

# 黄珂邈

📞 189-2935-7397

@ 11610728@mail.sustech.edu.cn

🏠 1998 年 11 月

🏠 广东深圳

🌐 github.com/Kemo-Huang

## 🎓 教育背景

2020 年 6 月 | 南方科技大学 · 计算机科学与工程系

2016 年 9 月 | 计算机科学与技术 · 工程学士

‣ GPA: 3.53/4.0, 三次获得奖学金

‣ 计算机系创新实验成果展三等奖

‣ 树礼书院学生会宣传部部长, 2018 最佳部门

‣ 翰墨社创始人、社长

专业课程: 数据结构与算法分析、概率论与数理统计、计算机网络、计算机组成原理、嵌入式系统与微机原理、数据库原理、面向对象分析与设计、软件工程、软件测试、离散数学、人工智能、智能机器人、计算机视觉、机器学习

## ★ 研究领域

### ‣ 自动驾驶 & 机器人

感知系统, 传感器融合, 运动估计, 定位与建图

### ‣ 机器学习 & 计算机视觉

深度学习, 贝叶斯与统计, 图像与点云处理, 目标检测和跟踪

## ⚙️ 学术经历

南科大智能感知与无人系统实验室

目前 | 三维车辆跟踪

同时利用目标的运动和外貌信息实现自动驾驶中的多目标跟踪。使用卡尔曼滤波器对车辆进行三维运动建模, 利用相机与激光雷达特征融合提高视觉算法准确度。设计有效的跟踪算法流水线, 减少计算冗余并增加系统对目标丢失和遮挡的健壮性。

2019.10 | 三维车辆检测

基于 Linux 和 ROS, 对自动驾驶软件 Autoware 集成前沿的三维目标检测算法。利用阿尔法巴公司采集的巴士数据对软件和算法进行测试。

2019.5 | 视觉传感器的标定

对单目相机和激光雷达进行外参标定。使用边缘提取算法分别建立 2D 和 3D 的对应点, 通过 RANSAC 优化后的 PnP 方法求得外参。

2018.10 | 激光雷达点云超分辨率重建

优化了深度图像处理的流水线, 分阶段使用核矩阵对投影后的点云图像进行扩张、非重要区域舍弃和异常信息过滤。






## ⚙️ 编程技能

操作系统 | Linux, Robot Operating System (ROS)

软件库 | OpenCV, Pytorch, Scikit-learn, Pandas, MATLAB, Point Cloud Library (PCL)

应用开发 | 安卓, SpringBoot, Flask, 微信小程序, Unity

# Kemiao Huang

 (+86)189-2935-7397    11610728@mail.sustech.edu.cn    Nov. 1998  
 Shenzhen, Guangdong, China    [github.com/Kemo-Huang](https://github.com/Kemo-Huang)

## EDUCATION

Jun. 2020	<b>Southern University of Science and Technology</b> , Shenzhen, China
Sep. 2016	Department of Computer Science and Engineering <i>Bachelor of Engineering in Computer Science</i> <ul style="list-style-type: none"><li>› Cumulative GPA: 3.53/4.0, three scholarships</li><li>› Third prize winner for the exhibition of Innovative Experiment at CSE.</li><li>› Head of publicity department at student union with the 2018 best department award</li><li>› Founder of college calligraphy and painting club</li></ul>

## ★ ACADEMIC INTEREST

- › **Autonomous Driving & Robotics**  
Perception System, Sensor Fusion, Behavior Prediction, Simultaneous Localization and Mapping (SLAM).
- › **Machine Learning & Computer Vision**  
Deep Learning, Bayesian and Statistics, Image and Point Cloud Processing, Object Detection and Tracking.

## ACADEMIC EXPERIENCE

Research Lab: *Intelligent Sensing and Unmanned Systems*, SUSTech

Present	<b>3D Vehicle Tracking</b> Improved the robustness of the algorithm by fusing camera and LiDAR data with attention mechanism for tracking 3D vehicles. Devised an efficient tracking-by-detection pipeline for the image-and-point appearance model and the motion model.
Oct. 2019	<b>3D Vehicle Detection</b> Built an online 3D vehicle detection system for monocular cameras and a single LiDAR. Integrated the detection algorithm with the "Autoware" software for autonomous driving system based on robot operating system (ROS) on Linux and tested with bus data from Shenzhen Haylion Tech.
May 2019	<b>Sensor Calibration</b> Experimented extrinsic calibration between monocular cameras and LiDARs. The 2D-3D point correspondences are built by corner detectors respectively and the extrinsic parameters are solved efficiently by perspective-n-point (PnP) methods with RANSAC optimization.
Oct. 2018	<b>LiDAR Point Cloud Upsampling</b> Assessed and optimized an image processing pipeline for depth image super-resolution. The depth from point clouds are completed by kernel dilation and exception filtering with fast speed and relatively low loss upon KITTI benchmark.

## PROGRAMMING SKILLS

Operating Systems	Linux, Robot Operating System (ROS)
Software Libraries	OpenCV, Pytorch, Scikit-learn, Pandas, MATLAB, Point Cloud Library (PCL)
App Development	Android, SpringBoot, Flask, WeChat mini-app, Unity