# 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**: Communication Engineering; GPA: 3.87/4.0, Ranking: 2/164 (Top 1.2%).
- **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**    Ongoing

*Research Assistant, Professor Yun Li, UESTC*

- Designing, implementing and verifying hardware-accelerated DSC and attention kernels in ViT using `C++` with RVV intrinsics that are adaptable and efficient for edge computing in Coral NPU framework open-sourced by Google and VeriSilicon.
- Exploring a large multi-dimensional design space using automated methods (e.g. heuristic and evolutionary algorithms) to identify optimal configurations balancing accuracy, energy, and latency.

**GAT-based Multi-Task RL for Robust PVT-Aware Analog Design**    Aug 2025 — Oct 2025

*Research Assistant, Professor Yun Li, UESTC*

- Proposed a GAT-based multi-task Reinforcement Learning framework to optimize analog circuits under diverse PVT corners.
- Modeled PVT conditions as graph nodes, enabling adaptive attention to corner-specific bottlenecks.
- Reduced specific violations by 19× and simulations by 69% on `AnalogGym` benchmarks.

## PROJECTS

**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 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.

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

- Designed and simulated an entire RISCV 32-bit CPU from scratch in `Verilog` for RTL simulation and in `Digital` Software for working principle visualization.
- Supported basic peripherals: GPIOs, IIC, UART, etc.
- Implemented a 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 Adaptive Encoding (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 Embedded Systems**                                          Feb 2024 — May 2024

- Integrated a convolutional neural network (CNN) into an MCU using `C` in `MbedOS`.
- Enabled 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 voice-controlled car on STM32F103 using C standard libraries, supporting actions such as moving forwards/backwards, turning/sliding left/right.
- 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.
- Developed 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.

## RELEVANT SKILLS

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

## AWARDS

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| **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 |