Zhongxuan Li

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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 control.
  - **Large-scale Network Optimisation**: Solve optimisation problems in very large scale ODN and WDM networks, achieved work-leading performance in network planning.
  - **CCSA Representive**: Delegate 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**: Working 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 trapezoidal control, implemented the prototype in STM32.
- **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**: Build a domestic service robot from scratch, performing tasks such as grasp and handover, turn-on light and guest reception. Employed techniques such as semantic-SLAM and deep neural networks to achieve 'like-human' intelligence.
- **Data Center Robot**: Build a robot with AGV and 6-axis arm for server room maintenance and inspection. Devise 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 several rival companies.
- **AR-HUD**: Worked in the head-up display project, focused on computer vision, developed objection-detection, road-segmentation, distortion-correction and depth-estimation algorithms.
- **Ultra-low Latency Industrial PON(Passive Optical Network) Research**: Worked towards improving the existing PON performance 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