Zhewen Yang (Lucas)

zyang122@jh.edu | +1-4242951857 | https://www.linkedin.com/in/zhewen-yang/ | https://yangzhewen.github.io/

Education

Johns Hopkins University — **Baltimore, MD**
Master's student in Computer Science — *Jan 2023 – Present (enrolled in Spring 23 semester)*
- Class Taking: Software Define Networks, Blockchains and Cryptocurrencies, Computer Vision, Deep Learning
- Lab Research Intern: Research projects for distributed systems failure detection (ZK, Hbase) under the supervision of Prof. Ryan Huang (UMich) and Prof. Chang Lou (UVA) (***ongoing, paper submission planning for OSDI'24***)
- Lab Research Intern: Participate in the project of developing new network architecture in Prof. Scott Shenker's lab (UCB), mainly developing the new network service (pub-sub, IPFS) for the architecture (***ongoing)***

Nanjing University — **Nanjing, CN**
Research Assistant ***(Mainly studying computer network and systems)*** — *Jan 2021 – Nov.2022*
- Publication: "Norma: Towards Practical Network Load Testing." Accepted by USENIX NSDI'23 **(3rd student author and speaker)**
- Project: Bandwidth Allocation Among Tenants for QoS (Quality of Service) System Development and Research in Datacenter Networks ***(A preprint "ProNet: Network-level Bandwidth Sharing among Tenants in Cloud" posted to arXiv as 1st author)***

University of California, Berkeley — **Berkeley, CA**
Berkeley International Study Program — *Aug 2019 – Dec 2019*
- Courses: Introduction to Database, Machine Structures, Numerical Analysis

Xi'an Jiaotong University — **Xi'an, CN**
Bachelor of Engineer in Computer Science and Technology (Honors Science Program) — *Sep 2017 – Jun 2021*
- GPA: 3.47/4.00 (Honor Graduates)
- Courses: Operating Systems, Data Structures, Analysis of Algorithms, Artificial Intelligence, Machine Learning, Computer Networking, Software Defined Networking, Computer Vision

Academic Experiences (Past and Completed)

In-network Bandwidth Quality-of-Service System Development Project — **Nanjing University, Nanjing, CN**
Lead Developer ***(Supervised by Prof. Chen Tian)*** — *Nov 2020 – Jun 2022*
- Created 3000+ line projects with NS-3 network simulator and programmable switches, using C++ and P4 languages
- Designed and developed a network bandwidth allocation system based on the end hosts to minimize in-network calculation and load scheduling time in-between networks and to achieve multiple application strategies
- Achieved bandwidth utilization rate of 80% with high stability compared to 50% in previous systems
- Completed most programming tasks that contributed to research and a preprint posted to arXiv as 1st author

Norma: A High-Performance Network Tester Based on Programmable Switches — **Nanjing University, Nanjing, CN**
Developer ***(Supervised by Prof. Chen Tian, project collaborated with Alibaba, China)*** — *Nov 2021 – Jan 2022*
- Developed customizable and light-weight in-network performance testing tool by utilizing P4 language for switch hardware programming and C++ for control plan software programming
- Evaluated the system architecture, designed and implemented controlled experiments for the research group
- Ensured testing tool performance under high-speed and extreme testing environments, with high testing accuracy of around 95.5% compared to the previous result of approximately 50%, paper accepted by NSDI 2023

Runtime incremental networking data plane verification Project — **Xi'an Jiaotong University, Xi'an, CN**
Undergraduate Research Intern ***(Supervised by Prof. Peng Zhang)*** — *Sept 2020 – May 2021*
- Learned and applied the network verification tool "batfish" on several network environments and evaluated the efficiency of its failure detection.
- Learned Differential Datalog and Soufflé (a logic programming language) and participated in developing some parts of the incremental network verification functions and testing (related to the BGP and OFPF routing).

Statistical Machine Learning Regression Analysis on Weather Data Project — **University of Alberta, Alberta, CA**
Summer School Student — *Jul 2018 – Aug 2018*
- Analyzed and cleaned the weather dataset by smoothing out data noise, filtering relevant data, handling missing data and outliers; and performing one-hot-encoding and z-score standardization on the data
- Built models to predict future one-week weather using Ridge and Lasso regression, with an over 70% accuracy, which significantly improved compared to the baseline model; visualized the data and made a presentation about the findings

Professional Experiences

Baidu, Inc. — **Beijing, CN**
Software Developer Intern — *Jan 2020 – Feb 2020*
- Designed and developed end-to-end solutions, including site acceleration, continuous delivery, capacity management, elastic computing, failure analysis, traffic distribution, and performance tuning
- Designed programs of 500+ lines using C++ and Java to conduct maintenance of the Baidu Voice Assistant system and network during the Chinese New Year peak network usage period, and reduced error rate by 10%-20%
- Pitched the program to the company and successfully incorporated it into DuerOs, a popular smart home appliance

Research interests & Skills

Research interests: Networking and Networking system, Distributed system, Storage system

Technical Skills: **Languages: [**C++, Python, C] (familiar), [SQL, Bash, R, P4] (have experience), [JAVA, Go, Swift] (a little)
Frameworks: Scikit, PyTorch, TensorFlow, Keras, (a little Django, Flask, and NodeJS)
Tools: GIT, MySQL, NS3 Network Simulator, (a little Kubernetes and Docker)