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A-Dying-Pig

Yiran Lei

Education

2020 – 2023 **M.E., Department of Computer Science and Technology, Tsinghua University**
GPA 3.76 / 4.0

2016 – 2020 **B.E., School of Software, Tsinghua University**
GPA 3.65 / 4.0
Thesis title: *Track Multiple Objects across Different Points of Views*.

Research Experience

2020.9 – now **Routing Group, Tsinghua University**, Beijing
I am a second-year master student. My advisor is Prof. *Mingwei Xu*. My research interests include Network Telemetry and Programmable Data Planes.

2021.9 – now **Distributed Systems Lab, University of Pennsylvania**, Online
I worked closely with professor *Vincent Liu* on queue measurement in the data plane.

2019.6 – 2019.8 **Internet Research Lab, UCLA**, Los Angeles
I worked with Prof. *Lixia Zhang* and contributed to 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 *To appear in SIGCOMM '22*.

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

2021.9 – 2022.1 TA in the course, *40240513 - The Principle of Computer Network*.
I helped students with assignments, gave supplementary lectures on IPv6, organized student-teacher meetings 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
Systems	Linux Kernel, Raspberry PI, Arduino, TinyOS
Web Dev	Django, Vue.js, HTML5, Flask

Awards

- 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 **Write 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 programs according to RFC, which function 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.