Xuehan Zhang

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EDUCATION

BEng Student in Computer Science and Technology 09/2021–now
University of Science and Technology of China (USTC) Hefei, China
- School of the Gifted Young (skipped the last two years of high school)
- GPA: 3.90/4.3, Rank: 13/254 (Top 5%)

CORE COURSES

Computer Organization and Design (92)	Introduction to Computing Systems A (100)
Analog and Digital Circuits (91)	Syllabus of Digital Logic Lab (95)
Principles and Techniques of Compiler (90)	Data Structures (96)

RESEARCH INTERESTS

Genuine Computer Architecture for Artificial Intelligence

Instruction set architecture: Investigating the development of specialized ISAs that enhance the execution of AI algorithms, while focusing on the balance between general-purpose computing and domain-specific optimizations.
Microarchitecture (organization): Exploring the design of microarchitectures that effectively support AI functionality, as well as organization mechanisms customized for the unique demands of neural network computation.
Hardware: Analyzing the impact of hardware technologies including GPUs, FPGAs and emerging memory, with a particular interest in the co-design of processors and accelerators that are tailored for AI applications.

RESEARCH EXPERIENCE

Few-Shot Learning with Graph Neural Networks 09/2022–06/2024
Advised by Prof. Xiangnan He, Lab for Data Science, University of Science and Technology of China Hefei, China
- Implemented and refined advanced GNN models using PyTorch.
- Addressed the cold start problem through original model development and iterative enhancements.
- Explored the integration of NLP-inspired methods in GNNs for temporal graph analysis.

Prompt for Transfer Learning [code] 07/2023–08/2023
Advised by Prof. Jiawei Zhang, IFM Lab, University of California, Davis Davis, CA
- Leveraged transfer learning techniques to tune pre-trained GNN models for efficient node classification.
- Implemented custom prompting methods to harmonize feature representation across different graph datasets.
- Devised similarity-based label embedding strategies to align pre-training and downstream tasks.

TEACHING EXPERIENCE

Teaching Assistant, Function of Complex Variable B Fall 2023
University of Science and Technology of China Hefei, China

SELECTED PROJECTS

Computer Organization and Design | Verilog Spring 2023
- a RISC-V CPU with a five-stage pipeline and branch prediction
- a set-associative cache with LRU replacement policy

gem5 Benchmark Automation | C++, Python [code] [figures] Spring 2024
- gem5 simulation automation for benchmarking and performance analysis
- scripting for workload generation, simulation execution, and result visualization

TECHNICAL STRENGTHS

English: TOEFL iBT 107 (R: 29, L: 30, S: 23, W: 25)
Languages: C/C++, Python, Java, Verilog, SQL, Assembly (x86, arm)
Tools: Bash, Git, GDB, CUDA, PyTorch, gem5, LaTeX