Jinming Ren

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Education

University of Electronic Science and Technology of China (UESTC) Sept 2022 — Present

University of Glasgow, Dual Degree Program Sept 2022 — Present

- **Major**: Electrical & Communication Engineering BEng; GPA: 3.87/4.0, Ranking: 2/164 (Top 1.2%)
- **Relevant Coursework**: Information Theory, Artificial Intelligence and Machine Learning, Stochastic Processes, Digital Circuit Design, etc.
- **Online Course**: Abstract Algebra, Complex Analysis, Differential Geometry, Convex Optimization, etc.

Research & Projects

System-level Co-Design of RISCV Accelerators for TinyML at the Edge Sept 2025 — Present

Research Assistant, Prof. Yun Li, UESTC

- Designing, implementing and verifying hardware-accelerated DSC and attention kernels in Vision Transformer (ViT) using `C++` with RISCV Vector (RVV) intrinsics that are adaptable and efficient for edge computing in Coral NPU framework open-sourced by Google and VeriSilicon in 2025.
- Simulating and building with `Verilator`, `Cocotb`, `Bazel` and `CMakeLists`. Testing on Arty A100T FPGA with real-time camera input and UART object position output.

YOPO: You Only Pick Once — Light Object Tracking Algorithm Sept 2025

- Developed a lightweight object tracking algorithm that requires only one initial selection, successfully mitigate the intense computation of DNN forward propagation on every frame.
- Utilized NCC-based matching, adaptive kernel updating, capable of tracking objects with gradual color and size changes.

Control and Computer Vision for Autonomous Quadcopter System Feb 2025 — Jun 2025

- Developed an auto quadrotor aircraft for objection detection, route planning, and closed-loop flight control.
- Used `ROS2` and `OpenCV` library to implement originally designed computer vision algorithms for real-time landing area detection.

Design and Visualization of a Complete Single-cycle RV32I CPU Core Jan 2025 — Mar 2025

- Designed a single-core, single-cycle RISCV 32-bit CPU from scratch in `Verilog` for RTL simulation and in `Digital` Software for working principle visualization, open-sourced on Github.
- Built a complete datapath including PC, fetcher, decoder, register file, ALU, LRU-based L1 cache, etc., compatible with basic peripherals: GPIOs, IIC, UART, etc.
- Implemented a boot program in RISCV assembly, basic delay and GPIO libraries in `C`. Compiled and simulated using RISCV GNU toolchain.

CNN/LSTM for Embedded Systems Feb 2024 — May 2024

- Designed and Integrated CNN and LSTM models into STM32 MCU for end-to-end patient fall detection of accuracy 95%, temperature monitoring and real-time data visualization.
- Manually collected and labeled time-series 3D acceleration dataset. Trained models on Linux, then hard-coded and accelerated them in `C++` on MbedOS for real-time inference.

Relevant Skills

IT Skills	Latex, Quarto Markdown, Linux, Manim, Github.
Programming	`C/C++`, `Python`, `RISCV Assembly`, `Verilog`, `Makefile`, `Bazel`, `Chisel`, `Matlab`.
Language	Native Chinese, Fluent English (IELTS 7).

Awards

Top Academic Scholarship of UESTC (Top 5%) Dec 2023, Dec 2024

China National Scholarship (Top 0.2%) Dec 2024

First Prize: 7th National College Art Exhibition and Performance (Violin section) Sept 2024