Michael Chenxu Li

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Education Background

Imperial College London | Electronics Information Engineering| Bachelor's Degree 2023.9 – 2026.6

- Expected Grade: First-Class
- Core Modules: Mathematics, Digital Electronics and Computer Architecture, Communication Engineering, Advanced Software Systems, Machine Learning, Control Engineering, Robotics Manipulation, Deep Learning

Internship Experience

DH – Robotics 2022.6 – 2022.8

Technician Shenzhen

- **Robotics Research**: Redesigned the manual for smart home and medical robot manipulators.
- **Technical Skills**: Responsible for hardware maintenance, software debugging, and testing using SolidWorks. Mastered robotic technologies and applications, and improved infrared sensor precision.

Tencent Summer Insight Program AI Engineer 2020.6 – 2020.10

Researcher Shenzhen

- **Algorithm Skills**: Reproduced code for basic machine learning models from research papers, with a focus on NLP.
- **System Development**: Developed a sentiment analysis system, redesigned a series of GloVe models and TF-IDF methods, and implemented an intelligent psychological assessment system.
- **Leadership**: Led a team of five to productize the intelligent psychological assessment system using Python and SnowNLP library. The project won the Outstanding Award at the graduation ceremony.

Research Experience

Imperial College | Undergraduate Research Opportunity Program 2024.1 – Present

Supervisor: Dr. Stefan Vlaski

- **Advanced Network Optimization**: Self implemented a ten-week innovative research project on space-air-ground integrated networks (SAGIN), developing heuristic multi-agent multi-objective system algorithms to optimize resource allocation and multi-tasking offloading.
- **Algorithm Innovation**: Created and tested novel heuristic algorithms to improve UAV navigate strategies and navigation capabilities, significantly enhancing the adaptability of distributed machine learning in complex communication systems. Developed a comprehensive simulation framework to evaluate the performance and robustness of proposed algorithms under controlled environments.

Imperial College | Fundamental Research on ICP and Gaussian Scattering in Robotic Control 2023.11 – Present

Group Project

- **Machine Vision and Deep Learning Integration**: Focused on optimizing machine vision applications in home robots and 3D printing robotic arms. Analyzed and reproduced the latest ICP algorithms and integrated them with new 3DGS algorithms to significantly improve system efficiency and accuracy.
- **Gaussian Scattering Algorithm Research**: Developed and tested new algorithms combining Gaussian scattering techniques, improving the performance of robots and robotic arms in complex cleaning scenarios.

Shanghai University | Research on 5G ISAC & Sidelink Based on Deep Learning 2023.5 – Present

Supervisor: Professor Shu Gong Xu

- **Critical Analysis of Academic Papers**: Analyzed two research papers weekly, contributing insights and participating in academic discussions, staying updated on the latest developments in 5G NR Sidelink and ISAC technologies.
- **MATLAB**: Used system modeling for V2V Sidelink sensing modeling, combining integrated deep learning neural networks to process data with TDoA and AoA positioning methods, enhancing simulation accuracy and efficiency.

Wireless Robotics Control System Patent Application 2022.4 – 2023.1

Personal Project

- **Innovative Control System Design**: Applied for a patent for pioneering wireless intelligent robotic technology, enriching circuit design skills and practical prototype creation experience, driving innovation in control system development.
- **Technical Expansion**: Created a six-axis robotic arm prototype with a tracked chassis, operated via MQTT cloud server protocol. The innovative patent application has passed the preliminary review and is in the final review stage.

Additional Experience

Imperial College London | EEP1 CPU Laboratory Project 2023.9 – 2024.6

Technician

- **Experimental Design**: Simulated, analyzed, and implemented EEP1 CPU's ALU instructions, control paths, pipeline, and interrupt mechanisms, including functionalities and timing for instructions like ADD, AND, CMP, and MOV.
- **Control Path Implementation**: Developed and simulated various jump conditions and instructions, analyzed pipeline architecture, identified and resolved pipeline stalls, and developed and tested interrupt interfaces with multiple interrupt sources.
- **Assembler Development**: Converted assembly code to machine code using the EEP1 assembler, developed assembly language multiplication software routines using shifting and addition methods, and integrated hardware with external devices and interrupt handling.

GitHub Open Source Development 2023.11 – Present

Developer

- **Projects**: Developed projects involving data structures, algorithms, and machine learning, including NLP applications and intelligent AI chess game design.
- **Robot Dog Project**: Implemented ROS in complex robotic automation, optimizing sensor integration and execution control, enhancing the navigation system.

Shanghai University | Huawei Technologies First Wi-Fi Sensing Competition 2023.8 – 2023.11

Model Architecture Designer

- **Data Processing/Enhancement**: Extensively preprocessed data for channel matrix and antenna-related information. Enhanced CSI and RSSI datasets with noise addition and data interpolation techniques, improving model robustness and generalizability in different room scenarios.
- **Data Modeling**: Applied integrated modeling techniques, combining RNN and KNN models to create an ensemble model, significantly improving prediction accuracy and overall performance.

Shenzhen College of International Education | SCIE Engineers' Club 2020.6 – 2023.5

Founder & President

- **Leadership**: Organized monthly academic lectures, personal engineering projects, activities, and volunteer teaching.
- **Organization Management**: Managed daily club operations, organized study group meetings, assisted 30 members in revising engineering resumes, and organized small robotics and modeling competitions.

Skills & Awards

Language: Mandarin (Native), English(Fluent)

Technical Skills: Python, C++, Java, ROS, LT-Spice, Excel, Verilog, Linux, FCPX, Fusion360, SolidWorks

Certificates & Honors: British Physics Olympiad Senior Challenge (Global Gold), British Physics Olympiad Round 1 (Global Gold), American Mathematics Competition 12th Grade (Top 5% Globally), University of Waterloo Euclid Mathematics Contest (Distinction Award Top 5%), Physics Bowl (National Silver), Royal Academy of Music Piano Performance Examination (Grade 8 with Merit)