Ferris Prima NUGRAHA

Email: fpnugraha@connect.ust.hk, Website: ferrispnugraha.github.io
Room 3112A, Academic Building, HKUST, Clear Water Bay, Kowloon, Hong Kong

EDUCATION

Doctor of Philosophy in Electronic and Computer Engineering (Supervisor: Prof Qiming SHAO)
The Hong Kong University of Science and Technology (HKUST) Aug 2022 - Present
Research Interest: Electronic Design and Automation (EDA), Quantum Control, Superconducting Qubit and Qudit, Optimization, Hybrid Quantum System

Bachelor of Computer Engineering with Physics Minor
The Hong Kong University of Science and Technology (HKUST) Aug 2018 - June 2022

EXPERIENCE

Mentor of Undergraduate Research Opportunities (UROP) Feb 2024 - Present
Mentoring interested undergraduate students on projects related to quantum EDA tools (e.g. IBM Qiskit Metal, IQM KQCircuit, EDA-Q) and quantum control (e.g. QuTiP) to simulate superconducting quantum computing system.

Postgraduate Teaching Assistant (PGTA) Feb - June, Sept - Dec 2023
HKUST Department of Electronic and Computer Engineering ***Hong Kong***
Assisting in the delivery of educational materials and facilitating the students' learning experience in

- ELEC 2350: Computer Organization. (Spring 2023)
- ELEC 4010O: Practical Considerations of Analog Integrated Circuit Design. (Fall 2023)
- ELEC5200: Advanced Topics in Nanoelectronics. (Spring 2023, Tutorial)

Research Undergraduate Student Feb 2021 - June 2022
HKUST Spintronics Quantum Material Laboratory (SQML) ***Hong Kong***
Through the Undergraduate Research Opportunity Program (UROP), researching spintronics devices and their applications for Ising machine-based stochastic computing for undergraduate Final Year Thesis (FYT). Including exploration in quantum computing and related hardware.

IC Engineering Intern Jan - Feb 2021
Advanced Semiconductors Integrations, Ltd. ***Hong Kong***
Performed testing and characterization of sample ICs designed in the HQ. Involved SPI communication protocol to FPGA to test digital circuit design and utilized Logic Analyzer to calculate the dynamic performance of analog circuit design with Matlab. Coded in Python for Cyclic Redundancy Check (CRC) and created a digital design with Verilog.

PUBLICATIONS AND TALKS

Ferris Prima Nugraha, Yuhan Huang, Jiacheng Liu, Qiming Shao. Simulation Framework and Optimization of Superconducting Transmon-Tunable Coupler-Transmon Architecture for Qudit Gates. IEEE/ACM The 2025 International Conference on Computer-Aided Design (ICCAD). *(Accepted)*

Jiacheng Liu[†], **Ferris Prima Nugraha**[†], Qiming Shao. On-Chip Photon-Mediated Magnon-Superconducting Qubit System and Its Quantum Application. IEEE Electron Devices Technology and Manufacturing Conference (EDTM) 2025.

Kun Qian, Albert Lee, Zhihua Xiao, Haoran He, Shun Kong Cheung, Yuting Liu, **Ferris Prima Nugraha**, Qiming Shao*. Cryogenic In-Memory Computing Circuits with Giant Anomalous Hall Current in Magnetic Topological Insulators for Quantum Control. IEEE International Electron Devices Meeting (IEDM) 2024.

Jiacheng Liu, Yuzan Xiong, Jingming Liang, Xuezhao Wu, Chen Liu, Shun Kong Cheung, Zheyu Ren, Ruizi Liu, Andrew Christy, Zehan Chen, **Ferris Prima Nugraha**, Xi-Xiang Zhang, Chi Wah Leung, Wei Zhang, Qiming Shao. Strong Magnon-Magnon Coupling in an Ultralow Damping All-Magnetic-Insulator Heterostructure. Physical Review Applied 22, 034017 (2024).

Ferris Prima Nugraha, Qiming Shao. Machine Learning-Based Predictive Modeling for Designing Transmon Superconducting Qubits. IEEE International Conference on Quantum Computing and Engineering (QCE) 2023.

COURSES AND PROJECTS

- **UCLA x USC Quantum Device Workshop 2025, May 19-22, 2025**
- **IBM Qiskit Global Summer School 2023 - Quantum Excellence.**
- **ELEC 5210: Advanced Topics in Nanoelectronics**
- **ELEC 5040: Advanced Analog IC Analysis and Design**
- **ELEC 5070: Microelectronics Fabrication Technology**
- **ELEC 5050: Advanced CMOS Devices**
- **COMP 5212: Machine Learning**
- **COMP 5222: Advanced Machine Learning with Graphs**

AWARDS AND SCHOLARSHIPS

The Hong Kong PhD Fellowship Scheme (HKPFS)
Generous support from the Research Grants Council (RGC) of Hong Kong to pursue postgraduate studies at HKUST, commencing from 2022/23 academic year.

HKUST Academic Achievement Medal, Undergraduate Class of 2022
The Medal is presented to the top 1% of the graduates will be awarded the Medal each year, obtaining final cumulative grade average (CGA) of at least 3.9 with at least 60 HKUST credits in the calculation.

IET Prize 2020
Issued by the Institution of Engineering and Technology (IET) Hong Kong, the IET Prize and IET Manufacturing Engineering Student Prize are awarded every year to outstanding students who are doing or have completed an IET Accredited University course.

Gold Medal in International Physics Olympiad (IPhO), 2017
Held in Yogyakarta, Indonesia. One of five Indonesian delegates to compete in International Physics Olympiad selected after phases of national-level training.

Silver Medal in Asian Physics Olympiad (APhO), 2017
Held in Yakutsk, Russia. Selected as one of the eight Indonesian delegates.

Bronze Medal in Asian Physics Olympiad (APhO), 2016
Held in Hong Kong, China. Selected as one of the eight Indonesian delegates.

SKILLS

Language	Indonesian (Native), English (Professional, TOEFL iBT = 106/120), Mandarin (Intermediate, Duolingo Level 29)
Software	Qiskit Metal, QuTiP, Pytorch, Cadence Virtuoso, IQM KQCircuits, AWS Palace, STM32CubeIDE, Vivado Xilinx, KLayout