Jinming Ren

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EDUCATION

- **University of Electronic Science and Technology of China (UESTC)** (*Sept 2022 — Present*)
  - Student, School of Communication Engineering.
- **University of Glasgow, Scotland, UK** (*Sept 2022 — present*)
  - Student, School of Electronic and Computer Engineering.

ENGAGED PROJECTS

System-Level Co-Design and AI-EDA of RISC-V Accelerators for TinyML at the Edge (*On going*)

- ***Main tools***: `C++`, `scala`, `python`, `verilog`.
- Designing and implementing hardware-accelerated TinyML kernels that are adaptable and efficient for edge computing scenarios.
- 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.

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

- ***Main tools***: `python`, `ROS2`.
- Automatic quadrotor aircraft for objection detection, route planning, and closed-loop flight control.
- 6-people team.

RV32I CPU Core for Education (*Jan 2025 — Mar 2025*)

- ***Main tools***: `verilog`, `VHDL`, `Digital`, Kicad, iCESuger FPGA.
- Simulated an entire RISC-V 32 bit CPU *from scratch* in `Digital` Software (for visualization).
- The working principle of CPU has never been so tangible and visualized before.
- Support basic peripherals: GPIOs, IIC, UART, etc.
- Simple boot ROM in assembly, minimal interrupt service for running a Linux kernel.

AME Source Coding (*Oct 2024 — Nov 2024*)

- ***Main tools***: `python`, `matlab`.
- Final project of **Information Theory** Course.
- Second-order Markov Adapative Approximation (AME) to source-coding *the Game of Thrones*.
- Performance evaluation of Huffman and Fano coding.

CNN for Mbed (*Feb 2024 — May 2024*)

- ***Main tools***: `python`, `C++`.
- Convolutional Neural Network (CNN) integration into an MCU.
- Smart fall detection, body temperature monitoring and real-time data visualization for patients.

A Study of Generalized Fields and Extension to Higher Dimensions[1] (*Oct 2023 — Feb 2024*)

- A theoretical study of generalized natural fields and behaviours in higher dimensions.

- Largely motivated by my tutor Mr. Yidong Liu and my friends and completed by myself.

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

- ***Main tools***: `C++`, STM32F103C8T6 MCU, etc.
- Leader of a 4-people team.
- English words recognition for car movement controlling.
- Basic operations: Moving forwards and backwards, turning or sliding left and right, etc.

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

- ***Main tools***: `C++`, Nucleo L432KC MCU, Mbed library, OLED screen, etc.
- The final project of the Microelectronic System course.
- Opening the dormitory door by password input.
- Basic functions: Setting up password manually, automatically lock for repeated wrong passwords, OLED message displaying, etc.

"XinTong Cup" Electronic Design Competition: Electronic Music Player (*Sept 2022 — Oct 2022*)

- ***Main tools***: `Keil C51`, STC89C52RC MCU, etc.
- Leader of 3-people team.
- A simplified 8-key music player using register-based development on a 8-bit MCU by ST company.
- Functionality: Single note playing, chord playing, recording ability, replay and rewind capability, etc.

ACADEMIC RECORD[2]

Table 1: Core courses score (**GPA: 3.87**/4.00, **Avg: 87.79**/100, **rank: 5**/168)

Year	Subject	Score (Full mark: 100)
Year 1	**Calculus I/II**	**91/92**
	Linear Algebra	**84**
	C Programming	**95**
	Physics I	**88**
Year 2	**Physics II**	**96**
	Signal and Systems	**91**
	Probability and Statistics	**92**
	Microelectronic Systems	92
	Embedded Processors	**95**
	Circuit Analysis and Design	**95**
	Computer Network	94
	Academic English	**89**
Year 3	Information Theory	91
	Principles of Communication	95
	Digital Circuit Design	**86**
	Machine Learning	86
	Stochastic Signal Analysis	**82**
	Communication Circuit Design	**92**
	Electromagnetic Field and Microwave Technology	**88**

RELEVANT SKILLS

- **IT Skills**: Latex, (Quarto) Markdown, Typst, Manim, Github, Microsoft Office.
- **Computer Programming**: `C/C++`, `Matlab`, `Python`.
- **Embedded System Programming**: `RISCV assembly`, `verilog`, `VHDL`, STM89C5x (Standard lib), Keil C51.
- **Math**: Self learned (Abstract Algebra (Harvard E-222)), Point-set Topology, Measure Theory, Complex Analysis (MIT 18.04), Functional Analysis, Elementary Differential Geometry, Lie Groups and Lie Algebras (*still learning*). I didn't focus on all epsilons and deltas, but their motivations and application potentials.
- **Team Work**: Zoom meeting, Notion team, Microsoft team.
- **Language**: GRE score 317. No problem in understanding English lectures, native Chinese.

OTHERS

Awards

- **First Prize in the 7th National College Student Art Exhibition and Performance**: Symphony No. 4 in D minor, Op. 120, 4th movement, by Robert Schumann. (In violin section)
- **Top Academic Scholarship of UESTC**: First-class Scholarship for the past two years.
- **China National Scholarship, 2024**: Prestigious national award granted for academic excellence, leadership, and overall achievement.

Interests

- **Classical Music Enthusiast** : Violin player in UESTC symphony orchestra, votary of legendary composer Gustav Mahler and Johann Sebastian Bach.
- **Badminton Lover** : Sports always refreshes me at any time.
- **Learning Everything** : I believe everything is *learnable* by *First Principle Thinking* and *curiosity*.
- **Volunteer Work** : Enjoy helping others. Over 15 hours of volunteering.