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**: Electronic and Computer Engineering; GPA: 3.87/4.0, Ranking: 7/165 (Top 4%)
- **Relevant Coursework**: Signals and Systems, Stochastic Processes, Artificial Intelligence and Machine Learning, Information Theory, Electrodynamics, Digital Circuit Design, etc.
- **Online Course**: Abstract Algebra, Complex Analysis, Differential Geometry, Control Theory, etc.

RESEARCH

System-level Co-Design of RISCV Accelerators for TinyML at the Edge (*On going*)

- Designing and implementing hardware-accelerated TinyML kernels that are adaptable and efficient for edge computing scenarios using `Chisel`, `Verilog`, `Python` and `C++`.
- Exploring a large multi-dimensional design space using automated methods (such as heuristic or evolutionary algorithms) to identify optimal configurations balancing accuracy, energy, and latency.
- Conducted under the supervision of Prof. Yun Li.

Movable Antenna (MA) for Anti-jamming (*Feb 2025 — Jun 2025*)

- Conducted a heuristic investigation into Anti-jamming through stochastic antenna movement under the supervision of Prof. Weidong Mei.

PROJECTS

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

- Developed a automatic 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.

Visual RV32I CPU Core (*Jan 2025 — Mar 2025*)

- Designed and simulated an entire RISCV 32-bit CPU from scratch in `Digital` Software for working principle visualization.
- Supported basic peripherals: GPIOs, IIC, UART, etc.
- Simple boot ROM in assembly, minimal interrupt service for running a Linux kernel.

Adaptive Markov Entropy Source Encoding (*Oct 2024 — Nov 2024*)

- Originally-designed the second-order Markov Adapative Approximation (AME) to perform source coding of *the Game of Thrones* using `Python` and `Matlab`.
- Evaluated and compared the performance of AME, Huffman and Fano coding.

CNN for Mbed (*Feb 2024 — May 2024*)

- Integrated a convolutional neural network (CNN) into an MCU using `C` in `MbedOS`.

- Smart fall detection, body temperature monitoring and real-time data visualization for patients.

Human Voice Recognition Smart Car (*Sept 2023 — Dec 2023*)

- Designed and implemented a small car capable of recognizing human voice commands and performing corresponding actions including moving forwards/backwards, turning/sliding left/right using standard library in `C` on STM32F103.
- Led a 4-member team in the project.

Digital Door Lock for Dormitory (*Sept 2023 — Oct 2023*)

- Designed and implemented an embedded digital door lock system in `C++` on Nucleo L432KC MCU. Basic functions include manually setting up password, automatically lock for repeated wrong passwords, OLED message displaying, etc.
- Led a 3-member team in the project.

First Place in "XinTong Cup" Electronic Design Competition (*Sept 2022 — Oct 2022*)

- Designed and implemented a 8-key music player using register-based development in `Keil C51` on STC89C52 MCU.
- Functionality includes single note/chord playing, recording, replay and rewind capability, etc.

RELEVANT SKILLS

- **IT Skills**: Latex, Quarto Markdown, Typst, Manim, Github, Microsoft Office.
- **Computer Programming**: `C/C++`, `Python`, `Matlab`, `Verilog`, `Chisel`, `RISCV Assembly`.
- **Language**: Native Chinese, Fluent English.

AWARDS

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

China National Scholarship (Top 3%) (*Dec 2024*)

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