HUOYUAN TAN

Huoyuan Tan
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ABOUT ME

Autonomous driving algorithm engineer with 5+ years across perception, localization, and motion planning, hands-on with multi-sensor fusion (camera/LiDAR/GPS/IMU). I have project management experience and actively communicate with colleagues. Outside of work, I enjoy hiking and playing badminton. I am passionate about technology and motivated by the belief that technology can enhance people's well-being, reduce emissions, and contribute to a more sustainable future.

Currently, I am actively looking for opportunity related to **Autonomous Driving**,**Vision-Language-Action mode(VLA)**, **Large Language Models (LLMs)** or **Reinforcement Learning**.

CORE SKILLS

Perception:	2D/3D detection & tracking, segmentation; multi-camera calibration & visual-lidar calibration etc..
Localization:	High-Definition LiDAR Graph-based SLAM & ICP/NDT & Cartographer; ORB-SLAM3; fusion (EKF/UKF).
Planning/Control:	A*/Hybrid-A*/TEB; PID/MPC; rule-based decesion making.
ML/DL:	PyTorch, LLM; detection & segmentation.
Systems:	Linux, C++, Python, ROS/ROS2, CMake, Docker, Git.
Hardware:	Lidar, GNSS/RTK, IMU, Camera; communication protocols (CAN, Modbus, MQTT etc.).

EXPERIENCE

Algorithm Engineer | Xingyun Intelligence (Shenzhen) Technology Co., Ltd. 2017.02 – 2022.10
Shenzhen, China

- Deeply involved in the **development and productization** of autonomous systems, including the Autonomous Forklift, Automated Guided Vehicles (AGV), and the Artificial Intelligence Robot for Transportation (ART).

SELECTED PROJECTS

Artificial Intelligence Robot for Transportation(ART) 2020.10 – 2022.10
video: @yunxing-port/videos

- multi-LiDAR calibration,multi-sensor fusion; lidar-based obstacle avoidance & localization; reaching 35 containers/hour.

Autonomous Forklift 2021.10 – 2022.10

- LiDAR–camera calibration; MPC-based motion planning, accurate navigation; got 90–92% success rates in picking and placing.

Automated Guided Vehicle(AGV) 2018.05 – 2020.05

- LiDAR–IMU SLAM, loop-closure, mapping and localization in indoor & outdoor factory environments; mapping extension.

Intelligent home system based on pyroelectric infrared sensor 2015.06 – 2017.02

- Indoor tracking, abnormal activity detection; Random Forest(RF), Hidden Markov Models(HMMs), One-Class Support Vector Machines(OSVMs)
- Paper:
  Abnormal Activity Detection Using Pyroelectric Infrared Sensors
  Simultaneous Indoor Tracking and Activity Recognition Using Pyroelectric Infrared Sensors

EDUCATION

M.Sc. in Computer Science and Engeneering | University of Gothenburg 2024.09 – present
Gothenburg, Sweden

- Focus: DL, ML.

B.Eng. Medical Information Engineering | Guangzhou University of Chinese Medicine 2013.09 – 2017.06
Guangzhou, China

- Thesis: The Application of Ensemble Learning in Quantitative Investment Prediction.
- Outstanding Graduate Award in 2017