# Linshu Yang

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## Education

**University of Illinois Urbana-Champaign** Since 2025/08
Master of Computer Science Champaign, IL, USA
**ShanghaiTech University** 2021/09 – 2025/07
Bachelor of Engineering in Computer Science and Technology Shanghai, China

- A/A+ Courses: Operating Systems, Computer Networks, Computer Aided Verification, Deep Learning, and 19 others.

## Publications

- **pyUPPAAL: A Python Package for Risk Analysis of CPS** doi.org/10.1145/3576841.3589611
  *Guangyao Chen,* ***Linshu Yang****, Haochen Yang, Peilin He, Zhihao Jiang*
  **Published in** ***ACM/IEEE International Conference on Cyber-Physical Systems 2023***

## Research Experience

**Max Planck Institute for Informatics**, Network and Cloud System Group 2024/09 – 2024/12
Research Assistant, Advised by **Prof. Yiting Xia** Saarbrücken, Germany

- **OpenOptics: An Open Research Framework for Optical Data Center Networks** github.com/mpi-ncs/openoptics
  - OpenOptics is a general framework for realizing different optical data center network architectures in a plug-and-play manner – you can get started with just ~10 lines of Python.
  - Prototyped the traffic-aware workflow of OpenOptics, and built the corresponding Tofino-based backend. Implemented 4 types of traffic-aware scheduling algorithms in the framework for <50 lines of Python.

**ShanghaiTech University**, Wireless and Mobile System Lab 2023/12 – 2024/08
Research Intern, Advised by **Prof. Zhice Yang** Shanghai, China

- **Understanding Hybrid Scheduling in Asymmetric Processors**
  - Identified the performance bottlenecks of CFS when scheduling workloads under Kernel-based Virtual Machine (KVM), and proposed patches that improve its scheduling efficiency by 5%.

**ShanghaiTech University**, Human-Cyber-Physical System Lab 2022/07 – 2023/06
Research Intern, Advised by **Prof. Zhihao Jiang** Shanghai, China

- **Model-Checking-Based Diagnosis Assistance for Cardiac Ablation** github.com/Jack0Chan/pyuppaal
  - Worked on pyUPPAAL, a Python toolkit for UPPAAL, providing programmatic access to the model-checking tool and enabling automation of verification tasks.
  - Implemented a model-checking-based diagnosis program for cardiac ablation surgeries using the toolkit, and optimized it to process cardiac signals in real-time.

## Work Experience

**Ubiquant**, HPC System Group 2025/04 – 2025/08
Performance Engineer Intern Shanghai, China

- Evaluated and assessed the performance metrics of various distributed storage solutions, including GPFS, DeepSeek's 3FS, GekkoFS and Valkey over RDMA.
- Implemented file write for Ubiloader, Ubiquant's in-house distributed data loading acceleration middleware; achieved up to 2× faster checkpoint writes and 3× faster checkpoint loading for large models.
- Prototyped a high-performance, multi-level distributed key-value store named Simm; delivered up to 8× lower latency and 18% higher throughput than existing solutions compared to ByteDance's Infinistore and Mooncake Store.
- Integrated Simm with vLLM using LMCache as a storage backend for KV cache; achieved up to 2× lower TTFT and 25% higher output throughput over Infinistore and Mooncake Store on large models.

**Tencent**, Keen Security Lab 2024/04 – 2024/07
System Software Engineer Intern Shanghai, China

- Developed a fine-grained probing tool using eBPF and kernel modules for the Linux sandbox to capture and analyze malware during runtime; delivered comparative accuracy to competitors.

- Refactored existing sandbox software by decoupling and pipelining data collection and analysis, improving overall throughput by 30%.

**Deemos Technology** 2023/01 – 2023/07
Full-Stack Software Engineer Intern Shanghai, China
- Worked on a full-stack web application for ChatAvatar, a text-to-3D model. Developed interactive frontend and integrated backend to support model generation, user interaction, and result visualization.

## Activities

**Open Source Contributions**
- **Member, The Rust Programming Language** Since 2024/12
  - Triaged and fixed issues for Clippy, the Rust linter, including bug fixes and lint improvements. Contributed 200+ merged commits and reduced 800+ false positives and negatives in regression tests.

**HPC Competitions**
- **Team Leader, ISC'24 Student Cluster Competition** 2024/03 – 2024/04
  - Individual 3rd place in Coding Challenge, OpenMP Track. Implemented code optimization and GPU offloading for this Challenge; achieved strong scaling within one CPU node and 200× speedup in one A100.
  - Advised the team on MPI profiling and optimization; reduced communication time by 50%.

**Student Organizations**
- **Vice President, Geekpie Association** 2022/08 – 2023/07
  - Developed the frontend of Coursebench, a popular course-rating website for ShanghaiTech University.
  - Organized events including Geekpie Games and Geekpie Linux Seminar, with 1k+ students participated.

## Services

- Teaching Assistant, CS100: Computer Programming, ShanghaiTech University Spring 2023
- Teaching Assistant, CS132: Software Engineering, ShanghaiTech University Spring 2023

## Awards

- Second Class Prize (Rank 6/447), with Huawei Kunpeng Special Award, 2025 PKU HPCGame 2025/01
- Individual 3rd place for Coding Challenge (OpenMP Track), Rank 9/29, ISC'24 Student Cluster Competition 2024/04
- Second Class Prize (Rank 27/300+), ASC'24 Student Supercomputer Challenge 2024/02
- Outstanding Teaching Assistant, ShanghaiTech University 2023/06
- Outstanding Student (Top 3%-7%), ShanghaiTech University 2022/10
- Level 6 (= Second Class Prize in former NOIP), 1st place in the award group, 2019 CCF CSP-S 2019/12

## Skills

**Working Languages**: Chinese (Native), English (Advanced, TOEFL 112: R30/L30/S24/W28)
**Programming Languages**: Python, Modern C/C++, Rust, Golang, Typescript, Shell, SQL
**Tools and Frameworks**: OpenMP, MPI, CUDA, Linux Kernel, eBPF, LMCache, Megatron-LM, DeepSpeed, UPPAAL
**DevOps Technologies**: Docker, Singularity, Kubernetes, Slurm, Gitlab, Postgres, Cloudflare Worker