



# 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 Adaptive 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<sup>1</sup> (*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<sup>2</sup>

Table 1: Detailed scores of core courses (**GPA: 3.88/4.00, rank: 5/168**)

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

## 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.