Yiming Qiu

Contact Information

Rice University
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Research Interests

I am broadly interested in systems, networking, and security, with a particular focus on the intersection of **programmable networks** with **machine learning** and **program analysis**.

Education

Rice University — Aug. 2020 - May. 2025 (expected)
Ph.D. Candidate, Computer Science — GPA: 3.87/4.00
Advisor: Ang Chen

Beijing University of Posts and Telecommunications — Aug. 2015 - May 2019
B.S., Telecommunication Engineering (top 3%) — GPA: 3.81/4.00

Publications

Bedrock: Programmable Network Support for Secure RDMA Systems
Jiarong Xing, Kuo-Feng Hsu, **Yiming Qiu**, Ziyang Yang, Hongyi Liu, and Ang Chen
The 31st USENIX Security Symposium (**USENIX Security 2022**)

Automated SmartNIC Offloading Insights for Network Functions
Yiming Qiu, Jiarong Xing, Kuo-Feng Hsu, Qiao Kang, Ming Liu, Srinivas Narayana, and Ang Chen
The 28th ACM Symposium on Operating Systems Principles (**SOSP 2021**)

A Vision for Runtime Programmable Networks
Jiarong Xing, **Yiming Qiu**, Kuo-Feng Hsu, Hongyi Liu, Matty Kadosh, Alan Lo, Aditya Akella, Thomas Anderson, Arvind Krishnamurthy, T. S. Eugene Ng, and Ang Chen
The 20th ACM Workshop on Hot Topics in Networks (**HotNets 2021**)

Toward Reconfigurable Kernel Datapaths with Learned Optimizations
Yiming Qiu, Hongyi Liu, Thomas E.Anderson, Yingyan Lin, Ang Chen
The 18th Workshop on Hot Topics in Operating Systems (**HotOS 2021**)

Probabilistic Profiling of Stateful Data Planes for Adversarial Testing
Qiao Kang, Jiarong Xing, **Yiming Qiu**, and Ang Chen
the 26th ACM International Conference on Architectural Support for Programming Languages and Operating Systems (**ASPLOS 2021**)

Clara: Performance Clarity for SmartNIC Offloading
Yiming Qiu, Qiao Kang, Ming Liu, and Ang Chen
The 19th ACM Workshop on Hot Topics in Networks (**HotNets 2020**)

A Feasibility Study on Time-aware Monitoring with Commodity Switches
Yiming Qiu, Kuo-Feng Hsu, Jiarong Xing, and Ang Chen
Workshop on Secure Programmable Network Infrastructure (**SPIN 2020**)

Research Experience

Rice University — Jan. 2020 - Present
Research Assistant (Mentor: Ang Chen)

- Research on machine learning support for complex systems, including automated SmartNIC offloading insights for network functions (SOSP'22, HotNets'22), infrastructure for in-kernel machine learning (HotOS'21).
- Research on programmable network security and reliability, including programmable network support for secure RDMA systems (USENIX Security'22) and network monitoring (SPIN'20), programmable data plane profiling (ASPLOS'21), runtime programmable network (HotNets'21).

Technical Skills

Programming Languages: Python, C/C++, Java, P4, Matlab, LaTeX
Hardware experience: Netronome CX SmartNIC, Barefoot Tofino programmable switch, Broadcom Stingray SmartNIC, Mellanox ConnextX RNIC

Open Source Projects

Clara: https://github.com/824728350/Clara
Bedrock: https://github.com/alex1230608/Bedrock
P4wn: https://github.com/qiaokang92/P4wn

Teaching Experience

Rice University
Teaching Assistant
COMP536: Secure and Cloud Computing — Fall 2021, Fall 2020