

RUYI YAO

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EDUCATION

Fudan University (Ph.D. candidate)

Sep. 2020 - Present

Future Network Innovation Laboratory, School of Computer Science

Supervisor: Prof. Yang Xu

National University of Singapore (Visiting Student)

Jul. 2024 - Jul. 2025

School of Computing

Supervisor: Prof. Chan Mun Choon

Nanjing University of Posts and Telecommunications (B.S.)

Sep. 2016 - Jul. 2020

School of Computer Science

Thesis: Research on Video Distribution Acceleration Algorithm Based on Edge Computing

RESEARCH INTERESTS

Software Defined Networking, Programmable Data Plane, Network Performance Optimization

EXPERIENCE

Fudan University (Teaching Assistant)

Sep. 2021 - Jan. 2022

Course: Computer Networks (Undergraduate)

Pengcheng Laboratory (Research Intern)

Oct. 2019 - Dec. 2019

AWARDS AND HONORS

- Outstanding Winner for Achievements in Shanghai Open-Source Innovation, Shanghai Opensource Information Technology Association, 2024
- Best Paper Honorable Mention, IEEE/ACM IWQoS, 2024
- Travel Grant, ACM SIGCOMM, 2024
- National Scholarship, Fudan University, 2023
- First Prize in the Fudan University round of the “Internet+” Innovation and Entrepreneurship Competition, Fudan University, 2023
- National Scholarship, Nanjing University of Posts and Telecommunications, 2018

ACADEMIC SERVICES

- Shadow Technical Program Committee Member, ACM CoNEXT 2025
- Artifact Evaluation Program Committee Member, ACM SIGCOMM 2024
- Peer Reviewer: IEEE/ACM ToN, IEEE INFOCOM, IEEE ICNP, ACM CoNEXT, IEEE/ACM IWQoS, Elsevier JNCA
- Volunteer: APNet 2025, ACM SIGCOMM 2024, APNet 2024

PUBLICATIONS

- **Ruyi Yao**, Zhiyu Zhang, Gaojian Fang, Peixuan Gao, Sen Liu, Yibo Fan, Yang Xu, and H. Jonathan Chao. “BMW Tree: Large-scale, High-throughput and Modular PIFO Implementation using Balanced Multi-Way Sorting Tree.” ACM Special Interest Group on Communications (**SIGCOMM**), 2023. (22.4% acceptance)
- **Ruyi Yao**, Cong Luo, Hao Mei, Chuhao Chen, Wenjun Li, Ying Wan, Sen Liu, Bin Liu, and Yang Xu. “CoLUE: Collaborative TCAM Update in SDN Switches.” IEEE International Conference on Computer Communications (**INFOCOM**), 2023.
- **Ruyi Yao**, Cong Luo, Xuandong Liu, Ying Wan, Bin Liu, Wenjun Li, and Yang Xu. “MagicTCAM: A Multiple-TCAM Scheme for Fast TCAM Update.” IEEE International Conference on Network Protocols (**ICNP**), 2021.
- Jiahui Li, Han Qi, **Ruyi Yao**, Jialin Wei, Ruoshi Sun, Zixuan Chen, Sen Liu, and Yang Xu. “CClin-guist: An Expert-Free Framework for Future-Compatible Congestion Control Algorithm Identification.” ACM Special Interest Group on Communications (**SIGCOMM**), 2025.
- Chuhao Chen, Deli Huang, Zerui Tian, **Ruyi Yao**, Jing Jiang, Sen Liu, and Yang Xu. “Empowering Flowlet Load Balancing in RDMA with Host-Based Flowlet Fine-Tuning.” IEEE/ACM International Symposium on Quality of Service (**IWQoS**), 2025.
- Zhiyu Zhang, Shili Chen, **Ruyi Yao**, Ruoshi Sun, Hao Mei, Hao Wang, Zixuan Chen, Gaojian Fang, Yibo Fan, Wanxin Shi, Sen Liu, and Yang Xu. “vPIFO: Virtualized Packet Scheduler for Programmable Hierarchical Scheduling in High-Speed Networks.” ACM Special Interest Group on Communications (**SIGCOMM**), 2024. (16.9% acceptance)
- Ruoshi Sun, Hao Mei, **Ruyi Yao**, Hao Wang, Yiren Zhou, Zixuan Chen, Sen Liu, and Yang Xu. “TCAMVisor: High-throughput TCAM Virtualization for Multi-tenant Software Defined Networking.” IEEE/ACM International Symposium on Quality of Service (**IWQoS**), 2024. **Best Paper Honorable Mention.**
- Hao Mei, Ruoshi Sun, **Ruyi Yao**, Chuhao Chen, Cong Luo, Zixuan Chen, Jiahui Li, Sen Liu, and Yang Xu. “Rusen: Rule Semantics Enabler toward Fast TCAM Update for Commodity SDN Switches.” IEEE/ACM International Symposium on Quality of Service (**IWQoS**), 2023.
- Cong Luo, Chuhao Chen, Hao Mei, **Ruyi Yao**, Ying Wan, Wenjun Li, Sen Liu, Bin Liu, and Yang Xu. “BubbleTCAM: Bubble Reservation in SDN Switches for Fast TCAM Update.” IEEE/ACM International Symposium on Quality of Service (**IWQoS**), 2022.
- Chuwen Zhang, Zhikang Chen, Haoyu Song, **Ruyi Yao**, Yang Xu, Yi Wang, Ji Miao, and Bin Liu. “PIPO: Efficient Programmable Scheduling for Time Sensitive Networking.” IEEE International Conference on Network Protocols (**ICNP**), 2021.
- Yao Xin, Yuxi Liu, Wenjun Li, **Ruyi Yao**, Yang Xu, and Yi Wang. “KickTree: A Recursive Algorithmic Scheme for Packet Classification with Bounded Worst-Case Performance.” ACM/IEEE Symposium on Architectures for Networking and Communications Systems (**ANCS**), 2021.
- Bin Dai, Yuanyuan Cao, Zhongli Wu, Zhewei Dai, **Ruyi Yao**, and Yang Xu. “Routing Optimization Meets Machine Intelligence: A Perspective for the Future Network.” Elsevier journal *Neurocomputing* (**Neurocomputing**), 2021.
- Chuwen Zhang, Yi Wang, **Ruyi Yao**, Boyang Zhou, Liang Cheng, Yang Xu, Xiaoguang Li, Jian Cheng, and Bin Liu. “Packet-size aware scheduling algorithms in guard band for time sensitive networking.” CCF Transactions on Networking (**CCF ToN**), 2020.