Zhongxuan Li

Email: lizhongxuanchina@foxmail.com
Portfolio: Dieselmarble.github.io
Mobile: +86-185-5466-0001
Github: github.com/Dieselmarble

Education

- **Imperial College London** — London, United Kingdom
  Integrated MEng in Electrical and Electronic Engineering; GPA: 3.7 — *July 2015 - June 2019*
  Thesis: *Blind Signal Separation based on Sparsity*
  Core Courses: *Algorithm and Data Structure, Artificial Intelligence, Machine Learning, Communications, Control Theory, Optimisation, Signal Processing, Digital&Analogue Electronics, Theory of Probability*

Experience

- **Huawei - Optical Business Product Line** — Shenzhen, China
  Research Engineer (Full-time) — *October 2019 - Present*
  - **Robotics**: Worked as a full-stack engineer, developed and built robots for different using purposes. In depth understanding and practical experience with SLAM, route planning and optimal control.
  - **Large-scale Network Optimisation**: Solved optimisation problems in very large scale ODN and WDM networks, built work-leading performance network planning software.
  - **CCSA Representive**: Delegated Huawei at China Communications Standards Association, successfully conducted several ICT standardisation projects, including the industrial optical bus protocol.
- **Ocado Technologies - 10X Research Team** — Hatfield, United Kingdom
  Research Engineer (Internship) — *March 2018 - September 2018*
  - **Logistic Robots**: Worked towards patented tote transporting robots, developed robot swarming control algorithms.
  - **Linear Motor Design**: Researched in linear PMSM (permanent magnetic synchronous motor), designed the future logistic system equipped with linear motor. Conducted electromagnetic finite element analysis and motor FOC control.
- **Robot Intelligence Lab - Imperial College London** — London, United Kingdom
  Undergraduate Research Assistant — *June 2018 - September 2017*
  - **Robot De-Niro**: Independently developed a multi-joint dexterous hand for a Baxter robot in laboratory.
  - **Robot Control GUI**: Programmed a robot controller GUI with QT and C++.

Related Projects

- **Service Robot**: Built a domestic service robot from scratch, performing tasks such as grasp and handover objects, switch lights and guest reception. Used techniques such as semantic-SLAM and deep neural networks to achieve 'like-human' intelligence.
- **Data Center Robot**: Built a robot with AGV and 6-axis arm for IT server room maintenance and inspection. Devised locomotion and manipulation algorithms for dexterous tasks such as plug and unplug fibers.
- **2D Floor Plan Recovery**: Used mobile phone IMU to measure the 2D layout of rooms to centimeter accuracy level, developed robust inertial navigation, Kalman filtering and loop closure algorithms under different noisy levels.
- **ODN Network Optimisation**: Developed algorithms for Huawei's SmartODN network planner, devised a fusion algorithm combined both heuristics and linear programming, achieved top performance among rival products.
- **AR-HUD**: Worked in the head-up display project, focused on computer vision, developed object-detection, road-segmentation, distortion-correction and depth-estimation algorithms.
- **Ultra-low Latency Industrial PON(Passive Optical Network) Research**: Worked towards improving the existing PON in order to meet industrial field-bus performance.
- **Field-level Industrial Optical Bus-line Technology and Application**: Collaborated project with China Academy of Information and Communications Technology (CAICT), a national standardization white paper is working in progress to be published in late 2022.

Patents

- **A method for automatic generation of floor plan based on wireless communication and IMU**: Submitted, (April '22)

Skills Summary

- **Proficient in**: ROS, C++, Python, MATLAB, Verilog
- **Languages**: English, Chinese Mandarin
- **Soft skills**: Public speaking, Leadership