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⌨ A-Dying-Pig

Yiran Lei

Education

2020 – 2023	🔖 M.E., **Tsinghua University**, Department of Computer Science and Technology GPA 3.76 / 4.0
2016 – 2020	🔖 B.E., **Tsinghua University**, School of Software GPA 3.65 / 4.0 Thesis title: *Track Multiple Objects across Different Points of Views*.

Research Experience

2020.9 – Present	🔖 **Tsinghua University**, Routing Group Master student, advisor: Professor *Mingwei Xu*. Network measurement, programmable data planes, diagnosis systems.
2022.9 – Present	🔖 **University of Washington**, Paul G. Allen School of Computer Science Visiting student researcher, advisor: Professor *Arvind Krishnamurthy* Smart systems with programmable switch and smart NIC.
2021.9 – 2022.8	🔖 **University of Pennsylvania**, Distributed Systems Lab Remote intern, advisor: *Vincent Liu* Queue measurement in the data plane.
2019.6 – 2019.8	🔖 **UCLA**, Internet Research Lab Visiting student, advisor: *Lixia Zhang* NDN home IoT system.

Research Publications

1 **Yiran Lei**, Liangcheng Yu, Vincent Liu, and Mingwei Xu. 2022. Printqueue: performance diagnosis via queue measurement in the data plane. In *ACM SIGCOMM 2022 Conference (SIGCOMM '22), August 22–26, 2022, Amsterdam, Netherlands*, ACM, New York, NY, USA, 14 pages. 🔗 DOI: 10.1145/3544216.3544257.

2 **Yiran Lei**, Yu Zhou, Yunsenxiao Lin, Mingwei Xu, and Yangyang Wang. 2021. Dove: diagnosis-driven slo violation detection. In *2021 IEEE 29th International Conference on Network Protocols (ICNP)*, 1–11. 🔗 DOI: 10.1109/ICNP52444.2021.9651986.

Teaching Assistant

2021.9 – 2022.1	🔖 *The Principle of Computer Network* (40240513), Mingwei Xu, Tsinghua University. Assignments, lectures on IPv6, seminars, and exams.

Skills

Math	🔖 Stochastic Process, Combinatorics, Calculus, Linear Algebra, Algorithms
Languages	🔖 English: TOEFL iBT 112 (30L, 29R, 25S, 28W), Chinese
Coding	🔖 P4, Python, C/C++, Javascript, Java, Assembly Language, SQL
System	🔖 Tofino, Stingray, DPDK, Mininet, Linux Kernel, Raspberry PI, Arduino, TinyOS

Skills (continued)

Web Dev   🔖   Django, Vue.js, HTML5, Flask

Awards

2022	🔖	China National Scholarship
2021	🔖	Fellowship for Comprehensive Excellence (Second Class), Tsinghua University
2018	🔖	Second Award in Contemporary Undergraduate Mathematical Contest in Modeling, China
	🔖	Honorable Mention in Mathematical Contest in Modeling, USA
2017	🔖	Scholarship for Excellence in Study, Tsinghua University

Projects

2021   🔖 **System Calls**, implementing fork, exec, spawn, link, user shell on *ucore* OS
C based. Grasp linux kernel and user space, file system, trap, system calls.

2019   🔖 Reproduce the result of "*Deferred Neural Rendering: Image Synthesis using Neural Textures*"
OpenGL and UNet based. Implement multiple lighting models, e.g., Blinn-Phong and physical lighting model.

      🔖 **LowSQL Database**, a high performance SQL database
Java based. Use B+ tree indexing, block storage, and LRU caching for acceleration.

2018   🔖 **MASM Assembler**, translating assembly language into machine code
MASM based. Practice knowledge of compiler and linker.

      🔖 **Run-Catch Game**, a light-weighted 3D real-time battle game on *WeChat*
Layabox as game engine. Construct 3D models and scenes. Support online real-time playing.

      🔖 **Contest Platform**, an online system to hold contests for college students
Django and Vue.js based. Design user-friendly interface, mechanisms to support high concurrency.

      🔖 **FTP server and client**, implementing File Transfer Protocol
Socket based. Implement RFC standards, and the programs interact well with commercial FTP server and client.

2017   🔖 **Object Classification**
Tensorflow based.

      🔖 **XV6 GUI**, adding graphical interfaces to XV6 OS
Understand the principles of modern OS and details of pixel rendering.

      🔖 **Gwent: The Witcher Card Game**, a self-made version of the *game*
QT based. Complicated game logic, program design, and graphical interfaces.

      🔖 **Memory Leak Detector**, a C++ library to discover memory leak
Check whether a *new* expression is followed by corresponding *delete*.

2016   🔖 **My War Game**, a self-made version of the 2D game *worms reloaded*
C based. Double buffer rendering and intricate game logics.