Yifan Li

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Currently, I'm in the fourth year of undergraduate studies. I'm interested in **High-Performance Computing and Systems**.

Education

2021–now **B.Eng.**, *Tsinghua University*, China
Major: Computer Science and Technology, *current GPA:* ***3.98/4.0***, *ranking:* ***Top 3%***

2023 **Exchange Student**, *Cornell University*, USA
Department of ECE, August 2023 to December 2023, *GPA:* ***4.2/4.3***

Publication

[1] **Yifan Li** and Giulia Guidi. High-performance sorting-based k-mer counting in distributed memory with flexible hybrid parallelism. In *Proceedings of the 53rd International Conference on Parallel Processing (ICPP' 24)*, pages 919–928, 2024.

Experience

2024 **Summer @ EPFL**, *RS3Lab*, École Polytechnique Fédérale de Lausanne, Switzerland
Area: Operating System
Explored automatic tuning of linux kernel knobs.

2024- **Undergraduate Research**, *with Prof. Jidong Zhai*, Tsinghua University, China
Area: HPC, MLSys
Improved the communication pattern of MOE (Mixture-of-expert) systems. Implemented hierarchical communication, which is $1.3\times$ faster than the original smart scheduling policy.

2023- **Undergraduate Research**, *with Prof. Giulia Guidi*, Cornell Univeristy, USA
Area: HPC, Computational Biology
Worked on the 'ELBA' *de novo* long read genome assembly workflow. Designed and implemented the fastest distributed memory *K-mer* counter, with support for hybrid parallelism.

Award

2023 **Award of Comprehensive Excellence**, *Tsinghua University*
Top 5% School-wide

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Top 5% School-wide

Teaching & Talks

2024 **MemPanG24**, Memphis, Tennessee, USA (Virtual Attendance)
Topic: Counting K-mers on distributed memory efficiently with sorting and task-based parallelism.

2023 **SAST Summer Tutorial**, Department of CST, Tsinghua University
Courses taught: Introduction to Python, Introduction to Web
Achieved more than 100 live audience and 10,000 online replays.

Selected Courses and Service

A+ courses: Linear Algebra, Discrete Mathematics 1, Data structures, Introduction to Computer Systems, Theory of Computer Network, Computer Architecture, Introduction to Modern Cryptography, Advanced Topics in Parallel Computing.

Service: Vice President of Students' Association of Science and Technology
Participated in projects such as "SAST Skill Docs", which received more than 100 stars on github. Developed web services.

Languages

Chinese Native
English Proficient *(TOEFL 112)*
German Elementary *(~A2)*

Programming Skills

Language C++, Python, Rust, SQL, Web
Model MPI, OpenMP, NCCL, UPC++, CUDA(basic), SYCL(basic)