Linrui Jiang

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EDUCATION

University of Electronic Science and Technology of China (UESTC) Chengdu, CHN
B.Eng. with Merit, Electronic Science and Technology *Sept. 2020 - Present*
- **GPA:** 3.95/4.00 | **Weighted Average:** 92.9/100 | **Ranking:** 3/158 | **ECE-Only GPA:** 4.00/4.00

PUBLICATION

- C. Li, S. Li, **L. Jiang**, B. Guo, J. Zhang, Z. Ye, and Y. Lin, "Generalized Neural Radiance Field Accelerator for Edge AR/VR", *Submitted to ISCA 2024*

RESEARCH EXPERIENCE

AIoT Smart ICs & Systems Lab @ UESTC Chengdu, CHN
Mentor: Prof. Jun Zhou *Oct. 2023 - Present*
- **ARM-FPGA Co-designed Frameworks**
  - Designed a speaker recognition framework on the Xilinx heterogeneous acceleration SoC. Built, trained and optimized a hardware-friendly probabilistic linear discriminant analysis (PLDA) on the ARM core; designed an FPGA accelerator to further accelerate the algorithm.
  - Reduced the algorithm's Equal Error Rate (**EER**) **from 26% to 4%** in the first edition.

Efficient & Intelligent Computing Lab @ Georgia Tech Atlanta, USA
Mentor: Prof. Yingyan (Celine) Lin *May 2023 - Present*
- **A Generalized Neural Radiance Field Accelerator for Edge AR/VR**
  - Proposed a measurement method for the CPU, GPU, DSP and NPU performance on the Snapdragon 8 Gen 2 Mobile Platform. Implemented the framework first in a Docker container and then using Android Studio IDE with the Qualcomm Innovators Development Kit (QIDK) repository.
  - Utilized the Neural Processing SDK for AI to run neural networks on edge devices. Employed AI Engine Direct SDK to invoke Qualcomm accelerators. Applied AI Model Efficiency Tool Kit to compress algorithm models for higher efficiency and lower latency.
  - Obtained positive feedback and device support from the Qualcomm QIDK and QNN Team. This work is **part of an ISCA 2024 submission**.
- **Benchmark Survey of Reconfigurable Accelerator Co-design**
  - Contributed to a benchmark about reconfigurable accelerators by surveying their abilities (including the reconfiguration of PEs, network, compiling/mapping and dataflow) and performances (including flexibility, stability and energy efficiency).

Nanovisualization Research Group @ KAUST Thuwal, SAU
Mentor: Prof. Ivan Viola *June 2022 - July 2022*
- **Algorithms Optimization in a Game Design Project**
  - Reconstructed the Chrome Dino game on a platform called Shader Editor using the Web GPU Shading Language. Designed the game for fast response and precise detection. Proposed a two-step solution for collision detection, which combines Bounding Box (first step) and Detailed Rectangles (second step).
  - Implemented the optimized algorithms to reduce the number of Detailed Rectangles that need to be activated. Reduced the react time **from 94ms to 27ms, achieving real-time reaction**. [Demo]

LEADERSHIP & SERVICES

Diversity Support Event Chengdu, CHN
Lead Student *Sept. 2022 - Present*
- Led a peer volunteer support group to assist over 120 students (mainly underrepresented groups: Women in STEM & First-generation college students) applying to graduate programmes.
- Committed 2 hours per week to provide guidance, suggestions and mentorship with 14 partners. To date, they received offers from prestigious universities: CUHK (×1), HKUST (×1), UESTC (×4) and KAUST (×1).

Research Enlightenment Project Chengdu, CHN
Lead Student *Mar. 2021 - Sept. 2021*
- Led a 5 freshman team to complete a research project named Carbon Fibre Material Detection. Verified the feasibility of the detection of carbon fibre material by using THz waves, implemented in MATLAB and LabVIEW.
- Won the first place out of the nine groups.

HONORS & AWARDS

China National Scholarship, top 1%, Ministry of Education of the PRC Dec. 2022
Excellent Student Scholarship, top 10%, UESTC Dec. 2022
Academic Outstanding Scholarship, top 15%, School of ESE Dec. 2021

SKILLS

Programming Language: C/C++, Python, Java, Verilog; MATLAB, LaTeX
Development Tool: Android Studio, Docker, Linux; Keil, Altium Designer, Vivado
Experience: Cleanroom (In 2023 Spring Semester)

Update: November 29, 2023