

Yulin Fu

Doctoral Candidate in Computer Science | University of Auckland | Auckland, New Zealand

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PhD student in Computer Science at the University of Auckland. My research focuses on hardware acceleration for deep learning, including FPGA-based edge AI systems, high-level synthesis (HLS) automation, and FPGA-driven LLM acceleration.

Education

- Sep 2025 - present PhD, Computer Science**
University of Auckland | Auckland, New Zealand
- Mar 2023 - Sep 2025 M.Sc., Computer Science**
University of Auckland | Auckland, New Zealand
- Sep 2019 - Jun 2023 B.E., Computer Science**
Northeast Forestry University | Harbin, China

Supervision

- Main Supervisor:** [Dr. Sean Longyu Ma](#)
- Co-supervisor:** [Associate Professor Bruce Sham](#)

Research Interests

FPGA-based Hardware Acceleration

Edge AI Systems

Neural Network Accelerators

High-Level Synthesis (HLS)

LLM Acceleration

Publications

- 2026 RedPIM: An Efficient PIM Accelerator Design with Reduced Analog-to-Digital Conversions**
J. Li, Y. Fu, S. Longyu, et al.
ACM Transactions on Design Automation of Electronic Systems | journal
DOI: 10.1145/3769122
- 2025 FPGA-based real-time image tampering detection system for edge computing**
Y. Fu, J. Li, S. Longyu, et al.
2025 IEEE 14th Global Conference on Consumer Electronics (GCCE) | conference
DOI: 10.1109/GCCE65946.2025.11274616
- 2025 Enhancing Synthesis Efficiency in HLS through LLM-Based Automated Code Correction**
Z. Zhang, Y. Fu, J. Li, et al.
2025 IEEE 14th Global Conference on Consumer Electronics (GCCE) | conference
DOI: 10.1109/GCCE65946.2025.11274689
- 2025 Efficient Real-Time Railway Fault Detection Using FPGA-Based Edge AI System**
Y. Fu (S. L. Ma, editor)
Masters Thesis, University of Auckland | thesis
[Link](#)
- 2025 An Efficient FPGA-Based Edge AI System for Railway Fault Detection**
Y. Fu, D. Yan, J. Li, et al.
IEEE Consumer Electronics Magazine | journal
DOI: 10.1109/MCE.2025.3527118 | [Link](#)

6. **2025** **A Review of FPGA-Driven LLM Acceleration**
Y. Fu, J. Li, C. Cheng, et al.
2025 IEEE 18th International Symposium on Embedded Multicore/Many-core Systems-on-Chip (MCSoc) | conference
DOI: 10.1109/MCSOC67473.2025.00018
7. **2024** **An Edge AI System Based on FPGA Platform for Railway Fault Detection**
J. Li, Y. Fu, D. Yan, et al.
2024 IEEE 13th Global Conference on Consumer Electronics (GCCE) | conference
DOI: 10.1109/GCCE62371.2024.10760330 | [Link](#)
8. **2024** **A Framework for Mapping Convolutional Neural Network onto Memristor Crossbars**
J. Li, Y. Fu, C.-W. Sham, et al.
2024 IEEE 13th Global Conference on Consumer Electronics (GCCE) | conference
DOI: 10.1109/GCCE62371.2024.10760655 | [Link](#)

Talks and Presentations

- **Dec 2025** **Presented at MCSoc 2025**
Online
Presented at the IEEE 18th International Symposium on Embedded Multicore/Many-core Systems-on-Chip (MCSoc 2025).
- **Oct 2025** **Online presentation at GCCE 2025**
Online
Delivered an online presentation at the IEEE 14th Global Conference on Consumer Electronics (GCCE 2025).
- **Nov 2024** **Presented on-site at GCCE 2024 in Japan**
Kitakyushu, Japan
Delivered an in-person presentation at the IEEE 13th Global Conference on Consumer Electronics (GCCE 2024).

Selected Milestones and Activities

- **May 2024** **Pervasive AI Developer Contest with AMD on Hackster.io**
Participated with a railway inspection robot project for automated fault detection.
- **Jan 2024** **Joined Dr. Sean Longyu Ma's research group**
Joined Dr. Sean Longyu Ma's research group and began research under his supervision.
- **Jun 2023** **Received B.E. degree from Northeast Forestry University**
Received the undergraduate graduation certificate and was awarded the Bachelor of Engineering degree.
Harbin, China
- **Mar 2023** **Started M.Sc. in Computer Science at the University of Auckland**
Began the Master of Science program in Computer Science at the University of Auckland.
Auckland, New Zealand

Academic Service

- **Reviewer**, ICONIP 2024 - Review certificate available
- **Reviewer**, ICCAD 2026
- **Reviewer**, IEEE Consumer Electronics Magazine