOR DATA OFFLOADING AND UPLOADING TO EXCHANGE DATA BETWEEN NODES OF A VEHICLE TRAFFIC INFRASTRUCTURE SYSTEM
157	Patent Cooperation Treaty	n/a	WO/2022/098474	PCT/US2021/054480	SYSTEM AND METHOD FOR DATA OFFLOADING AND UPLOADING TO EXCHANGE DATA BETWEEN NODES OF A VEHICLE TRAFFIC

					INFRASTRUCTURE SYSTEM
157	European Patent Office	n/a	n/a	21889807,0	SYSTEM AND METHOD FOR DATA OFFLOADING AND UPLOADING TO EXCHANGE DATA BETWEEN NODES OF A VEHICLE TRAFFIC INFRASTRUCTURE SYSTEM
157	China	n/a	n/a	202180076263.9	SYSTEM AND METHOD FOR DATA OFFLOADING AND UPLOADING TO EXCHANGE DATA BETWEEN NODES OF A VEHICLE TRAFFIC INFRASTRUCTURE SYSTEM
158	United States	11537383	US-2022/0113953	17/069,600	SYSTEMS AND METHODS FOR IMPROVED SMART INFRASTRUCTURE DATA TRANSFER
158	United States	n/a	n/a	17/993,231	SYSTEMS AND METHODS FOR IMPROVED SMART INFRASTRUCTURE DATA TRANSFER
158	Patent Cooperation Treaty	n/a	WO/2022/081422	PCT/US2021/054083	SYSTEMS AND METHODS FOR IMPROVED SMART INFRASTRUCTURE DATA TRANSFER
158	European Patent Office	n/a	n/a	21880817,8	SYSTEMS AND METHODS FOR IMPROVED SMART INFRASTRUCTURE DATA TRANSFER
158	China	n/a	n/a	202180070285.4	SYSTEMS AND METHODS FOR IMPROVED SMART INFRASTRUCTURE DATA TRANSFER
162	United States	n/a	US-2022-0105963-A1	17/060,928	SYSTEMS AND METHODS FOR IMMINENT COLLISION AVOIDANCE
162	Patent Cooperation Treaty	n/a	WO/2022/072172	PCT/US2021/051245	SYSTEMS AND METHODS FOR IMMINENT COLLISION AVOIDANCE
162	European Patent Office	n/a	n/a	21876222,7	SYSTEMS AND METHODS FOR IMMINENT COLLISION AVOIDANCE

162	China	n/a	n/a	202180067627.7	SYSTEMS AND METHODS FOR IMMINENT COLLISION AVOIDANCE
168	United States	n/a	US 2022/013018 5	17/079,000	ENHANCED SENSOR HEALTH AND REGRESSION TESTING FOR VEHICLES
168	Patent Cooperation Treaty	n/a	WO/2022/086 862	PCT/US2021/055 441	ENHANCED SENSOR HEALTH AND REGRESSION TESTING FOR VEHICLES
168	European Patent Office	n/a	n/a	21883632,8	ENHANCED SENSOR HEALTH AND REGRESSION TESTING FOR VEHICLES
168	China	n/a	n/a	202180071404.8	ENHANCED SENSOR HEALTH AND REGRESSION TESTING FOR VEHICLES
169	United States	11,458,980	US-2022-0041173-A1	16/986,952	ENHANCED SENSOR CLEANING VALIDATION
169	United States	n/a	n/a	17/948,312	ENHANCED SENSOR CLEANING VALIDATION
169	Patent Cooperation Treaty	n/a	WO/2022/032 164	PCT/US2021/045 059	ENHANCED SENSOR CLEANING VALIDATION
169	European Patent Office	n/a	n/a	21853263,8	ENHANCED SENSOR CLEANING VALIDATION
169	China	n/a	n/a	202180054975,0	ENHANCED SENSOR CLEANING VALIDATION
170	United States	n/a	US-2022-0026200-A1	16/935,010	ENHANCED SENSOR ALIGNMENT
170	Patent Cooperation Treaty	n/a	WO/2022/020 499	PCT/US2021/042 615	ENHANCED SENSOR ALIGNMENT
170	European Patent Office	n/a	n/a	21846346,1	ENHANCED SENSOR ALIGNMENT
170	China	n/a	n/a	202180055016,0	ENHANCED SENSOR ALIGNMENT
172	United States	n/a	US-2022-0150090-A1	17/092,936	SYSTEMS AND METHODS FOR OBTAINING DATA FROM MULTIPLE INTERNAL VEHICLE NETWORKS
172	United States	n/a	n/a	18/342,229	SYSTEMS AND METHODS FOR OBTAINING DATA FROM MULTIPLE INTERNAL VEHICLE NETWORKS
172	Patent Cooperation Treaty	n/a	n/a	PCT/US2021/058 450	SYSTEMS AND METHODS FOR OBTAINING DATA FROM MULTIPLE

					INTERNAL VEHICLE NETWORKS
172	European Patent Office	n/a	n/a	21890237,7	SYSTEMS AND METHODS FOR OBTAINING DATA FROM MULTIPLE INTERNAL VEHICLE NETWORKS
172	China	n/a	n/a	202180087469,1	SYSTEMS AND METHODS FOR OBTAINING DATA FROM MULTIPLE INTERNAL VEHICLE NETWORKS
173	United States	n/a	US-2022-0134902-A1	17/083,836	DEVICES, SYSTEMS, AND METHODS FOR MITIGATING VEHICLE POWER LOSS IN BATTERY MODE
173	United States	n/a	n/a	18/135,513	DEVICES, SYSTEMS, AND METHODS FOR MITIGATING VEHICLE POWER LOSS IN BATTERY MODE
173	Patent Cooperation Treaty	n/a	WO/2022/094119	PCT/US2021/057103	DEVICES, SYSTEMS, AND METHODS FOR MITIGATING VEHICLE POWER LOSS IN BATTERY MODE
173	European Patent Office	n/a	n/a	21887543.3	DEVICES, SYSTEMS, AND METHODS FOR MITIGATING VEHICLE POWER LOSS IN BATTERY MODE
173	China	n/a	n/a	202180080594.X	DEVICES, SYSTEMS, AND METHODS FOR MITIGATING VEHICLE POWER LOSS IN BATTERY MODE
175	United States	n/a	US-2022-0089052	17/028,895	ENHANCED VEHICLE CONNECTION
175	Patent Cooperation Treaty	n/a	WO/2022/066660	PCT/US2021/051344	ENHANCED VEHICLE CONNECTION
175	European Patent Office	n/a	n/a	21873290,7	ENHANCED VEHICLE CONNECTION
175	China	n/a	n/a	202180070436	ENHANCED VEHICLE CONNECTION

176	United States	11,422,534	US-2022-0187795-A1	17/121,107	SYSTEMS AND METHODS FOR HEATING COMPUTING ELEMENTS IN VEHICLES
176	United States	n/a	n/a	17/883,978	SYSTEMS AND METHODS FOR HEATING COMPUTING ELEMENTS IN VEHICLES
176	Patent Cooperation Treaty	n/a	WO/2022/132761	PCT/US2021/063297	SYSTEMS AND METHODS FOR HEATING COMPUTING ELEMENTS IN VEHICLES
176	European Patent Office	n/a	n/a	21907626.2	SYSTEMS AND METHODS FOR HEATING COMPUTING ELEMENTS IN VEHICLES
176	China	n/a	n/a	202180090646,1	SYSTEMS AND METHODS FOR HEATING COMPUTING ELEMENTS IN VEHICLES
177	United States	11,508,052	2022/0076401	17/017,654	SYSTEMS AND METHODS FOR QUANTIFYING LIGHT FLARES IN IMAGES
177	United States	11,681,047	US-2021-0190956-A1	17/963,410	SYSTEMS AND METHODS FOR QUANTIFYING LIGHT FLARES IN IMAGES
177	Patent Cooperation Treaty	n/a	WO/2022/056246	PCT/US2021/049840	SYSTEMS AND METHODS FOR QUANTIFYING LIGHT FLARES IN IMAGES
177	European Patent Office	n/a	n/a	21867667,4	SYSTEMS AND METHODS FOR QUANTIFYING LIGHT FLARES IN IMAGES
177	China	n/a	CN116057949B	n/a	SYSTEMS AND METHODS FOR QUANTIFYING LIGHT FLARES IN IMAGES
177	Korea	n/a	n/a	2023-7008630	SYSTEMS AND METHODS FOR QUANTIFYING LIGHT FLARES IN IMAGES
179	China	n/a	CN114252851A	202111105423.6	RADAR ELEVATION ANGLE VALIDATION
179	European Patent Office	n/a	3971606	21197124.7	RADAR ELEVATION ANGLE VALIDATION
179	Korea	n/a	10-2022-0039615	2021-124743	RADAR ELEVATION ANGLE VALIDATION
179	United States	n/a	US-2022-0091254	17/027,501	RADAR ELEVATION ANGLE VALIDATION
180	China	n/a	CN114252852A	202111105596.8	RADAR ELEVATION ANGLE MEASUREMENT
180	European Patent Office	n/a	3971607	21197683.2	RADAR ELEVATION ANGLE MEASUREMENT
180	Korea	n/a	10-2022-0039623	2021-125077	RADAR ELEVATION ANGLE MEASUREMENT

180	United States	n/a	US-2022-0091229	17/027,468	RADAR ELEVATION ANGLE MEASUREMENT
180	United States	n/a	n/a	18/298,568	RADAR ELEVATION ANGLE MEASUREMENT
181	China	n/a	CN114252853A	202111105602.X	ENHANCED ANECHOIC CHAMBER
181	European Patent Office	n/a	3971605	21197122.1	ENHANCED ANECHOIC CHAMBER
181	Korea	n/a	10-2022-0039624	2021-125090	ENHANCED ANECHOIC CHAMBER
181	United States	n/a	US-2022-0091170	17/027,489	ENHANCED ANECHOIC CHAMBER
182	China	n/a	CN114291080A	202111105432.5	ENHANCED OBSTACLE DETECTION
182	European Patent Office	n/a	3971856	21197682.4	ENHANCED OBSTACLE DETECTION
182	Korea	n/a	10-2022-0040408	2021-0125003	ENHANCED OBSTACLE DETECTION
182	United States	n/a	US-2022-0089190-A1	17/028,767	ENHANCED OBSTACLE DETECTION
184	China	n/a	CN114189671A	202111072867.4	VALIDATION OF A CAMERA CLEANING SYSTEM
184	European Patent Office	n/a	3968276	21196586.8	VALIDATION OF A CAMERA CLEANING SYSTEM
184	Korea	n/a	n/a	10-2021-0121836	VALIDATION OF A CAMERA CLEANING SYSTEM
184	United States	11,368,672	US-2022-0086423	17/020,297	VALIDATION OF A CAMERA CLEANING SYSTEM
184	United States	n/a	2023-0007234	17/844,588	VALIDATION OF A CAMERA CLEANING SYSTEM
184	United States	n/a	n/a	18/348,492	VALIDATION OF A CAMERA CLEANING SYSTEM
185	United States	n/a	US2022/03497720	17/244,379	METHOD OF NAVIGATING AUTONOMOUS VEHICLE TO PASSENGER PICKUP / DROP-OFF LOCATION
185	Patent Cooperation Treaty	n/a	WO/2022/232748	PCT/US2022/071771	METHOD OF NAVIGATING AUTONOMOUS VEHICLE TO PASSENGER PICKUP / DROP-OFF LOCATION
185	China	n/a	n/a	202280008740,2	METHOD OF NAVIGATING AUTONOMOUS VEHICLE TO PASSENGER PICKUP / DROP-OFF LOCATION

185	European Patent Office	n/a	n/a	22796940.9	METHOD OF NAVIGATING AUTONOMOUS VEHICLE TO PASSENGER PICKUP / DROP-OFF LOCATION
186	China	n/a	n/a	202180048091	TESTING AND VALIDATION OF A CAMERA UNDER ELECTROMAGNETIC INTERFERENCE
186	United States	11,341,682	2022/0051438	16/993,044	TESTING AND VALIDATION OF A CAMERA UNDER ELECTROMAGNETIC INTERFERENCE
186	United States	n/a	US2022/0277486	17/746,494	TESTING AND VALIDATION OF A CAMERA UNDER ELECTROMAGNETIC INTERFERENCE
186	Patent Cooperation Treaty	n/a	WO2022036145	PCT/US2021/045817	TESTING AND VALIDATION OF A CAMERA UNDER ELECTROMAGNETIC INTERFERENCE
186	European Patent Office	n/a	n/a	21856748.5	TESTING AND VALIDATION OF A CAMERA UNDER ELECTROMAGNETIC INTERFERENCE
198	United States	n/a	US-2022-0179082-A1	17/115,006	METHODS AND SYSTEM FOR ANALYZING DYNAMIC LiDAR POINT CLOUD DATA
198	Patent Cooperation Treaty	n/a	WO/2022/125241	PCT/US2021/058544	METHODS AND SYSTEM FOR ANALYZING DYNAMIC LiDAR POINT CLOUD DATA
198	European Patent Office	n/a	n/a	21904082.1	METHODS AND SYSTEM FOR ANALYZING DYNAMIC LiDAR POINT CLOUD DATA
198	China	n/a	n/a	202180081737,9	METHODS AND SYSTEM FOR ANALYZING DYNAMIC LiDAR POINT CLOUD DATA
203	United States	n/a	US-2022-0146632-A1	17/090,998	SYSTEM AND METHOD FOR OPERATING A RETRACTABLE SENSOR OF AN AUTONOMOUS VEHICLE

203	Patent Cooperation Treaty	n/a	WO/2022/098499	PCT/US2021/055419	SYSTEM AND METHOD FOR OPERATING A RETRACTABLE SENSOR OF AN AUTONOMOUS VEHICLE
203	European Patent Office	n/a	n/a	21889822,9	SYSTEM AND METHOD FOR OPERATING A RETRACTABLE SENSOR OF AN AUTONOMOUS VEHICLE
203	China	n/a	n/a	202180074843.4	SYSTEM AND METHOD FOR OPERATING A RETRACTABLE SENSOR OF AN AUTONOMOUS VEHICLE
204	United States	n/a	US-2022-0120571-A1	17/073,119	SYSTEMS AND METHODS FOR MULTI-MODAL TRANSFER CAPABILITIES FOR SMART INFRASTRUCTURE
204	United States	n/a	n/a	18/330,303	SYSTEMS AND METHODS FOR MULTI-MODAL TRANSFER CAPABILITIES FOR SMART INFRASTRUCTURE
204	Patent Cooperation Treaty	n/a	WO/2022/081425	PCT/US2021/054094	SYSTEMS AND METHODS FOR MULTI-MODAL TRANSFER CAPABILITIES FOR SMART INFRASTRUCTURE
204	European Patent Office	n/a	n/a	21880820,2	SYSTEMS AND METHODS FOR MULTI-MODAL TRANSFER CAPABILITIES FOR SMART INFRASTRUCTURE
204	China	n/a	n/a	202180070577,8	SYSTEMS AND METHODS FOR MULTI-MODAL TRANSFER CAPABILITIES FOR SMART INFRASTRUCTURE
210	United States	n/a	2022-0358143	17/315,451	SYSTEMS AND METHODS FOR ATOMIC PUBLICATION OF DISTRIBUTED WRITES TO A DISTRIBUTED DATA WAREHOUSE
210	United States	n/a	2022-0358121	17/315,457	SYSTEMS AND METHODS FOR ATOMIC

					PUBLICATION OF DISTRIBUTED WRITES TO A DISTRIBUTED DATA WAREHOUSE
210	United States	n/a	2022-0358144	17/315,460	SYSTEMS AND METHODS FOR ATOMIC PUBLICATION OF DISTRIBUTED WRITES TO A DISTRIBUTED DATA WAREHOUSE
211	United States	11,753,044	US-2022-0153313-A1	16/951,416	METHOD AND SYSTEM FOR FORECASTING REACTIONS OF OTHER ROAD USERS IN AUTONOMOUS DRIVING
211	United States	n/a	n/a	18/363,021	METHOD AND SYSTEM FOR FORECASTING REACTIONS OF OTHER ROAD USERS IN AUTONOMOUS DRIVING
211	Patent Cooperation Treaty	n/a	WO/2022/108747	PCT/US2021/057643	METHOD AND SYSTEM FOR FORECASTING REACTIONS OF OTHER ROAD USERS IN AUTONOMOUS DRIVING
211	European Patent Office	n/a	n/a	21895341.2	METHOD AND SYSTEM FOR FORECASTING REACTIONS OF OTHER ROAD USERS IN AUTONOMOUS DRIVING
211	China	n/a	n/a	202180077365,2	METHOD AND SYSTEM FOR FORECASTING REACTIONS OF OTHER ROAD USERS IN AUTONOMOUS DRIVING
212	United States	n/a	US-2022-0148221-A1	17/096,777	OPTICAL DEVICE VALIDATION
212	Patent Cooperation Treaty	n/a	n/a	PCT/US2021/059169	OPTICAL DEVICE VALIDATION
212	European Patent Office	n/a	n/a	21892884.4	OPTICAL DEVICE VALIDATION
212	China	n/a	n/a	202180083452,9	OPTICAL DEVICE VALIDATION
213	United States	n/a	US-2022-0188695-A1	17/124,413	AUTONOMOUS VEHICLE SYSTEM FOR INTELLIGENT ON-BOARD SELECTION OF DATA FOR TRAINING A

					REMOTE MACHINE LEARNING MODEL
213	Patent Cooperation Treaty	n/a	WO/2022/133 430	PCT/US2021/072 897	AUTONOMOUS VEHICLE SYSTEM FOR INTELLIGENT ON-BOARD SELECTION OF DATA FOR TRAINING A REMOTE MACHINE LEARNING MODEL
213	European Patent Office	n/a	n/a	21908017.3	AUTONOMOUS VEHICLE SYSTEM FOR INTELLIGENT ON-BOARD SELECTION OF DATA FOR TRAINING A REMOTE MACHINE LEARNING MODEL
213	China	n/a	n/a	202180085497.X	AUTONOMOUS VEHICLE SYSTEM FOR INTELLIGENT ON-BOARD SELECTION OF DATA FOR TRAINING A REMOTE MACHINE LEARNING MODEL
216	United States	n/a	US-2022-0219720-A1	17/147,582	METHODS AND SYSTEM FOR CONSTRUCTING DATA REPRESENTATION FOR USE IN ASSISTING AUTONOMOUS VEHICLES NAVIGATE INTERSECTIONS
216	Patent Cooperation Treaty	n/a	WO/2022/154 995	PCT/US2021/072 690	METHODS AND SYSTEM FOR CONSTRUCTING DATA REPRESENTATION FOR USE IN ASSISTING AUTONOMOUS VEHICLES NAVIGATE INTERSECTIONS
216	European Patent Office	n/a	n/a	21920094,6	METHODS AND SYSTEM FOR CONSTRUCTING DATA REPRESENTATION FOR USE IN ASSISTING AUTONOMOUS VEHICLES NAVIGATE INTERSECTIONS
216	China	n/a	n/a	202180087783.X	METHODS AND SYSTEM FOR CONSTRUCTING DATA REPRESENTATION FOR USE IN ASSISTING AUTONOMOUS VEHICLES NAVIGATE INTERSECTIONS
217	United States	11,354,473	11,354,473	17/160,758	METHOD AND SYSTEM FOR DESIGNING A

					ROBOTIC SYSTEM ARCHITECTURE WITH OPTIMIZED SYSTEM LATENCY
217	United States	n/a	US-2022- 0292241-A1	17/664,979	METHOD AND SYSTEM FOR DESIGNING A ROBOTIC SYSTEM ARCHITECTURE WITH OPTIMIZED SYSTEM LATENCY
217	Patent Cooperation Treaty	n/a	n/a	PCT/US2022/070 378	METHOD AND SYSTEM FOR DESIGNING A ROBOTIC SYSTEM ARCHITECTURE WITH OPTIMIZED SYSTEM LATENCY
217	European Patent Office	n/a	n/a	22746907.9	METHOD AND SYSTEM FOR DESIGNING A ROBOTIC SYSTEM ARCHITECTURE WITH OPTIMIZED SYSTEM LATENCY
217	China	n/a	n/a	202280008813,8	METHOD AND SYSTEM FOR DESIGNING A ROBOTIC SYSTEM ARCHITECTURE WITH OPTIMIZED SYSTEM LATENCY
218	United States	n/a	US-2022- 0146277-A1	17/169,970	ARCHITECTURE FOR MAP CHANGE DETECTION IN AUTONOMOUS VEHICLES
218	Patent Cooperation Treaty	n/a	WO/2022/098 511	PCT/US2021/055 741	ARCHITECTURE FOR MAP CHANGE DETECTION IN AUTONOMOUS VEHICLES
218	European Patent Office	n/a	n/a	21889830,2	ARCHITECTURE FOR MAP CHANGE DETECTION IN AUTONOMOUS VEHICLES
218	China	n/a	n/a	202180075288.7	ARCHITECTURE FOR MAP CHANGE DETECTION IN AUTONOMOUS VEHICLES
221	European Patent Office	n/a	n/a	22186324.4	MOTORIZED MOUNTING DEVICE FOR POSITIONING AN OPTICAL ELEMENT WITHIN A FIELD-OF-VIEW OF AN OPTICAL SENSOR AND METHOD OF USE
221	United States	n/a	n/a	17/382,586	MOTORIZED MOUNTING DEVICE FOR POSITIONING AN OPTICAL ELEMENT

					WITHIN A FIELD-OF-VIEW OF AN OPTICAL SENSOR AND METHOD OF USE
221	United States	n/a	n/a	18/342,235	MOTORIZED MOUNTING DEVICE FOR POSITIONING AN OPTICAL ELEMENT WITHIN A FIELD-OF-VIEW OF AN OPTICAL SENSOR AND METHOD OF USE
228	United States	n/a	US-2022-0266873-A1	17/179,503	ASSESSING PRESENT INTENTIONS OF AN ACTOR PERCEIVED BY AN AUTONOMOUS VEHICLE
228	United States	n/a	n/a	18/363,066	ASSESSING PRESENT INTENTIONS OF AN ACTOR PERCEIVED BY AN AUTONOMOUS VEHICLE
228	Patent Cooperation Treaty	n/a	WO/2022/178 479	PCT/US2022/070 385	ASSESSING PRESENT INTENTIONS OF AN ACTOR PERCEIVED BY AN AUTONOMOUS VEHICLE
228	European Patent Office	n/a	n/a	22757150,2	ASSESSING PRESENT INTENTIONS OF AN ACTOR PERCEIVED BY AN AUTONOMOUS VEHICLE
228	China	n/a	n/a	202280008781,1	ASSESSING PRESENT INTENTIONS OF AN ACTOR PERCEIVED BY AN AUTONOMOUS VEHICLE
231	United States	n/a	US-2022-0214690-A1	17/141,850	METHODS AND SYSTEM FOR PREDICTING TRAJECTORIES OF UNCERTAIN ROAD USERS BY SEMANTIC SEGMENTATION OF DRIVABLE AREA BOUNDARIES
231	United States	n/a	n/a	18/467,111	METHODS AND SYSTEM FOR PREDICTING TRAJECTORIES OF UNCERTAIN ROAD USERS BY SEMANTIC SEGMENTATION OF DRIVABLE AREA BOUNDARIES
231	Patent Cooperation Treaty	n/a	WO/2022/150 250	PCT/US2021/073 094	METHODS AND SYSTEM FOR PREDICTING TRAJECTORIES OF UNCERTAIN ROAD USERS BY SEMANTIC

					SEGMENTATION OF DRIVABLE AREA BOUNDARIES
231	European Patent Office	n/a	n/a	21918097.3	METHODS AND SYSTEM FOR PREDICTING TRAJECTORIES OF UNCERTAIN ROAD USERS BY SEMANTIC SEGMENTATION OF DRIVABLE AREA BOUNDARIES
231	China	n/a	n/a	202180088749,4	METHODS AND SYSTEM FOR PREDICTING TRAJECTORIES OF UNCERTAIN ROAD USERS BY SEMANTIC SEGMENTATION OF DRIVABLE AREA BOUNDARIES
233	United States	11,563,731	US-2022-0200983-A1	17/125,166	METHOD OF RE-ASSIGNING ADDRESS TO NETWORK DEVICE
233	United States	n/a	n/a	18/061,803	METHOD OF RE-ASSIGNING ADDRESS TO NETWORK DEVICE
233	Patent Cooperation Treaty	n/a	WO/2022/132394	PCT/US2021/060273	METHOD OF RE-ASSIGNING ADDRESS TO NETWORK DEVICE
233	European Patent Office	n/a	n/a	21907429.1	METHOD OF RE-ASSIGNING ADDRESS TO NETWORK DEVICE
233	China	n/a	n/a	202180085135,0	METHOD OF RE-ASSIGNING ADDRESS TO NETWORK DEVICE
234	United States	n/a	US-2022-0164602-A1	17/101,633	SYSTEMS AND METHODS FOR INTELLIGENT SELECTION OF DATA FOR BUILDING A MACHINE LEARNING MODEL
234	United States	n/a	n/a	18/364,569	SYSTEMS AND METHODS FOR INTELLIGENT SELECTION OF DATA FOR BUILDING A MACHINE LEARNING MODEL
234	Patent Cooperation Treaty	n/a	WO/2022/109583	PCT/US2021/072490	SYSTEMS AND METHODS FOR INTELLIGENT SELECTION OF DATA FOR BUILDING A MACHINE LEARNING MODEL

234	European Patent Office	n/a	n/a	21895880.9	SYSTEMS AND METHODS FOR INTELLIGENT SELECTION OF DATA FOR BUILDING A MACHINE LEARNING MODEL
234	China	n/a	n/a	202180078343,8	SYSTEMS AND METHODS FOR INTELLIGENT SELECTION OF DATA FOR BUILDING A MACHINE LEARNING MODEL
235	United States	n/a	US-2022-0189294	17/117,484	DATA INTEGRITY VERIFICATION AND MISBEHAVIOR DETECTION AND REPORTING OF CONNECTED VEHICLES THROUGH SMART INFRASTRUCTURE
235	Patent Cooperation Treaty	n/a	WO/2022/125541	PCT/US2021/062196	DATA INTEGRITY VERIFICATION AND MISBEHAVIOR DETECTION AND REPORTING OF CONNECTED VEHICLES THROUGH SMART INFRASTRUCTURE
235	European Patent Office	n/a	n/a	21904243.9	DATA INTEGRITY VERIFICATION AND MISBEHAVIOR DETECTION AND REPORTING OF CONNECTED VEHICLES THROUGH SMART INFRASTRUCTURE
235	China	n/a	n/a	202180083108.X	DATA INTEGRITY VERIFICATION AND MISBEHAVIOR DETECTION AND REPORTING OF CONNECTED VEHICLES THROUGH SMART INFRASTRUCTURE
236	United States	11,657,572	US-2022-0122324-A1	17/075,827	SYSTEMS ANDS METHODS FOR MAP GENERATION BASED ON RAY-CASTING AND SEMANTIC CLASS IMAGES
236	Patent Cooperation Treaty	n/a	WO/2022/086714	PCT/US2021/053901	SYSTEMS AND METHODS FOR MAP GENERATION BASED ON RAY-CASTING AND SEMANTIC CLASS IMAGES
236	European Patent Office	n/a	n/a	21883536,1	SYSTEMS AND METHODS FOR MAP GENERATION

					BASED ON RAY-CASTING AND SEMANTIC CLASS IMAGES
236	China	n/a	n/a	202180072237.9	SYSTEMS AND METHODS FOR MAP GENERATION BASED ON RAY-CASTING AND SEMANTIC CLASS IMAGES
244	European Patent Office	n/a	n/a	22194413.5	ATTENTIONAL SAMPLING FOR LONG RANGE DETECTION IN AUTONOMOUS VEHICLES
244	United States	n/a	n/a	17/471,494	ATTENTIONAL SAMPLING FOR LONG RANGE DETECTION IN AUTONOMOUS VEHICLES
245	United States	n/a	US-2022-0242440-A1	17/162,094	METHODS AND SYSTEM FOR GENERATING A LANE-LEVEL MAP FOR AN AREA OF INTEREST FOR NAVIGATION OF AN AUTONOMOUS VEHICLE
245	Patent Cooperation Treaty	n/a	WO/2022/165498	PCT/US2022/070379	METHODS AND SYSTEM FOR GENERATING A LANE-LEVEL MAP FOR AN AREA OF INTEREST FOR NAVIGATION OF AN AUTONOMOUS VEHICLE
245	European Patent Office	n/a	n/a	22746908.7	METHODS AND SYSTEM FOR GENERATING A LANE-LEVEL MAP FOR AN AREA OF INTEREST FOR NAVIGATION OF AN AUTONOMOUS VEHICLE
245	China	n/a	n/a	202280008817,6	METHODS AND SYSTEM FOR GENERATING A LANE-LEVEL MAP FOR AN AREA OF INTEREST FOR NAVIGATION OF AN AUTONOMOUS VEHICLE
246	United States	n/a	US-2022-0230021-A1	17/150,768	AUTONOMOUS VEHICLE SYSTEM FOR INTELLIGENT ON-BOARD SELECTION OF DATA FOR BUILDING A REMOTE MACHINE LEARNING MODEL
246	Patent Cooperation Treaty	n/a	WO/2022/155671	PCT/US2022/070193	AUTONOMOUS VEHICLE SYSTEM FOR INTELLIGENT ON-BOARD SELECTION OF DATA FOR BUILDING A

					REMOTE MACHINE LEARNING MODEL
246	European Patent Office	n/a	n/a	22740261.7	AUTONOMOUS VEHICLE SYSTEM FOR INTELLIGENT ON-BOARD SELECTION OF DATA FOR BUILDING A REMOTE MACHINE LEARNING MODEL
246	China	n/a	n/a	202280008853,2	AUTONOMOUS VEHICLE SYSTEM FOR INTELLIGENT ON-BOARD SELECTION OF DATA FOR BUILDING A REMOTE MACHINE LEARNING MODEL
247	United States	n/a	US-2022-0261519-A1	17/178,333	RARE EVENT SIMULATION IN AUTONOMOUS VEHICLE MOTION PLANNING
247	Patent Cooperation Treaty	n/a	WO/2022/178478	PCT/US2022/070374	RARE EVENT SIMULATION IN AUTONOMOUS VEHICLE MOTION PLANNING
247	European Patent Office	n/a	n/a	22757149.4	RARE EVENT SIMULATION IN AUTONOMOUS VEHICLE MOTION PLANNING
247	China	n/a	n/a	202280008710,1	RARE EVENT SIMULATION IN AUTONOMOUS VEHICLE MOTION PLANNING
253	United States	n/a	n/a	17/576,545	VALIDATING HIGH DEFINITION MAPPING DATA
253	Patent Cooperation Treaty	n/a	n/a	n/a	VALIDATING HIGH DEFINITION MAPPING DATA
257	United States	11,648,959	US-2022-0266822-A1	17/179,510	SYSTEMS AND METHODS FOR DETERMINING FUTURE INTENTIONS OF OBJECTS
257	Patent Cooperation Treaty	n/a	WO/2022/178480	PCT/US2022/070386	SYSTEMS AND METHODS FOR DETERMINING FUTURE INTENTIONS OF OBJECTS
257	European Patent Office	n/a	n/a	22757151.0	SYSTEMS AND METHODS FOR DETERMINING FUTURE INTENTIONS OF OBJECTS
257	China	n/a	n/a	202280008787,9	SYSTEMS AND METHODS FOR DETERMINING FUTURE INTENTIONS OF OBJECTS

263	United States	n/a	US-2022-0221585-A1	17/148,691	SYSTEMS AND METHODS FOR MONITORING LiDAR SENSOR HEALTH
263	Patent Cooperation Treaty	n/a	WO/2022/154987	PCT/US2021/072422	SYSTEMS AND METHODS FOR MONITORING LiDAR SENSOR HEALTH
263	European Patent Office	n/a	n/a	21920092.0	SYSTEMS AND METHODS FOR MONITORING LiDAR SENSOR HEALTH
263	China	n/a	n/a	a202180088088,5	SYSTEMS AND METHODS FOR MONITORING LiDAR SENSOR HEALTH
264	European Patent Office	n/a	n/a	22191431.0	SYSTEMS AND METHODS FOR VALIDATING CAMERA CALIBRATIONIN REAL-TIME
264	United States	n/a	n/a	17/409,472	SYSTEMS AND METHODS FOR VALIDATING CAMERA CALIBRATION IN REAL-TIME
267	United States	11,535,271	US-2022-0219716-A1	17/144,441	METHODS AND SYSTEMS FOR MONITORING VEHICLE MOTION WITH DRIVER SAFETY ALERTS
267	United States	n/a	n/a	17/976,583	METHODS AND SYSTEMS FOR MONITORING VEHICLE MOTION WITH DRIVER SAFETY ALERTS
267	Patent Cooperation Treaty	n/a	WO/2022/150836	PCT/US2022/070085	METHODS AND SYSTEMS FOR MONITORING VEHICLE MOTION WITH DRIVER SAFETY ALERTS
267	European Patent Office	n/a	n/a	22737346.1	METHODS AND SYSTEMS FOR MONITORING VEHICLE MOTION WITH DRIVER SAFETY ALERTS
267	China	n/a	n/a	202280008871,0	METHODS AND SYSTEMS FOR MONITORING VEHICLE MOTION WITH DRIVER SAFETY ALERTS
295	United States	n/a	US-2022-0332310-A1	17/234,889	METHODS AND SYSTEMS FOR INFERRING UNPAINTED STOP LINES FOR AUTONOMOUS VEHICLES
295	Patent Cooperation Treaty	n/a	WO/2022/226479	PCT/US2022/071765	METHODS AND SYSTEMS FOR INFERRING UNPAINTED STOP LINES

					FOR AUTONOMOUS VEHICLES
295	European Patent Office	n/a	n/a	22792677.1	METHODS AND SYSTEMS FOR INFERRING UNPAINTED STOP LINES FOR AUTONOMOUS VEHICLES
295	China	n/a	n/a	202280008752,5	METHODS AND SYSTEMS FOR INFERRING UNPAINTED STOP LINES FOR AUTONOMOUS VEHICLES
298	United States	n/a	US2022/0260989	17/175,814	SYSTEM AND METHOD FOR A MODULAR AND CONTINUALLY LEARNING REMOTE GUIDANCE SYSTEM FOR AUTONOMOUS VEHICLES
298	Patent Cooperation Treaty	n/a	n/a	PCT/US2022/015891	SYSTEM AND METHOD FOR A MODULAR AND CONTINUALLY LEARNING REMOTE GUIDANCE SYSTEM FOR AUTONOMOUS VEHICLES
298	European Patent Office	n/a	n/a	22753305,6	SYSTEM AND METHOD FOR A MODULAR AND CONTINUALLY LEARNING REMOTE GUIDANCE SYSTEM FOR AUTONOMOUS VEHICLES
298	China	n/a	n/a	202280010687.X	SYSTEM AND METHOD FOR A MODULAR AND CONTINUALLY LEARNING REMOTE GUIDANCE SYSTEM FOR AUTONOMOUS VEHICLES
309	European Patent Office	n/a	n/a	22190578.9	PERSISTING PREDICTED OBJECTS FOR ROBUSTNESS TO PERCEPTION ISSUES IN AUTONOMOUS DRIVING
309	United States	n/a	n/a	17/404,553	PERSISTING PREDICTED OBJECTS FOR ROBUSTNESS TO PERCEPTION ISSUES IN AUTONOMOUS DRIVING
312	United States	n/a	US2022/0316910	17/217,229	METHOD, SYSTEM, AND COMPUTER PROGRAM PRODUCT FOR ITERATIVE

					WARPING OF MAPS FOR AUTONOMOUS VEHICLES
312	United States	n/a	n/a	18/322,722	METHOD, SYSTEM, AND COMPUTER PROGRAM PRODUCT FOR ITERATIVE WARPING OF MAPS FOR AUTONOMOUS VEHICLES AND SIMULATORS
312	Patent Cooperation Treaty	n/a	WO/2022/212 374	PCT/US2022/022 347	METHOD, SYSTEM, AND COMPUTER PROGRAM PRODUCT FOR ITERATIVE WARPING OF MAPS FOR AUTONOMOUS VEHICLES AND SIMULATORS
312	European Patent Office	n/a	n/a	22782021,4	METHOD, SYSTEM, AND COMPUTER PROGRAM PRODUCT FOR ITERATIVE WARPING OF MAPS FOR AUTONOMOUS VEHICLES AND SIMULATORS
312	China	n/a	n/a	202280009744.2	METHOD, SYSTEM, AND COMPUTER PROGRAM PRODUCT FOR ITERATIVE WARPING OF MAPS FOR AUTONOMOUS VEHICLES AND SIMULATORS
320	United States	n/a	US2022/0316 907	17/219,081	SYSTEM AND METHOD FOR AUTOMATED LANE CONFLICT ESTIMATION IN AUTONOMOUS VEHICLE DRIVING AND MAP GENERATION
320	Patent Cooperation Treaty	n/a	WO/2022/212 451	PCT/US2022/022 467	SYSTEM AND METHOD FOR AUTOMATED LANE CONFLICT ESTIMATION IN AUTONOMOUS VEHICLE DRIVING AND MAP GENERATION
320	European Patent Office	n/a	n/a	22782068,5	SYSTEM AND METHOD FOR AUTOMATED LANE CONFLICT ESTIMATION IN AUTONOMOUS VEHICLE DRIVING AND MAP GENERATION
320	China	n/a	n/a	202280010097,7	SYSTEM AND METHOD FOR AUTOMATED LANE CONFLICT ESTIMATION IN AUTONOMOUS VEHICLE DRIVING AND MAP GENERATION

322	European Patent Office	n/a	n/a	22188874.6	METHODS AND SYSTEM FOR PREDICTING TRAJECTORIES OF ACTORS WITH RESPECT TO A DRIVABLE AREA
322	European Patent Office	n/a	n/a	22189042.9	SYSTEMS AND METHODS FOR PREDICTION OF A JAYWALKER TRAJECTORY THROUGH AN INTERSECTION
322	United States	n/a	n/a	17/394,777	METHODS AND SYSTEM FOR PREDICTING TRAJECTORIES OF ACTORS WITH RESPECT TO A DRIVABLE AREA
322	United States	n/a	n/a	17/394,853	SYSTEMS AND METHODS FOR PREDICTION OF A JAYWALKER TRAJECTORY THROUGH AN INTERSECTION
326	United States	n/a	n/a	17/486,319	METHOD AND SYSTEM FOR NAVIGATING VEHICLE TO PICKUP / DROP-OFF ZONE
326	United States	n/a	n/a	18/300,650	METHOD AND SYSTEM FOR NAVIGATING VEHICLE TO PICKUP / DROP-OFF ZONE
326	Patent Cooperation Treaty	n/a	n/a	PCT/US2022/044 264	METHOD AND SYSTEM FOR NAVIGATING VEHICLE TO PICKUP / DROP-OFF ZONE
326	Germany	n/a	n/a	11 2022 004 679.1	METHOD AND SYSTEM FOR NAVIGATING VEHICLE TO PICKUP / DROP-OFF ZONE
327	United States	n/a	US2022/0250 641	17/172,530	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR TOPOLOGICAL PLANNING IN AUTONOMOUS DRIVING USING BOUNDS REPRESENTATIONS
327	United States	n/a	n/a	18/322,670	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR TOPOLOGICAL PLANNING IN AUTONOMOUS DRIVING USING BOUNDS REPRESENTATIONS

327	Patent Cooperation Treaty	n/a	n/a	PCT/US2022/015886	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR TOPOLOGICAL PLANNING IN AUTONOMOUS DRIVING USING BOUNDS REPRESENTATIONS
327	European Patent Office	n/a	n/a	22753302,3	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR TOPOLOGICAL PLANNING IN AUTONOMOUS DRIVING USING BOUNDS REPRESENTATIONS
327	China	n/a	n/a	202280010484,0	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR TOPOLOGICAL PLANNING IN AUTONOMOUS DRIVING USING BOUNDS REPRESENTATIONS
328	European Patent Office	n/a	n/a	22190980.7	SYSTEM AND METHOD FOR HYBRID LiDAR SEGMENTATION WITH OUTLIER DETECTION
328	United States	n/a	n/a	17/406,682	SYSTEM AND METHOD FOR HYBRID LiDAR SEGMENTATION WITH OUTLIER DETECTION
329	United States	n/a	n/a	17/204,066	REMOTE GUIDANCE FOR AUTONOMOUS VEHICLES
329	Patent Cooperation Treaty	n/a	n/a	PCT/US2022/020231	REMOTE GUIDANCE FOR AUTONOMOUS VEHICLES
329	European Patent Office	n/a	n/a	22772009.1	REMOTE GUIDANCE FOR AUTONOMOUS VEHICLES
329	China	n/a	n/a	202280009354,5	REMOTE GUIDANCE FOR AUTONOMOUS VEHICLES
332	United States	n/a	2022-0348233	17/244,473	DETERMINATION OF VEHICLE PULLOVER LOCATION CONSIDERING AMBIENT CONDITIONS
332	Patent Cooperation Treaty	n/a	WO/2022/232800	PCT/US2022/071954	DETERMINATION OF VEHICLE PULLOVER LOCATION CONSIDERING AMBIENT CONDITIONS
332	European Patent Office	n/a	n/a	22796964.9	DETERMINATION OF VEHICLE PULLOVER LOCATION CONSIDERING AMBIENT CONDITIONS

332	China	n/a	n/a	202280008782	DETERMINATION OF VEHICLE PULLOVER LOCATION CONSIDERING AMBIENT CONDITIONS
337	United States	n/a	US-2022-0194413-A1	17/128,946	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR DETECTING ROAD MARKING POINTS FROM LiDAR DATA
337	Patent Cooperation Treaty	n/a	n/a	PCT/US2021/063766	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR DETECTING ROAD MARKING POINTS FROM LiDAR DATA
337	European Patent Office	n/a	n/a	21911915.3	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR DETECTING ROAD MARKING POINTS FROM LiDAR DATA
337	China	n/a	n/a	202180086502,9	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR DETECTING ROAD MARKING POINTS FROM LiDAR DATA
343	United States	n/a	2022-0256339	17/168,746	SECURE COMMUNICATIONS WITH AUTONOMOUS VEHICLES
343	Patent Cooperation Treaty	n/a	WO/2022/170079	PCT/US2022/015289	SECURE COMMUNICATIONS WITH AUTONOMOUS VEHICLES
343	European Patent Office	n/a	n/a	22750455.2	SECURE COMMUNICATIONS WITH AUTONOMOUS VEHICLES
343	China	n/a	n/a	202280009570.X	SECURE COMMUNICATIONS WITH AUTONOMOUS VEHICLES
344	United States	n/a	2022-0266867	17/181,455	INDOOR LOCALIZATION OF AUTONOMOUS VEHICLES
344	Patent Cooperation Treaty	n/a	WO/2022/178035	PCT/US2022/016666	INDOOR LOCALIZATION OF AUTONOMOUS VEHICLES
344	European Patent Office	n/a	n/a	22756865.6	INDOOR LOCALIZATION OF AUTONOMOUS VEHICLES
344	China	n/a	n/a	202280009491,9	INDOOR LOCALIZATION OF AUTONOMOUS VEHICLES

354	United States	n/a	2022-0355829	17/308,601	METHODS AND SYSTEMS FOR MANAGING ACCESS TO SEATS AND STORAGE IN AUTONOMOUS VEHICLES
354	United States	n/a	n/a	18/201,277	METHODS AND SYSTEMS FOR MANAGING ACCESS TO SEATS AND STORAGE IN AUTONOMOUS VEHICLES
354	Patent Cooperation Treaty	n/a	n/a	PCT/US2022/026875	METHODS AND SYSTEMS FOR MANAGING ACCESS TO SEATS AND STORAGE IN AUTONOMOUS VEHICLES
354	European Patent Office	n/a	n/a	22799320.1	METHODS AND SYSTEMS FOR MANAGING ACCESS TO SEATS AND STORAGE IN AUTONOMOUS VEHICLES
354	China	n/a	n/a	202280011948.X	METHODS AND SYSTEMS FOR MANAGING ACCESS TO SEATS AND STORAGE IN AUTONOMOUS VEHICLES
355	United States	n/a	2022-0335251	17/233,720	CONTEXT AWARE VERIFICATION FOR SENSOR PIPELINES
355	Patent Cooperation Treaty	n/a	WO2022/225937	PCT/US2022/025360	CONTEXT AWARE VERIFICATION FOR SENSOR PIPELINES
355	European Patent Office	n/a	n/a	22792319,0	CONTEXT AWARE VERIFICATION FOR SENSOR PIPELINES
355	China	n/a	n/a	202280009925,5	CONTEXT AWARE VERIFICATION FOR SENSOR PIPELINES
356	European Patent Office	n/a	n/a	22196989.2	SYSTEM AND METHOD FOR INTENT MONITORING OF OTHER ROAD ACTORS
356	United States	n/a	n/a	17/483,974	SYSTEM AND METHOD FOR INTENT MONITORING OF OTHER ROAD ACTORS
357	United States	n/a	n/a	17/498,166	METHODS AND SYSTEMS FOR DETERMINING DIAGNOSTIC COVERAGE OF SENSORS TO PREVENT GOAL VIOLATIONS OF AUTONOMOUS VEHICLES

357	Patent Cooperation Treaty	n/a	n/a	PCT/US2022/046152	METHODS AND SYSTEMS FOR DETERMINING DIAGNOSTIC COVERAGE OF SENSORS TO PREVENT GOAL VIOLATIONS OF AUTONOMOUS VEHICLES
360	United States	11,557,129	US-2022-0343101-A1	17/241,637	SYSTEMS AND METHODS FOR PRODUCING AMODAL CUBOIDS
360	United States	n/a	n/a	18/066,592	SYSTEMS AND METHODS FOR PRODUCING AMODAL CUBOIDS
360	Patent Cooperation Treaty	n/a	WO/2022/232747	PCT/US2022/071770	SYSTEMS AND METHODS FOR PRODUCING AMODAL CUBOIDS
360	European Patent Office	n/a	n/a	22796939.1	SYSTEMS AND METHODS FOR PRODUCING AMODAL CUBOIDS
360	China	n/a	n/a	202280008711,6	SYSTEMS AND METHODS FOR PRODUCING AMODAL CUBOIDS
362	United States	n/a	US-2022-0340160-A1	17/236,000	SYSTEMS AND METHODS FOR SIMULATION SUPPORTED MAP QUALITY ASSURANCE IN AN AUTONOMOUS VEHICLE CONTEXT
362	Patent Cooperation Treaty	n/a	WO/2022/226477	PCT/US2022/071763	SYSTEMS AND METHODS FOR SIMULATION SUPPORTED MAP QUALITY ASSURANCE IN AN AUTONOMOUS VEHICLE CONTEXT
362	European Patent Office	n/a	n/a	22792675.5	SYSTEMS AND METHODS FOR SIMULATION SUPPORTED MAP QUALITY ASSURANCE IN AN AUTONOMOUS VEHICLE CONTEXT
362	China	n/a	n/a	202280008775,6	SYSTEMS AND METHODS FOR SIMULATION SUPPORTED MAP QUALITY ASSURANCE IN AN AUTONOMOUS VEHICLE CONTEXT
363	United States	n/a	n/a	17/387,922	METHOD AND SYSTEM FOR DEVELOPING AUTONOMOUS VEHICLE TRAINING SIMULATIONS

363	United States	n/a	n/a	17/387,927	METHOD AND SYSTEM FOR DEVELOPING AUTONOMOUS VEHICLE TRAINING SIMULATIONS
363	Patent Cooperation Treaty	n/a	n/a	PCT/US2022/073 252	METHOD AND SYSTEM FOR DEVELOPING AUTONOMOUS VEHICLE TRAINING SIMULATIONS
363	Germany	n/a	n/a	112022003737.7	METHOD AND SYSTEM FOR DEVELOPING AUTONOMOUS VEHICLE TRAINING SIMULATIONS
364	United States	n/a	n/a	17/468,600	METHOD AND SYSTEM FOR CONFIGURING VARIATIONS IN AUTONOMOUS VEHICLE TRAINING SIMULATIONS
364	Patent Cooperation Treaty	n/a	n/a	PCT/US2022/073 251	METHOD AND SYSTEM FOR CONFIGURING VARIATIONS IN AUTONOMOUS VEHICLE TRAINING SIMULATIONS
364	Germany	n/a	n/a	112022003731.8	METHOD AND SYSTEM FOR CONFIGURING VARIATIONS IN AUTONOMOUS VEHICLE TRAINING SIMULATIONS
377	European Patent Office	n/a	n/a	22190988.0	METHODS AND SYSTEMS FOR COMPARING RESULTANT STATUS OF AUTONOMOUS VEHICLE SIMULATIONS
377	United States	n/a	n/a	17/405,259	METHODS AND SYSTEMS FOR COMPARING RESULTANT STATUS OF AUTONOMOUS VEHICLE SIMULATIONS
378	United States	n/a	n/a	17/344,852	ENHANCED RIDER PAIRING FOR AUTONOMOUS VEHICLES
378	Patent Cooperation Treaty	n/a	WO/2022/198 076	PCT/US2022/020 998	ENHANCED RIDER PAIRING FOR AUTONOMOUS VEHICLES
378	European Patent Office	n/a	n/a	22772307.9	ENHANCED RIDER PAIRING FOR AUTONOMOUS VEHICLES
378	China	n/a	n/a	202280010025,2	ENHANCED RIDER PAIRING FOR AUTONOMOUS VEHICLES

379	United States	n/a	2022/037335 4	17/323,061	AUTOMATIC GENERATION OF VECTOR MAP FOR VEHICLE NAVIGATION
379	Patent Cooperation Treaty	n/a	WO/2022/246 352	PCT/US2022/071 795	AUTOMATIC GENERATION OF VECTOR MAP FOR VEHICLE NAVIGATION
382	European Patent Office	n/a	n/a	22198159.0	DISTRIBUTED METHOD AND SYSTEM FOR VEHICLE IDENTIFICATION TRACKING
382	United States	n/a	n/a	17/490,236	DISTRIBUTED METHOD AND SYSTEM FOR VEHICLE IDENTIFICATION TRACKING
383	European Patent Office	n/a	n/a	22196990.0	SYSTEMS, METHODS, AND COMPUTER PROGRAM PRODUCTS FOR BLOCKCHAIN SECURED CODE SIGNING OF AUTONOMOUS VEHICLE SOFTWARE ARTIFACTS
383	United States	n/a	n/a	17/481,758	SYSTEMS, METHODS, AND COMPUTER PROGRAM PRODUCTS FOR BLOCKCHAIN SECURED CODE SIGNING OF AUTONOMOUS VEHICLE SOFTWARE ARTIFACTS
392	United States	n/a	n/a	17/512,765	Method, System, and Computer Program Product for Parallax Estimation for Sensors for Autonomous Vehicles
392	Patent Cooperation Treaty	n/a	n/a	PCT/US2022/047 264	Method, System, and Computer Program Product for Parallax Estimation for Sensors for Autonomous Vehicles
404	European Patent Office	n/a	n/a	22197792.9	VISUAL LOCALIZATION AGAINST A PRIOR MAP
404	United States	n/a	n/a	17/485,046	VISUAL LOCALIZATION AGAINST A PRIOR MAP
406	European Patent Office	n/a	n/a	22197790.3	HETEROGENEOUS MULTI- THREADED VISUAL ODOMETRY IN AUTONOMOUS DRIVING
406	United States	n/a	n/a	17/485,054	HETEROGENEOUS MULTI- THREADED VISUAL ODOMETRY IN AUTONOMOUS DRIVING
408	United States	n/a	n/a	17/541,094	AUTOMATED VEHICLE POSE VALIDATION

408	Patent Cooperation Treaty	n/a	n/a	PCT/US2022/080734	AUTOMATED VEHICLE POSE VALIDATION
409	United States	n/a	n/a	17/508,681	VALIDATING AN SFM MAP USING LiDAR POINT CLOUDS
409	Patent Cooperation Treaty	n/a	n/a	PCT/US2022/078556	VALIDATING AN SFM MAP USING LiDAR POINT CLOUDS
409	Germany	n/a	n/a	112022005081.0	VALIDATING AN SFM MAP USING LiDAR POINT CLOUDS
412	European Patent Office	n/a	n/a	22202216.2	METHOD AND SYSTEM FOR SWITCHING BETWEEN LOCAL AND REMOTE GUIDANCE INSTRUCTIONS FOR AUTONOMOUS VEHICLES
412	United States	n/a	n/a	17/508,457	METHOD AND SYSTEM FOR SWITCHING BETWEEN LOCAL AND REMOTE GUIDANCE INSTRUCTIONS FOR AUTONOMOUS VEHICLES
413	United States	n/a	n/a	17/524,248	SYSTEM AND METHOD FOR MUTUAL DISCOVERY IN AUTONOMOUS RIDESHARE BETWEEN PASSENGERS AND VEHICLES
413	Patent Cooperation Treaty	n/a	n/a	PCT/US2022/049475	SYSTEM AND METHOD FOR MUTUAL DISCOVERY IN AUTONOMOUS RIDESHARE BETWEEN PASSENGERS AND VEHICLES
413	European Patent Office	n/a	n/a	22893584.7	SYSTEM AND METHOD FOR MUTUAL DISCOVERY IN AUTONOMOUS RIDESHARE BETWEEN PASSENGERS AND VEHICLES
413	China	n/a	n/a	202280088307.4	SYSTEM AND METHOD FOR MUTUAL DISCOVERY IN AUTONOMOUS RIDESHARE BETWEEN PASSENGERS AND VEHICLES
430	United States	n/a	n/a	17/690,661	AUTONOMOUS VEHICLE SYSTEM TEST MODULE

430	Patent Cooperation Treaty	n/a	n/a	PCT/US2022/053 967	AUTONOMOUS VEHICLE SYSTEM TEST MODULE
442	United States	n/a	n/a	17/846,630	LANE SEGMENT CLUSTERING USING HYBRID DISTANCE METRICS
442	Patent Cooperation Treaty	n/a	n/a	PCT/US2023/259 54	LANE SEGMENT CLUSTERING USING HYBRID DISTANCE METRICS
444	United States	n/a	n/a	17/647,623	AUTOMATED GENERATION AND REFINEMENT OF VARIATION PARAMETERS FOR SIMULATION SCENARIOS
444	Patent Cooperation Treaty	n/a	n/a	PCT/US2023/060 394	AUTOMATED GENERATION AND REFINEMENT OF VARIATION PARAMETERS FOR SIMULATION SCENARIOS
445	United States	n/a	n/a	17/647,620	UNCERTAINTY BASED SCENARIO SIMULATION PRIORITIZATION AND SELECTION
454	United States	n/a	n/a	63/252,431	SYSTEMS AND METHODS FOR MANAGING PERMISSIONS AND AUTHORIZING ACCESS TO USE OF SERVICES
454	United States	n/a	n/a	17/650,281	SYSTEMS AND METHODS FOR MANAGING PERMISSIONS AND AUTHORIZING ACCESS TO AND USE OF SERVICES
454	United States	n/a	n/a	17/650,283	SYSTEM AND METHOD FOR ESTIMATING ARRIVAL TIME OF A VEHICLE AT A DESTINATION
454	United States	n/a	n/a	17/650,286	SYSTEM AND METHOD FOR GENERATING A PLANNED PATH FOR A VEHICLE USING A CLOUD DEPLOYMENT SYSTEM
454	United States	n/a	n/a	17/650,288	SYSTEM AND METHOD FOR GENERATING A

					PLANNED PATH USING A PHANTOM VEHICLE
454	United States	n/a	n/a	17/650,289	SYSTEMS AND METHODS FOR DEFINING SERVICEABLE AREAS
454	United States	n/a	n/a	63/292,140	SYSTEMS AND METHODS FOR MANAGING PERMISSIONS AND AUTHORIZING ACCESS TO USE OF SERVICES
454	Patent Cooperation Treaty	n/a	n/a	PCT/US2022/070560	SYSTEMS AND METHODS FOR MANAGING, ACCESSING AND USING SERVICES
465	United States	n/a	n/a	17/731,400	MOUNTING DEVICE FOR MAINTAINING RIGID ALIGNMENT BETWEEN CAMERAS
465	United States	n/a	n/a	18/348,526	MOUNTING DEVICE FOR MAINTAINING RIGID ALIGNMENT BETWEEN CAMERAS
465	Patent Cooperation Treaty	n/a	n/a	PCT/US23/19929	MOUNTING DEVICE FOR MAINTAINING RIGID ALIGNMENT BETWEEN CAMERAS
472	United States	n/a	n/a	17/806,843	SYSTEMS AND METHODS FOR AUTONOMOUS VEHICLE SENSOR CALIBRATION AND VALIDATION
472	United States	n/a	n/a	17/806,838	SYSTEMS AND METHODS FOR AUTONOMOUS VEHICLE SENSOR CALIBRATION AND VALIDATION
472	Patent Cooperation Treaty	n/a	n/a	PCT/US23/68166	SYSTEMS AND METHODS FOR AUTONOMOUS VEHICLE SENSOR CALIBRATION AND VALIDATION
473	United States	n/a	n/a	17/652,991	SYSTEMS AND METHODS FOR PERFORMING DATA COLLECTION MISSIONS
473	Patent Cooperation Treaty	n/a	n/a	PCT/US2023/014018	SYSTEMS AND METHODS FOR PERFORMING DATA COLLECTION MISSIONS
480	United States	n/a	n/a	17/654,247	SYSTEMS AND METHODS FOR DYNAMIC DATA

					MINING DURING DATA COLLECTION MISSIONS
480	Patent Cooperation Treaty	n/a	n/a	PCT/US2023/063542	SYSTEMS AND METHODS FOR DYNAMIC DATA MINING DURING DATA COLLECTION MISSIONS
491	United States	n/a	n/a	18/051,629	FLEXIBLE DISPATCH
491	Patent Cooperation Treaty	n/a	n/a	PCT/US23/71441	METHOD AND SYSTEM FOR DYNAMIC ALLOCATION OF VEHICLES TO FLEETS (FLEXIBLE DISPATCH)
496	United States	n/a	n/a	63/427,654	TEST METHOD FOR DETERMINING RAIN AND ROAD SPRAY ON AV SENSORS
500	United States	n/a	n/a	17/967,272	Asymmetrical Autonomous Vehicle Computing Architecture
500	Patent Cooperation Treaty	n/a	n/a	PCT/2023/026543	METHODS AND SYSTEMS FOR MANAGING DATA STORAGE IN VEHICLE OPERATIONS
506	United States	n/a	n/a	17/818,986	METHODS AND SYSTEMS FOR MANAGING DATA STORAGE IN VEHICLE OPERATIONS
506	Patent Cooperation Treaty	n/a	n/a	PCT/US23/25996	METHODS AND SYSTEMS FOR MANAGING DATA STORAGE IN VEHICLE OPERATIONS
509	United States	n/a	n/a	18/072,107	VECTOR MAP UPDATES
509	United States	n/a	n/a	18/072,113	VECTOR MAP UPDATES
509	United States	n/a	n/a	18/072,117	VECTOR MAP UPDATES
509	United States	n/a	n/a	18/072,125	VECTOR MAP UPDATES
509	United States	n/a	n/a	18/072,139	VECTOR MAP UPDATES
513	United States	n/a	n/a	17/988,344	METHODS FOR VERIFYING SENSOR RELATIVE ALIGNMENT DURING FIELD AND LABORATORY TESTING USING INERTIAL SENSORS

526	United States	n/a	n/a	18/093,611	HANDLING UNMAPPED SPEED LIMIT SIGNS THROUGH DYNAMIC MAP UPDATES
528	United States	n/a	n/a	18/066,012	CRC Overhead Hiding
536	United States	n/a	n/a	18/146,548	MAP MESH GENERATION THAT PRESERVES LANE SEGMENT BOUNDARIES
538	United States	n/a	WO20220256760	17/992,153	Encoder Module for Self Driving Vehicle
541	United States	n/a	n/a	18/102,135	System and method for ride hailing an autonomous vehicle and/or robotaxi by a third party
542	United States	n/a	n/a	18/154,199	Module for USB-C Device to Communicate through Automotive Ethernet with USB Power Delivery (PD) and Circuit Design for Downstream Facing Port (DFP) Power Negotiation to a USB-C Device
544	United States	n/a	n/a	17/991,665	MOBILE OFFLOADING STATION FOR DISCONNECTED TERMINAL OPERATION
544	United States	n/a	n/a	17/991,675	MOBILE OFFLOADING STATION FOR DISCONNECTED TERMINAL OPERATION
545	United States	n/a	n/a	17/977,593	“Last-foot” Apparatus and Methods for Highly Automated Goods Delivery
545	Patent Cooperation Treaty	n/a	n/a	PCT/US2023/23343	Automated Delivery System, Method, and Computer Program Product
547	United States	n/a	n/a	18/156,986	NEW METHOD FOR AV RESOURCE ALLOCATION AND SCHEDULING
549	United States	n/a	n/a	63/359,449	SYSTEM FOR ASYNCHRONOUS NEGOTIATION OF AUTONOMOUS VEHICLE STOP LOCATIONS
549	United States	n/a	n/a	18/147,184	SYSTEM FOR ASYNCHRONOUS NEGOTIATION OF AUTONOMOUS VEHICLE STOP LOCATIONS

549	Patent Cooperation Treaty	n/a	n/a	PCT/US23/25997	METHOD AND SYSTEM FOR ASYNCHRONOUS NEGOTIATION OF AUTONOMOUS VEHICLE STOP LOCATIONS
560	United States	n/a	n/a	18/077,646	ROAD MARKING CHANGE DETECTION EXTENSION FOR MULTI-MODAL DATA
562	United States	n/a	n/a	63/393,423	VIRTUAL TESTING FAILURE ANALYSIS USING NEURAL NETWORKS AND GAUSSIAN PROCESSES
562	Patent Cooperation Treaty	n/a	n/a	PCT/US23/23684	VIRTUAL TESTING FAILURE ANALYSIS USING NEURAL NETWORKS AND GAUSSIAN PROCESSES
587	United States	n/a	n/a	18/161,283	SYSTEM, METHOD, AND COMPUTER PROGRAM FOR STREAMING DATA MINING WITH TEXT-IMAGE JOINT EMBEDDINGS
587	United States	n/a	n/a	18/161,287	STREAMING DATA MINING USING TEXT-IMAGE JOINT EMBEDDINGS
587	Germany	n/a	n/a	102024102622.7	STREAMING DATA MINING USING TEXT-IMAGE JOINT EMBEDDINGS
596	United States	n/a	n/a	18/154,283	CONTINUOUSLY GENERATING HD MAP GEOMETRY ARTIFACTS (METRO MANAGER)
596	Germany	n/a	n/a	102024100933.0	CONTINUOUSLY GENERATING HD MAP GEOMETRY ARTIFACTS (METRO MANAGER)

PATENT

RECORDED: 10/09/2024

REEL: 069177 FRAME: 0149