Yiran **Lei**

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"One can run away from anything but oneself" - Stefan Zweig

Education

Tsinghua University, Department of Computer Science and Technology *Beijing, China*

M.E. IN COMPUTER ARCHITECTURE *Sep. 2020 - NOW*

- I am a second-year master graduate advised by Prof. Mingwei Xu.
- Currently my research interests include: Network Telemetry, Programmable Data Planes, Software-Defined Networking.

Tsinghua University, School of Software *Beijing, China*

B.E. IN SOFTWARE ENGINEERING *Sep. 2016 - Jun. 2020*

- GPA 3.65 / 4.0
- Got a sholarship for outstanding performance in study.

UCLA, Internet Research Lab *Los Angeles, USA*

SUMMER INTERNSHIP *Jul. 2019 - Sep. 2019*

- Worked on the named data network (NDN) project and contributed to NDN home IoT system.
- Under the guidance of Prof. Lixia Zhang.

Publications

DOVE: Diagnosis-driven SLO Violation Detection

Yiran Lei, Yu Zhou, Yunsenxiao Lin, Mingwei Xu, and Yangyang Wang

2021 IEEE 29th International Conference on Network Protocols (ICNP), 2021, pp. 1-11, doi: 10.1109/ICNP52444.2021.9651986.

PrintQueue: Performance Diagnosis via Queue Measurement in the Data Plane

Yiran Lei, Liangcheng Yu, Vincent Liu, and Mingwei Xu

in submission.

Skills

Math	Stochastic Process, Combinatorics, Calculus, Linear Algebra, Algorithms
Programming	$P4_{16}$ (BMv2), $P4_{14}$ (Tofino), Python, C/C++, javascript, java, assembly language
System	Linux Kernel, Raspberry PI, Arduino, TinyOS
Web	Django, Vue.js, HTML5, Flask
Languages	English: TOEFL iBT - 103, Chinese

Awards

2017	**3rd Award**, Contemporary Undergraduate Mathematical Contest in Modeling - 2017	*China*
2017	**Scholarship for outstanding performance in study**, Tsinghua University	*China*
2018	**Honorable Mention**, Mathematical Contest in Modeling	*USA*
2018	**2nd Award**, Contemporary Undergraduate Mathematical Contest in Modeling - 2018	*China*

Projects

Mywar Game

A SIMPLE 2D GAME THAT SIMULATES THE FAMOUS "WORMS RELOADED" GAME *Fall, 2016*

- C based.
- Double buffer rendering and intricate game logics.

Memory Leak Detection Program

A C++ LIBRARY USED TO DETECT MEMORY LEAK *Spring, 2017*

- C++ based.
- By checking whether a "new" sentence is followed by corresponding "delete" sentence afterwards.

Web Crawler Program

A C PROGRAM USED TO EXTRACT INFORMATION FROM AN EXCAVATOR-BBS WEBSITE *Spring, 2017*

- C based.
- Use of stack and analysis of HTML structure.
- Inverted file indexing for quick query.

Gwent: The Witcher Card Game

A CARD GAME THAT SIMULATES GWENT: THE WITCHER CARD GAME *Summer, 2017*

- QT based.
- Proficiency in graphical interfaces.
- Comprehensive system design and complicated game logic.

XV6 GUI

MAKE A GUI TO XV6 OPERATING SYSTEMS *Fall, 2017*

- C based.
- Understanding of the modern operating system and pixel rendering.

Object Classification

CATEGORIZE PICTURES WITH DIFFERENT KINDS OF OBJECTS *Fall, 2017*

- Tensorflow based.

FTP server and client

A FTP SERVER/CLIENT FOLLOWING RFC STANDARDS *Fall, 2017*

- C based.
- Understanding of TCP/UDP and corresponding rfc standards.
- Function well with the standard ftp server/client.

College Students Contests Platform

AN ONLINE SYSTEM TO HOLD CONTESTS FOR COLLEGE STUDENTS *Spring, 2018*

- Django and Vue.js based.
- User-friendly Interface, security, concurrency are taken into consideration.

Run-Catch Game

A LIGHT-WEIGHTED 3D REALTIME BATTLE GAME THAT RUNS ON WECHAT *Summer, 2018*

- Game engine - Layabox based. HTML5 light-weighted game.
- Construction of 3D game scene and loading of model.
- Complex game logic involving realtime battle.

MASM assembler

AN ASSEMBLER THAT TRANSLATE ASSEMBLY LANGUAGE INTO MACHINE CODE *Fall, 2018*

- MASM based.
- Understanding of compiler theory and linking theory.

LowSQL Database Engine

A SQL DATABASE *Spring, 2019*

- Java based.
- Mechanisms, e.g., B+ tree indexing, sql language parsing, block storage and LRU caching, make query fast.

Reproduce the result of "Deferred Neural Rendering: Image Synthesis using Neural Textures"

WITHOUT ORIGINAL SOURCE CODE, OPENGL + ML ARE USED TO REPRODUCE THE RESULT OF THE PAPER *Fall, 2019*

- OpenGL & UNet based.
- Multiple lighting model, including Blinn-Phong model and physical-based lighting model.

Implement Linux System Call on a Primitive OS

IMPLEMENT FORK, EXEC, SPAWN, LINK, USER SHELL ON UCORE OS *Spring, 2021*

- C based.
- Understand linux kernel and user space, file system, trap, system calls.