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

Jūsų užduotys

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.

Reikalavimai

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

Darbo ID
REF74700E

Darbo sritis
Informacinės technologijos

Vieta
Budapest

Lyderystės lygis
Leading Self

Darbo laiko lankstumas
Hybrid Job

Juridinis asmuo
Continental Autonomous Mobility Hungary Kft.

- 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.

Mes siūlome

- Competitive compensation and a wide range of benefits, including:
  - Bonus system
  - Annual flexible benefit (Cafeteria)
  - Private health insurance
  - Employee discounts
  - Sport pass support
- Continuous development with access to numerous trainings, including technical skills, soft skills and language skills
- 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
- Easily accessible office location in downtown Budapest (near Kálvin square).

Ready to take your career to the next level and join us at the start of something extraordinary? Apply now to become a part of AUMOVIO and drive the future mobility together with us!

Apie mus

Continental's Automotive group sector is expected to be listed as independent company "AUMOVIO" in September 2025. With ~93,000 employees worldwide and annual sales of ~€20 billion, we are entering an exciting new era.

AUMOVIO stands for highly developed electronic products and modern mobility solutions. In addition to its strong market position with innovative sensor solutions, displays, and technologically leading braking and comfort systems, AUMOVIO has significant expertise in software, architecture platforms and assistance systems for the rapidly growing future market of software-defined and autonomous vehicles.

Our purpose is clear: to make future mobility safe, exciting, connected, and autonomous.