Zuoyan Zhang

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Education

Hunan University *Sep 2024 – present*
PhD in Computer Science and Technology

- Research Interests: ML Compilers, LLM Distribution Training Acceleration

Information Engineering University *Sep 2021 – Jun 2024*
Master in Computer Technology

- GPA: 88.7/100
- Laboratory: State Key Laboratory of Mathematical Engineering and Advanced Computing
- Research Interests: High Performance Computing, Floating-point Analysis, Precision Tuning

Henan University of Technology *Sep 2017 – Jun 2021*
Bachelor in Computer Science and Technology

- GPA: 3.0/5.0

Experience

Intern Research *Beijing, China*
AI for Science Institute *June 2023 – Sep 2023*

- Accuracy testing of ABACUS core numerical functions for DFT software
- Design different precision test schemes for different function types
- Complete precision tests for Simpson's integral and real spherical harmonic functions and implement of test code

Publications

Arfa: An agile Regime-based Floating-point Optimization Approach for Rounding Errors Sep 2024

Jinchen Xu, Mengqi Cui, Fei Li, ***Zuoyan Zhang***, Hongru Yang, Bei Zhou, Jie Zhao

In Proceedings of the 33rd ACM International Symposium on Software Testing and Analysis (**ISSTA 2024**)

10.1145/3650212.3680378

Eiffel: Inferring Input Ranges of Significant Floating-point Errors via Polynomial Extrapolation Sep 2023

Zuoyan Zhang, Bei Zhou, Jiangwei Hao, Hongru Yang, Mengqi Cui, Yuchang Zhou, Guanghui Song, Fei Li, Jinchen Xu, Jie Zhao

In Proceedings of the 38th IEEE/ACM International Conference on Automated Software Engineering (**ASE 2023**)

10.1109/ASE56229.2023.00139

Hierarchical search algorithm for error detection in floating-point arithmetic expressions Jun 2023

Zuoyan Zhang, Jinchen Xu, Jiangwei Hao, Yang Qu, Haotian He, Bei Zhou

The Journal of Supercomputing

10.1007/s11227-023-05523-6

Projects

Research on Floating-point Error Detection and Precision Optimization *Maxfpeed*

- Design faster and more efficient error detection approaches for floating-point arithmetic expressions and implement the error detection tool called Maxfpeed based on the research approach

- Tools Used: C++, C, Python, CMake

Basic Mathematics Library System

- Responsible for correctness testing, anomaly testing, precision testing and performance testing of high performance mathematical libraries
- Design the overall test framework of the basic math library system and write the corresponding test code and scripts
- Tools Used: C, C++

Honors and Awards

Excellent MEng Dissertation Award, Information Engineering University	Oct 2024
National Scholarship, Ministry of Education of China	Dec 2023
First Class Academic Scholarship, Information Engineering University	Nov 2023
Second Class Academic Scholarship, Information Engineering University	Nov 2022
First Class Academic Scholarship, Information Engineering University	Nov 2021

Technologies

Languages: C++, C, Python, Linux, Latex, Matlab, MS Office Suite, Git, Shell, etc