Erjing Luo (罗尔竟)

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BIOGRAGHY

I am a senior student majoring in Electronic Information Engineering at Beijing Institute of Technology, expected to graduate in June 2023. My research interests include FPGA-based reconfigurable computing, domain-specific architecture for deep learning and digital VLSI design. At present, I am aiming for a MSc position for 2023 Fall.

EDUCATION

Beijing Institute of Technology (BIT), *Sep 2019 – Present*
School of Information and Electronics *Beijing, China*
B.Eng in Electronic Information Engineering *Expected in June 2023*

- First-3-year GPA: **91.05/100**
- First-3-year Academic Performance Rank: **14/389 (top 3.6%)**
- Related Courses:

Mathematical Analysis for Engineering I	**100**	C Language Programming	**98**
Mathematical Analysis for Engineering II	**90**	Data Structure and Algorithm Design (Described in C++)	**92**
Linear Algebra A	**99**	Design of Embedded System Based on ARM Processor	**100**
Probability and Mathematical Statistics	**95**	Fundamental of FPGA and SOPC Design	**94**
College Physics A I	**98**	Physics of Semiconductor	**94**
College Physics A II	**100**	Theory of Electromagnetic Fields A	**92**
Signal and Systems A	**98**	Integrated Circuits Engineering	**88**

RESEARCH EXPERIENCE

➢ **State Key Laboratory of Computer Architecture, Institute of Computing Technology, Chinese Academy of Sciences** *Mar 2022 – Present*
Research Assistant *Beijing, China*

Topic: FPGA-based reconfigurable computing for deep learning
Supervisor: Dr. Cheng Liu, Associate Professor

- Explore the methodology of hardware-aware neural architecture search;
- Design low bit-width DSP-unit packing techniques for efficient inference;
- Explore approximate computing for CNN models;
- **The 3rd place in the 2022 DAC System Design Contest**, *San Francisco, USA, Jul 2022*. (Results)

➢ **Microelectronics Technology Lab, Beijing Institute of Technology** *Nov 2021 – Oct 2022*
National College Student Innovation and Entrepreneurship Project *Beijing, China*
Project Leader

Topic: Real-time vehicle license plate recognition system based on FT2000/4 processor
Supervisor: Ms. Lei Zhang, Lecturer and Technician

- Design high performance JPEG encoder and decoder;
- Optimize vehicle license plate recognition algorithm;
- Explore learning in frequency domain for computer vision, and fuse it into our JPEG encoder-to-decoder dataflow to accelerate the whole system;
- **National first prize in the 6th China College IC Contest (Phytium track)**, *Chongqing, China, Aug 2022*.

INDUSTIAL EXPERIENCE

- **Nanjing IC Training Base** *Jul 2021*
  Summer Training Program *Nanjing, China*
  Trainee
  - Training for EDA tools (e.g. Design Compiler, VCS, and Cadence Virtuoso);
  - Design methodology of low-power VLSI design;
  - RISC-V SoC design case study and analysis.

SELECTED AWARDS & HONORS

- National Third Prize of the 4th National College Students Embedded Chip and System Design Contest (Chip Design Track), *Nanjing, China, Oct 2021*.
- Second Prize of the 7th China International 'Internet Plus' College Students Innovation and Entrepreneurship Contest (in Beijing Area), *Beijing, China, Aug 2021*.
- Second-class Scholarship for Academic Excellence*, Beijing Institute of Technology, Apr 2022, Nov 2021, Jun 2021, Nov 2020, May 2020*.
- Third Prize of the 37th National Physics Contest for College Students, *Beijing, China, Dec 2020*.

SELECTED COURSE PROJECTS

- **Mail Box System and Encryption Transmission** *Dec 2021*
  Tutor: Prof. Senlin Luo
  - Design a mail box system based on SMTP and POP3;
  - Utilize Advanced Encryption Standard to encrypt email;
  - Compatible to various common-used mail box service providers.

- **FM Music Synthesizer Based on S5PV210 Processor** *Oct 2021 – Nov 2021*
  Tutor: Prof. Hai Li
  - Design a parameterized FM music synthesizer to imitate different instruments;
  - Optimize the synthesizer's implementation on resource-limited embedded system.

- **Simulation of a Microwave Dryer** *Apr 2021 – Jun 2021*
  Tutor: Prof. Wu Ren
  - Design a microwave dryer inspired by slotted waveguide antenna;
  - Adjust and optimize design parameters through HFSS-based simulation.

SKILLS

- Programming Languages: C/C++, Python
- Hardware Description Languages: Verilog, VHDL
- Software & Tools: Matlab, Vivado, Vivado HLS, Pytorch, Design Compiler, Virtuoso, Modelsim, HFSS
- English: IELTS: 7.0 CET6: 580