Automotive Calibration Engineer – Targetless SLAM-based Calibration (Fisheye Cameras)

あなたの仕事内容

We are looking for a highly skilled **Automotive Calibration Engineer** to develop robust, targetless **intrinsic and extrinsic calibration** techniques for a **multi-fisheye camera system** using **SLAM, visual-inertial odometry (VIO), and optimization-based approaches**. The ideal candidate will have a strong background in computer vision, camera geometry, and mathematical optimization, as well as hands-on experience with real-world automotive sensor setups.

Key Responsibilities

- Design and implement targetless calibration pipelines (intrinsic & extrinsic) for a 4-fisheye camera setup using SLAM, structure-from-motion, and bundle adjustment techniques
- Develop online and offline calibration tools that can self-initialize in real-world driving scenarios without artificial targets or calibration boards
- Integrate visual (and optionally inertial or GNSS) data to refine multi-camera poses in a common coordinate frame
- Collaborate with perception and localization teams to ensure accurate sensor alignment for downstream tasks
- Validate calibration quality with ground truth comparisons and track performance across environmental conditions
- Deploy calibration solutions into embedded or automotive-grade compute platforms (e.g., NVIDIA DRIVE, Qualcomm AD stack)
- Create tooling and diagnostics for production and validation workflows.

あなたのプロフィール

Mathematical Skills

- Strong grasp of multi-view geometry (projective geometry, essential/fundamental matrices, epipolar geometry)
- In-depth knowledge of camera models, especially equidistant and omnidirectional fisheye models (e.g., Kannala-Brandt)
- Solid understanding of nonlinear optimization, particularly bundle adjustment, pose graph optimization, and least squares
- Experience with graph-based SLAM (e.g., g2o, Ceres, GTSAM) and probabilistic sensor fusion

Programming Skills

- C++ and Python proficiency
- Familiarity with OpenCV (especially fisheye calibration modules), Eigen, and ROS2
- Hands-on experience with SLAM libraries such as ORB-SLAM, COLMAP, OpenVINS, Kimera, or custom pipelines

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- Experience with GPU acceleration and parallel computing (CUDA, OpenMP) is a plus

Tools & Frameworks

- Experience with camera/sensor simulation or playback tools
- Proficient with version control (Git), CI/CD, and containerization (Docker)
- Exposure to automotive standards (e.g., AUTOSAR, ISO 26262) is a plus

Preferred Qualifications

- Master's or PhD in Computer Vision, Robotics, Applied Mathematics, or related field
- 3+ years of experience in automotive sensor calibration, SLAM, or sensor fusion roles
- Familiarity with multi-sensor extrinsic calibration (camera to IMU, radar, LiDAR) and real-world deployment challenges
- Experience with real-time calibration or self-calibration in production vehicles.

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What We Offer

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- Personal career development and a challenging role with end-to-end responsibility
- Opportunity to see your ideas turn into reality with our test vehicles
- Ability to directly deliver software into real, innovative products
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会社概要

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