

## 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, Mininet, Linux Kernel, Raspberry PI, Arduino, TinyOS





## Skills (continued)

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Web Dev     Django, Vue.js, HTML5, Flask













## Awards

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- 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

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- 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 enhance security and 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.