Patents

inventor:(Aliakbar AGHAMOHAMMADI)



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Systems and methods for mapping an environment



WO US CN • US9996944B2 • Aliakbar AGHAMOHAMMADI • Qualcomm Incorporated

Priority 2016-07-06 • Filed 2016-09-16 • Granted 2018-06-12 • Published 2018-06-12

A method for mapping an environment by an electronic device is described. The method includes obtaining a set of sensor measurements. The method also includes determining a set of voxel occupancy probability distributions respectively corresponding to a set of voxels based on the set of sensor ...

Motion planning and intention prediction for autonomous driving in highway ...





Priority 2016-09-14 • Filed 2017-05-22 • Granted 2019-07-09 • Published 2019-07-09

Aspects of the disclosure are related to a method, apparatus, and system for planning a motion for a first vehicle, comprising: estimating past states of an observed second vehicle based on sensor inputs; predicting a future trajectory of the second vehicle based on the estimated past states;

Object-focused active three-dimensional reconstruction



WO EP US CN TW · US10372968B2 · Aliakbar AGHAMOHAMMADI · Qualcomm Incorporated

Priority 2016-01-22 • Filed 2016-06-24 • Granted 2019-08-06 • Published 2019-08-06

A method for guiding a robot equipped with a camera to facilitate three-dimensional (3D) reconstruction through sampling based planning includes recognizing and localizing an object in a two-dimensional (2D) image. The method also includes computing 3D depth maps for the localized object. A 3D ...

Rapidly-exploring randomizing feedback-based motion planning



WO EP US CN JP KR BR CA $TW \cdot \underline{\text{US}20170165835A1} \cdot \text{Aliakbar AGHAMOHAMMADI} \cdot \text{Qualcomm Incorporated}$



Priority 2015-12-09 • Filed 2016-06-24 • Published 2017-06-15

A method of motion planning for an agent to reach a target includes determining a frontier region between a frontier at a current time and a frontier at a next time. Waypoints are sampled in the frontier region with a bias toward the target. A path to reach the target is selected based on a ...

Simultaneous mapping and planning by a robot



WO EP US CN \cdot <u>US10093021B2</u> \cdot **Aliakbar AGHAMOHAMMADI** \cdot Qualcomm Incorporated

Priority 2015-12-02 • Filed 2016-06-24 • Granted 2018-10-09 • Published 2018-10-09

A method substantially simultaneously plans a path and maps an environment by a robot. The method determines a mean of an occupancy level for a location in a map. The method also includes determining a probability distribution function (PDF) of the occupancy level. The method further includes ...

Parallel belief space motion planner

WO EP US CN · US20170004406A1 · Aliakbar AGHAMOHAMMADI · Qualcomm Incorporated

Priority 2015-06-30 • Filed 2015-11-13 • Published 2017-01-05

A method for generating a movement policy includes determining a probability distribution function for multiples nodes of a roadmap and determining, in parallel, a cost and a collision probability for each edge of



the roadmap. The method also includes generating the movement policy based on the ...



Holistic planning with multiple intentions for self-driving cars



US • <u>US10591920B2</u> • **Aliakbar AGHAMOHAMMADI** • Qualcomm Incorporated Priority 2017-05-24 • Filed 2017-05-24 • Granted 2020-03-17 • Published 2020-03-17

Aspects of the disclosure are related to a method, apparatus and system for joint motion planning and trajectory estimation, comprising: determining a cost function to describe system kinematics comprising trajectories, speeds, and accelerations of a host vehicle and of one or more other vehicles ...

Stochastic map generation and bayesian update based on stereo vision



WO EP US CN TW · US20170161946A1 · Aliakbar AGHAMOHAMMADI · Qualcomm Incorporated

Priority 2015-12-03 • Filed 2016-06-24 • Published 2017-06-08

A method for generating a map includes determining an occupancy level of each of multiple voxels. The method also includes determining a probability distribution function (PDF) of the occupancy level of each voxel. The method further includes performing an incremental Bayesian update on the PDF to ...

Map generation based on raw stereo vision based measurements



WO EP US CN · US20170160747A1 · Aliakbar AGHAMOHAMMADI · Qualcomm Incorporated

Priority 2015-12-04 • Filed 2016-06-24 • Published 2017-06-08

A method of calculating a most likely map based on batch data includes gathering a corpus of sensor measurements indexed by a location of a sensor throughout an environment to be mapped. The method also includes determining, after gathering the corpus of sensor measurements, a most likely ...

Stochastic map-aware stereo vision sensor model



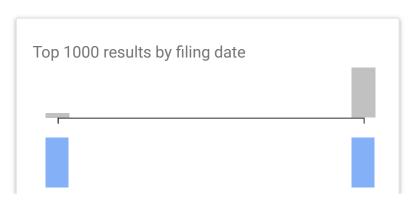
WO EP US CN KR BR • US10613546B2 • Aliakbar AGHAMOHAMMADI • Qualcomm Incorporated

Priority 2015-12-02 • Filed 2016-06-24 • Granted 2020-04-07 • Published 2020-04-07



A method for defining a sensor model includes determining a probability of obtaining a measurement from multiple potential causes in a field of view of a sensor modeled based on a stochastic map. The stochastic map includes a mean occupancy level for each voxel in the stochastic map and a variance ...

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