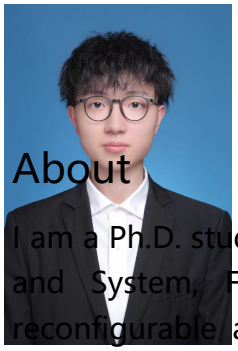

Jiahang Lou 楼佳杭

About

I am a Ph.D. student in Electronics Engineering (EE) at the State Key Laboratory of Integrated Circuits and System, Fudan University, supervised by Prof. Lingli Wang. My research focuses on reconfigurable architectures (e.g. CGRAs) and AI compiler design, with a particular emphasis on MLIR-based compilation frameworks, tensor dataflow optimization, and heterogeneous CGRA–CPU systems for AI workloads.

I have published as the first author at DATE 2024 and DAC 2025, and have participated in several national and international competitions related to electronic design and GPU programming.

Research Interests

- Coarse-grained Reconfigurable Architectures (CGRAs)
- Compiler design and MLIR-based compilation frameworks
- Polyhedral model and loop transformations
- Heterogeneous accelerator–CPU systems
- AI compilers and dataflow optimization for DNNs

Experience

Internship Experience

- AMD (Advanced Micro Devices), Shanghai — GPU Post Silicon Intern – Semi-Custom Business Unit (SCBU)· Aug. 2021 – Jan. 2022
- Developed Python-based tools and infrastructure for post-silicon validation and internal server platforms.
- Built a runtime power monitor for key on-board nodes using STM32 and ADC chips.
- The 5th national College IC Competition for innovation and entrepreneurship (CICC) - Competition Technical Assistant·Feb. 2021 – Aug. 2021
- One of the 17 technical assistants of the competition, responsible for the communication and coordination among the Alibaba T-head company, organizers of the contest and the participating teams, and answer technical questions for the contestants.
- 第五届集创赛助理 获“优秀杯赛助理奖”

Publications

Hosting Fusion SoC Tutorial-Workshop at FPT 2025 link

International Conference on Field Programmable Technology Workshop (FPT 2025-workshop), ShanghaiTe
2025-12-02
Hosted by Lingli Wang's group, including Yuan Dai, Jiahang Lou, Jingyuan Li, Huan Lin, Guibin Zou, XinYu Cai and other team members.

Adora Compiler: End-to-End Optimization for High-Efficiency Dataflow Acceleration and Task Pipe

Design Automation Conference (DAC 2025), San Francisco, USA
2025-06-21
Jiahang Lou, Qilong Zhu, Yuan Dai， Zewei Zhong, Wenbo Yin and Lingli Wang.

CFEACT: A CGRA-based Framework Enabling Agile CNN and Transformer Accelerator Design

34th International Conference on Field-Programmable Logic and Applications (FPL 2024)
2024-09-02
Yiqing Mao, Xuchen Gao, Jiahang Lou, Yunhui Qiu, Wenbo Yin, Wai-Shing Luk, Lingli Wang.

MDCRA: A Reconfigurable Accelerator Framework for Multiple Dataflow Lanes

35th IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP 202
2024-07-15
Shaoyang Sun, Boyin Jin, Jiahang Lou, Jiangnan Li, Yuhang Cao, Jingyuan Li, Chen Shen, Yuan Dai, Wenbo Yin, Wai-Shing Luk, Lingli Wang.

An Agile Deploying Approach for Large-Scale Workloads on CGRA-CPU Architecture

Design, Automation & Test in Europe Conference & Exhibition (DATE 2024), Valencia, Spain
2024-03-22
Jiahang Lou, Xuchen Gao, Yiqing Mao, Yunhui Qiu, Yihan Hu, Wenbo Yin and Lingli Wang.

Awards

Competition Awards

- 2024 Biren Technology “Flying Cup” GPU Programming Challenge — National First Place · 40,000 RMB · Jul. 2024 – Aug. 2024.
- GPU-based development of AI operators with performance-optimized CUDA kernels and system-level integration.
- 2024年壁仞科技“飞翔杯”GPU编程大赛 全国第一名 · 40000元。
- 2023 “Fudan Electronics Cup” National College Electronic Design Competition — National First Prize · 20,000 RMB · May 2023 – Aug. 2023.
- MLIR-based compiler development for AI model quantization and deployment on embedded platforms.
- 2023年复旦微全国大学生电子设计大赛 软硬件赛道 全国一等奖 · 20000元。
- The 5th National College IC Competition for Innovation and Entrepreneurship (CICC) — Second Prize of National Finals · 15,000 RMB · Mar. 2021 – Aug. 2021.
- Led a team to develop a speech-controlled wireless smart helmet based on Xilinx FPGA and IEEE 802.11ah, covering hardware/software architecture, low-level I/O, speech recognition accelerator (Verilog), RISC-V CPU integration, and SDK software.
- 2021年第五届全国大学生集成电路创新创业大赛 国家级二等奖 · 15000元。

Scholarship Awards

- Graduate First-Class Scholarship of Fudan University (复旦大学研究生一等奖学金), 2024.
- Graduate First-Class Scholarship of Fudan University (复旦大学研究生一等奖学金), 2023.
- University-Level First-Class Scholarship (Huawei Scholarship) of Fudan University (复旦大学校级奖学金一等奖（华为奖学金）), 2021.
- University-Level First-Class Scholarship (Guanghua Scholarship) of Fudan University (复旦大学校级奖学金一等奖（光华奖学金）), 2019.
- University-Level Second-Class Scholarship of Fudan University (复旦大学校级奖学金二等奖), 2022.