

# Yiming Qiu

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Ann Arbor, MI 48109 <https://yimingqiu.me/>

**RESEARCH INTERESTS** I am interested in systems, networking, and security, with a focus on **cloud system automation** and **network programmability** using **formal reasoning** and **machine learning** techniques.

**EDUCATION**

**University of Michigan** Aug. 2023 - Nov. 2024  
Ph.D. Student, Computer Science and Engineering  
Advisor: Ang Chen

**Rice University** Jun. 2020 - Aug. 2023 (transferred)  
Ph.D. Student, Computer Science GPA: 3.92/4.00  
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**

Efficient Multi-WAN Transport for 5G with OTTER  
Mary Hogan, Gerry Wan, **Yiming Qiu**, Sharad Agarwal, Ryan Beckett, Rachee Singh, Paramvir Bahl  
**NSDI 2025**

Unearthing Semantic Checks for Cloud Infrastructure-as-Code Programs  
**Yiming Qiu**, Patrick Tser Jern Kon, Ryan Beckett, Ang Chen  
**SOSP 2024**

IaC-Eval: A Code Generation Benchmark for Infrastructure-as-Code Programs  
Patrick Tser Jern Kon, Jiachen Liu, **Yiming Qiu**, Weijun Fan, Ting He, Lei Lin, Haoran Zhang, Owen Park, George Elenkikal, Yuxin Kang, Ang Chen, Mosharaf Chowdhury, Myungjin Lee, Xinyu Wang  
**NeurIPS 2024**

Unleashing SmartNIC Packet Processing Performance in P4  
Jiarong Xing, **Yiming Qiu**, Kuo-Feng Hsu, Songyuan Sui, Khalid Manaa, Omer Shabtai, Yonatan Piasetzky, Matty Kadosh  
**SIGCOMM 2023**

Synthesizing Runtime Programmable Switch Updates  
**Yiming Qiu**, Ryan Beckett, and Ang Chen  
**NSDI 2023**

Simplifying Cloud Management with Cloudless Computing  
**Yiming Qiu**, Patrick Tser Jern Kon, Jiarong Xing, Yibo Huang, Hongyi Liu, Xinyu Wang, Peng Huang, Mosharaf Chowdhury, Ang Chen  
**HotNets 2023**

Bedrock: Programmable Network Support for Secure RDMA Systems  
Jiarong Xing, Kuo-Feng Hsu, **Yiming Qiu**, Ziyang Yang, Hongyi Liu, and Ang Chen  
**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  
**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  
**HotNets 2021**

Toward Reconfigurable Kernel Datapaths with Learned Optimizations  
**Yiming Qiu**, Hongyi Liu, Thomas E. Anderson, Yingyan Lin, Ang Chen  
**HotOS 2021**

Probabilistic Profiling of Stateful Data Planes for Adversarial Testing  
Qiao Kang, Jiarong Xing, **Yiming Qiu**, and Ang Chen  
**ASPLOS 2021**

Clara: Performance Clarity for SmartNIC Offloading  
**Yiming Qiu**, Qiao Kang, Ming Liu, and Ang Chen  
**HotNets 2020**

A Feasibility Study on Time-aware Monitoring with Commodity Switches  
**Yiming Qiu**, Kuo-Feng Hsu, Jiarong Xing, and Ang Chen  
**SPIN 2020**

RESEARCH EXPERIENCE	<b>University of Michigan</b> Research Assistant (Mentor: Ang Chen) <ul style="list-style-type: none"><li>• Research on cloud automation, including the vision of cloudless computing (HotNets'23), mining, validating, and checking against cloud resource requirements (SOSP'24), automatically generating cloud management code (NeurIPS'24), lifting cloud resources out of brownfield deployment (in submission), finding bugs in cloud management platform provider plugins (in submission), and disaggregated eBPF architecture via RDMA (in submission).</li></ul>	Aug. 2023 - Present
	<b>Rice University</b> Research Assistant (Mentor: Ang Chen) <ul style="list-style-type: none"><li>• Research on program analysis and formal reasoning support for complex systems, including runtime programmable switch update synthesis (NSDI'23), automated SmartNIC offloading insights for network functions (SOSP'21, HotNets'20), infrastructure for in-kernel machine learning (HotOS'21), programmable network support for secure RDMA systems (USENIX Security'22) and network monitoring (SPIN'20), programmable data plane profiling (ASPLOS'21), runtime programmable network (SIGCOMM'23, HotNets'21).</li></ul>	Jan. 2020 - Aug. 2023
	<b>Microsoft AFO OCTO</b> Research Intern (Mentor: Ryan Beckett) <ul style="list-style-type: none"><li>• Research on multi-WAN (5G operators and Azure) traffic forwarding and optimization systems.</li></ul>	May. 2022 - May. 2023
OPEN SOURCE PROJECTS	Zodiac: <a href="https://github.com/824728350/Zodiac">https://github.com/824728350/Zodiac</a> Clara: <a href="https://github.com/824728350/Clara">https://github.com/824728350/Clara</a> FlexPlan: <a href="https://github.com/824728350/FlexPlan">https://github.com/824728350/FlexPlan</a> Pipeleon: <a href="https://github.com/jiarong0907/Pipeleon">https://github.com/jiarong0907/Pipeleon</a> Bedrock: <a href="https://github.com/alex1230608/Bedrock">https://github.com/alex1230608/Bedrock</a> P4wn: <a href="https://github.com/qiaokang92/P4wn">https://github.com/qiaokang92/P4wn</a> Otter: <a href="https://github.com/OTTER-5GWAN/topology">https://github.com/OTTER-5GWAN/topology</a>	
PAPER REVIEW	WWW 2025, P4 2024, WWW 2024, ToN, JSAC, Computer Networks	
TEACHING EXPERIENCE	<b>Rice University</b> Teaching Assistant COMP536: Secure and Cloud Computing	Fall 2021, Fall 2020