Yuxuan Gu

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Education

Imperial College London, UK 2021-2025
MEng in Electrical and Information Engineering | ***Dean's list in Years 1 and 2 (top 5%) and 3 (top 10%)***
Main Courses: Deep Learning, Computer Vision, Machine Learning, Statistical Signal Processing and Inference, Advanced Computer Architecture, Signals and Systems, Software Systems, Control Systems

Publication

- **Y. Gu**, C. Spurin, G. Wen. *Learning Pore-scale Multi-phase Flow from Experimental Data with Graph Neural Network*. Machine Learning and the Physical Sciences Workshop at the 38th conference on Neural Information Processing Systems (NeurIPS 2024), accepted.

Experience

CPU design internship, *arm, Cambridge, UK* April - Sept. 2024

- Helped design and develop a co-processor that accelerates matrix multiplication.
- Captured RTL events for performance evaluation and monitoring.
- Optimised decoders for better power, performance, and area (PPA) trade-off.

Machine Learning Part-time Undergraduate Researcher, *Imperial College London* March - Sept. 2024

- Utilised Graph Neural Network (GNN) to model multiphase fluid flow dynamics for CO_2 geological storage, hydrogen storage, and fuel cells using real experimental data.

Undergraduate Teaching Assistant (UTA), *Imperial College London* Sept. 2023 - March 2024

- Mentored students in Prob. and Stats. classes and Control drone labs and provided constructive feedback.

Undergraduate Researcher (UROP), *Imperial College London* July - Sept. 2023

- Developed a colour-tracking 4-DOF robotic arm using remote control within ROS2 framework.
- Derived forward and inverse kinematics and integrated a USB camera as a sensor within feedback loop.
- Utilised a Raspberry Pi for motor control via UART, implemented a remote controller and conducted stability analysis.

Software Engineer, *Evotrack* July - Sept. 2022

- Analysed usage data of E-vehicles charging stations in Paris and ran k-means clustering to divide stations into clusters.
- Achieved 90% accuracy in station utilization prediction using Gradient Boosting models.

Projects

Self-balancing autonomous maze-solving rover, *Imperial College London, UK* May-June 2023

- Designed a self-balancing rover for autonomous maze navigation, real-time mapping, and shortest path identification.

FPGA Multi-player Snake game, *Imperial College London, UK* Feb. - March 2023

- Developed a multiplayer Snake/Slither game using FPGAs with onboard accelerometers as direction controllers.

RISC-V CPU, *Imperial College London, UK* Dec 2022

- Utilised Verilator and System Verilog to design a single-cycle and a pipelined RISC-V CPU and implemented cache.
- Strengthened negotiation skills through collaboration with three teammates and organizing regular meetings.

Achievements and Awards

- **Dean's List** in Years 1 and 2 (**top 5%**) and 3 (**top 10%**) at Imperial College.
- **Top 1** accumulative marks in China - Recipient of the 2020 Cambridge Outstanding Learner Award for A Levels exams.

Skills

Programming Languages: C++ | Python | System Verilog | MATLAB | HTML | CSS | Numpy | Pandas | SciPy | Matplotlib

Technologies & Tools: Arduino | Raspberry Pi | Robot Operating System (ROS) | Git | Bash | Git | Linux | SQL | LaTeX

Languages: English (IELTS: overall 7.5 with each band no less than 7.0), Chinese (Native) .

Extra-Curricular Activities

- Active member of Imperial Badminton Club, attending social sessions and patiently teaching beginners.
- Active member of Imperial Chamber Music Society (see my violin performance in)