

# Francis Y. Yan

Updated: June 2026  
fyy@illinois.edu  
<https://fyy.cs.illinois.edu>

Siebel Center 4130  
201 N. Goodwin Ave  
Urbana, IL 61801

## RESEARCH INTERESTS

---

Networked systems, ML for systems, Systems for ML, Video systems, Resource scheduling

## EDUCATION

---

<b>Stanford University</b> Ph.D. in Computer Science • Advisors: Keith Winstein and Philip Levis	Stanford, CA June 2020
<b>Tsinghua University</b> B.S. in Computer Science (“Yao Class”) • Graduated 1 <sup>st</sup> in class (valedictorian) B.A. in Economics	Beijing, China July 2015 July 2015
<b>Massachusetts Institute of Technology</b> EECS Exchange Student	Cambridge, MA Spring 2014

## EMPLOYMENT

---

<b>University of Illinois Urbana-Champaign</b> Assistant Professor of Computer Science Affiliate Professor of Electrical & Computer Engineering Adjunct Professor of Computer Science	Urbana, IL Jan 2025 – <i>Present</i> Nov 2025 – <i>Present</i> Aug 2024 – Jan 2025
<b>Microsoft Research</b> Senior Researcher, Victor Bahl’s group	Redmond, WA Aug 2020 – Jan 2025
<b>Microsoft Research</b> Research Intern, Mobility and Networking Research Group	Redmond, WA Jun – Sep 2019
<b>Google</b> Software Engineering Intern, Congestion Control Group	Mountain View, CA Jun – Sep 2016
<b>Baidu</b> Research Intern, Big Data Lab	Beijing, China Jun – Aug 2015
<b>Microsoft Research</b> Research Intern, Wireless and Networking Group	Beijing, China Mar – Jun 2015
<b>The University of Hong Kong</b> Research Intern, Systems and Networking Group	Hong Kong Jul – Aug 2014

## AWARDS & HONORS

---

List of Teachers Ranked as Excellent, UIUC	Spring 2025
Outstanding Paper Award, USENIX NSDI	2024
Special Stock Award, Microsoft	2023 & 2022
Best Paper Award, APNet	2022

Applied Networking Research Prize, Internet Research Task Force	2021
Community Award, USENIX NSDI	2020
Best Paper Award, USENIX ATC	2018
Award of Excellence, Stars of Tomorrow Internship Program, Microsoft Research	2015
Outstanding Graduate of Tsinghua University	2015
Outstanding Graduate of Beijing, China	2015
National Scholarship, China	2014
Silver Prize, Yao Award	2014
Tsinghua University Comprehensive Scholarship	2013
National Endeavor Fellowship, China	2012
Tsinghua-Baidu Scholarship	2012
Scholarship for Tsinghua Xuetao Talents Program	2011–14
First Prize, National Senior High School Mathematical Olympiad, China	2010
First Prize, National Olympiad in Informatics in Provinces, China	2008

## PUBLICATIONS

---

*Authorship convention:* In computer systems and networking, advisors are typically listed after student authors. For Microsoft Research publications (2020–2025 in this list), primary mentors may be either the last author or the first non-student author (to accommodate academic collaborations).

### Peer-reviewed

1. Nawel Alioua, Linghe Zhang, Aneesh Garg, Francis Y. Yan, Elizabeth Belding. “A DualPI2 Module for Mahimahi: Behavioral Characterization and Cross-Platform Analysis.” To appear in *SIGCOMM Computer Communication Review (SIGCOMM CCR '26)*, Jul 2026.
2. Beitong Tian, Lingzhi Zhao, Bo Chen, Mingyuan Wu, Haozhen Zheng, Deepak Vasisht, Francis Y. Yan, Klara Nahrstedt. “AquaScope: Reliable Underwater Image Transmission on Mobile Devices.” In *ACM International Conference on Mobile Systems, Applications, and Services (MobiSys '26)*, Jun 2026.
3. Aashish Gottipati, Sami Khairy, Yasaman Hosseinkashi, Gabriel Mittag, Vishak Gopal, Francis Y. Yan, Ross Cutler. “Offline Meta-learning for Real-time Bandwidth Estimation.” In *IEEE International Conference on Communications (IEEE ICC '26)*, May 2026.
4. Ruiying Ma, Chieh-Jan Mike Liang, Yanjie Gao, Francis Y. Yan. “Algorithm Generation via Creative Ideation.” In *International Conference on Learning Representations (ICLR '26)*, Apr 2026.
5. Yajie Zhou, Jiajun Ruan, Eric S. Wang, Sadjad Fouladi, Francis Y. Yan, Kevin Hsieh, Zaoxing Liu. “NetArena: Dynamic Benchmarks for AI Agents in Network Automation.” In *International Conference on Learning Representations (ICLR '26)*, Apr 2026. **Winner of AgentX–AgentBeats Competition (Coding Agent Track).**
6. Ryan Beckett, Francis Y. Yan, Raghunadha Pocha, Vineesh V. Raj, Ayyub Shaik, Siva Kakarla. “Concord: Learning Network Configuration Contracts.” In *European Conference on Computer Systems (EuroSys '26)*, Apr 2026.
7. Zhiying Xu, Minlan Yu, Francis Y. Yan. “Decouple and Decompose: Scaling Resource Allocation with DeDe.” In *USENIX Symposium on Operating Systems Design and Implementation (OSDI '25)*, Jul 2025.
8. Neil Agarwal, Rui Pan, Francis Y. Yan, Ravi Netravali. “Mowgli: Passively Learned Rate Control for Real-Time Video.” In *USENIX Symposium on Networked Systems Design and Implementation (NSDI '25)*, Apr 2025.
9. Anuj Kalia, Nikita Lazarev, Leyang Xue, Xenofon Foukas, Bozidar Radunovic, Francis Y. Yan. “Towards Energy Efficient 5G vRAN Servers.” In *USENIX Symposium on Networked Systems Design and*

*Implementation (NSDI '25)*, Apr 2025.

10. Zhiyuan He, Aashish Gottipati, Lili Qiu, Xufang Luo, Kenuo Xu, Yuqing Yang, Francis Y. Yan. “Designing Network Algorithms via Large Language Models.” In *ACM Workshop on Hot Topics in Networks (HotNets '24)*, Nov 2024.
11. Siva Kakarla, Francis Y. Yan, Ryan Beckett. “Diffy: Data-Driven Bug Finding for Configurations.” In *ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI '24)*, Jun 2024.
12. Zibo Wang, Pinghe Li, Chieh-Jan Mike Liang, Feng Wu, Francis Y. Yan. “Autothrottle: A Practical Bi-Level Approach to Resource Management for SLO-Targeted Microservices.” In *USENIX Symposium on Networked Systems Design and Implementation (NSDI '24)*, Apr 2024. **Outstanding Paper Award.**
13. Yihua Cheng, Ziyi Zhang, Hanchen Li, Anton Arapin, Yue Zhang, Qizheng Zhang, Yuhan Liu, Kuntai Du, Xu Zhang, Francis Y. Yan, Amrita Mazumdar, Nick Feamster, Junchen Jiang. “Grace: Loss-Resilient Real-Time Video through Neural Codecs.” In *USENIX Symposium on Networked Systems Design and Implementation (NSDI '24)*, Apr 2024.
14. Yongzhou Chen, Ammar Tahir, Francis Y. Yan, Radhika Mittal. “Octopus: In-Network Content Adaptation to Control Congestion on 5G Links.” In *ACM/IEEE Symposium on Edge Computing (SEC '23)*, Dec 2023.
15. Paramvir Bahl, Matthew Balkwill, Xenofon Foukas, Anuj Kalia, Daehyeok Kim, Manikanta Kotaru, Zhihua Lai, Sanjeev Mehrotra, Bozidar Radunovic, Stefan Saroiu, Connor Settle, Ankit Verma, Alec Wolman, Francis Y. Yan, Yongguang Zhang (\*authors in alphabetical order). “Accelerating Open RAN Research Through an Enterprise-scale 5G Testbed.” In *Annual International Conference on Mobile Computing and Networking (MobiCom '23)*, Oct 2023.
16. Zhiying Xu, Francis Y. Yan, Rachee Singh, Justin T. Chiu, Alexander M. Rush, Minlan Yu. “Teal: Learning-Accelerated Optimization of WAN Traffic Engineering.” In *ACM Special Interest Group on Data Communication Conference (SIGCOMM '23)*, Sep 2023.
17. Nikita Lazarev, Tao Ji, Anuj Kalia, Daehyeok Kim, Ilias Marinos, Francis Y. Yan, Christina Delimitrou, Zhiru Zhang, Aditya Akella. “Resilient Baseband Processing in Virtualized RANs with Slingshot.” In *ACM Special Interest Group on Data Communication Conference (SIGCOMM '23)*, Sep 2023.
18. Yueying Li, Daochen Zha, Tianjun Zhang, G. Edward Suh, Christina Delimitrou, Francis Y. Yan. “Mitigating Metastable Failures in Distributed Systems with Offline Reinforcement Learning.” In *International Conference on Learning Representations (ICLR '23)*, May 2023.
19. Michael Rudow, Francis Y. Yan, Abhishek Kumar, Ganesh Ananthanarayanan, Martin Ellis, K.V. Rashmi. “Tambur: Efficient loss recovery for videoconferencing via streaming codes.” In *USENIX Symposium on Networked Systems Design and Implementation (NSDI '23)*, Apr 2023.
20. Zhengxu Xia\*, Yajie Zhou\*, Francis Y. Yan, Junchen Jiang (\*equal contribution). “Genet: Automatic Curriculum Generation for Learning Adaptation in Networking.” In *ACM Special Interest Group on Data Communication Conference (SIGCOMM '22)*, Aug 2022.
21. Jeongyoon Eo, Zhixiong Niu, Wenxue Cheng, Francis Y. Yan, Rui Gao, Jorina Kardhashy, Scott Inglis, Michael Revow, Byung-Gon Chun, Peng Cheng, Yongqiang Xiong. “OpenNetLab: Open Platform for RL-based Congestion Control for Real-Time Communications.” In *Asia-Pacific Workshop on Networking (APNet '22)*, Jul 2022. **Best Paper Award.**
22. Francis Y. Yan, Hudson Ayers, Chenzhi Zhu, Sadjad Fouladi, James Hong, Keyi Zhang, Philip Levis, Keith Winstein. “Learning in situ: a randomized experiment in video streaming.” In *USENIX Symposium on Networked Systems Design and Implementation (NSDI '20)*, Feb 2020. **Community Award. IRTF Applied Networking Research Prize.**
23. Francis Y. Yan, Jestin Ma, Greg D. Hill, Deepti Raghavan, Riad S. Wahby, Philip Levis, Keith Winstein. “Pantheon: the training ground for Internet congestion-control research.” In *USENIX Annual Technical Conference (ATC '18)*, Jul 2018. **Best Paper Award.**

- Francis Y. Yan, Songtao He, Yunxin Liu, Longbo Huang. "Optimizing Power Consumption of Mobile Games." In *Workshop on Power-Aware Computing and Systems (HotPower '15)*, Oct 2015.
- Dongxiao Yu, Yuexuan Wang, Francis Y. Yan, Jiguo Yu, Francis C.M. Lau. "Speedup of Information Exchange using Multiple Channels in Wireless Ad Hoc Networks." In *IEEE International Conference on Computer Communications (INFOCOM '15)*, Apr 2015.
- Francis Y. Yan, Dongxiao Yu, Yuexuan Wang, Jiguo Yu, Francis C.M. Lau. "Bounded information dissemination in multi-channel wireless networks." In *Journal of Combinatorial Optimization*, Oct 2014.

### **Non-refereed**

- Zhiyuan He, Aashish Gottipati, Lili Qiu, Yuqing Yang, Francis Y. Yan. "Congestion Control System Optimization with Large Language Models." Preprint *arXiv:2508.16074*, Aug 2025.
- Shuwei Jin, Francis Y. Yan, Cheng Tan, Anuj Kalia, Xenofon Foukas, Z. Morley Mao. "AutoSpec: Automated Generation of Neural Network Specifications." Preprint *arXiv:2409.10897*, Sep 2024.
- Sami Khairy, Gabriel Mittag, Vishak Gopal, Francis Y. Yan, Zhixiong Niu, Ezra Ameri, Scott Inglis, Mehrsa Golestaneh, Ross Cutler. "ACM MMSys 2024 Bandwidth Estimation in Real Time Communications Challenge." In *ACM Multimedia Systems Conference (MMSys '24)*, Apr 2024.
- Emily Marx, Francis Y. Yan, Keith Winstein. "Implementing BOLA-BASIC on Puffer: Lessons for the use of SSIM in ABR logic." Preprint *arXiv:2011.09611*, Nov 2020.
- Francis Y. Yan. "Practical Machine Learning for Sequential Decision Problems on the Internet." *Ph.D. thesis, Stanford University*, Jun 2020.

### **BOOKS CHAPTERS**

---

- Design of Deep Learning Systems: Theory and Practice*. China Machine Press, Oct 2024.

### **PATENTS**

---

#### **Granted**

- "Determining Reference Signal Transmission Times," filed with Neil Agarwal, Manikanta Kotaru, and Victor Bahl in May 2022. Granted as U.S. Patent 12,413,358 in Sep 2025.
- "Wireless Parameter Limits for Predicted vRAN Resource Loads," filed with Anuj Kalia, Sanjeev Mehrotra, and Victor Bahl in May 2022. Granted as U.S. Patent 12,219,395 in Feb 2025.
- "Artificial Intelligence for Intent-Based Networking," filed with Ryan Beckett and Victor Bahl in May 2023. Granted as U.S. Patent 11,968,088 in Apr 2024.
- "Data Streaming Protocols in Edge Computing," filed with Ganesh Ananthanarayanan and Yuanchao Shu in Jun 2021. Granted as U.S. Patent 11,831,698 in Nov 2023.
- "Data Stream Prioritization for Communication Session," filed with Landon Cox and Shadi Noghabi in Jun 2021. Granted as U.S. Patent 11,632,404 in Apr 2023.
- "Media Server Management for Communication Session," filed with Landon Cox in Jun 2021. Granted as U.S. Patent 11,601,478 in Mar 2023.
- "Loss Recovery Using Streaming Codes in Forward Error Correction," filed with Michael Rudow, Ganesh Ananthanarayanan, and Martin Ellis in Sep 2021. Granted as U.S. Patent 11,489,620 in Nov 2022.

#### **Pending**

- "Extracting Alert Rules From Log Files Using Language Models," filed with Ryan Beckett, Behnaz Arzani, and Siva Kakarla in Apr 2025.
- "Generating Adaptive Bitrate Data Streaming Neural Network Code by Large Language Model," filed with Zhiyuan He, Lili Qiu, and Xufang Luo in Jun 2024.

3. “Techniques for Detecting Anomalies in Data Files,” filed with Ryan Beckett and Siva Kakarla in Apr 2024.
4. “Automatically Detecting Anomalies in Complex Configurations,” filed with Ryan Beckett and Siva Kakarla in May 2023.
5. “Bi-Level Machine-Learning-Assisted Management of Computing Resources,” filed with Zibo Wang, Pinghe Li, and Mike Liang in May 2023.
6. “Power Control for Energy-Efficient 5G vRAN,” filed with Anuj Kalia, Xenofon Foukas, and Bozidar Radunovic in May 2023.
7. “CPU Power Management for Virtualized Radio Access Networks,” filed with Anuj Kalia, Xenofon Foukas, and Bozidar Radunovic in May 2023.

## TEACHING

---

<b>University of Illinois Urbana-Champaign</b> (instructor)	Urbana, IL
CS 598 FYY: Machine Learning for Systems	Fall 2026
CS 438: Computer Networks	Spring 2026
CS 538: Advanced Computer Networks	Fall 2025
CS 538: Advanced Computer Networks	Spring 2025
• <i>List of Teachers Ranked as Excellent</i> • <i>TA received Outstanding TA Award</i>	
<b>Stanford University</b> (teaching assistant)	Stanford, CA
CS 140: Operating Systems	Spring 2019
CS 140: Operating Systems	Winter 2019

## PROFESSIONAL ACTIVITIES

---

### Leadership

1. Program Committee Chair, Workshop on Practical Adoption Challenges of ML for Systems at SOSP ’25
2. Artifact Evaluation Chair, ACM SIGCOMM 2024, 2025
3. Grand Challenge Organizer, ACM MMSys 2021, 2024
4. Steering Committee Member, ACM/IRTF Applied Networking Research Workshop (2024–26)
5. Program Committee Chair, ACM/IRTF Applied Networking Research Workshop 2023
6. Poster Session Chair, USENIX NSDI 2023
7. Networking Area Chair, Journal of Systems Research (2022–23)

### Program committees

1. USENIX NSDI 2023, 2024, 2025, 2026
2. ACM SOSP 2026
3. USENIX OSDI 2026
4. AIOps 2026
5. ACM HotNets 2025
6. ACM SIGCOMM 2024
7. ACM CoNEXT 2023
8. IEEE ICNP 2023
9. Journal of Systems Research (Editorial Board, 2021–22)

### Award committees

1. Machine Learning and Systems Rising Stars 2023, 2024, 2025
2. IRTF Applied Networking Research Prize 2022, 2023, 2024, 2025

## Reviewers

1. USENIX NSDI 2022
2. IEEE/ACM Transactions on Networking (2019–23)
3. ACM SIGCOMM Computer Communication Review (2019)

## Mentorship

1. Student Mentoring Chair, USENIX NSDI '26
2. Mentorship Program: NSDI '25, OSDI/ATC '25, SOSP '25
3. N2Women Workshop Mentor at SIGCOMM '23

## UNIVERSITY & DEPARTMENTAL SERVICE

---

1. Undergraduate Student Awards Committee, UIUC 2025–2026
2. Graduate Admissions Committee, UIUC Spring 2025
3. Ph.D. Thesis Committees
  - Zhiying Xu (Harvard), Zhengxu Xia (UChicago), Alexander Dietmüller (ETH Zürich) 2024
  - Lingzhi Zhao (UIUC) 2026

## PROFESSIONAL DEVELOPMENT

---

- Collins Scholar, Academy for Excellence in Engineering Education, UIUC 2025–2026

## SELECTED PRESENTATIONS

---

### Invited Talks

1. “Decouple and Decompose: Scaling Resource Allocation with DeDe.”  
*KAIST*, Oct 17, 2025  
*Seoul National University*, Oct 10, 2025  
*Purdue University*, Oct 1, 2025
2. “Autothrottle: A Bi-Level Approach to Microservice Resource Management.”  
*Broadcom/VMware*, Mar 31, 2025
3. “Practical Machine Learning for Networked Systems.”  
*Princeton University*, Nov 13, 2024  
*Peking University*, Sep 5, 2024  
*Tsinghua University*, Sep 4, 2024  
*University of Texas at Austin*, Nov 13, 2023
4. “Teal: Traffic Engineering Accelerated with Learning.”  
*Microsoft Research Asia Shanghai*, May 11, 2023  
*Azure Networking*, Jul 12, 2022  
*Microsoft Research India*, May 16, 2022
5. “Learning in situ: a randomized experiment in video streaming.”  
*Columbia University*, Nov 28, 2023  
*Columbia University*, Oct 28, 2021  
*IETF 110*, Mar 8, 2021
6. “Practical Machine Learning for Sequential Decision Problems on the Internet.”  
*Carnegie Mellon University*, Mar 28, 2022  
*University of California, Irvine*, Feb 19, 2021  
*Microsoft Research Redmond*, Sep 25, 2020  
*Princeton University*, Sep 23, 2020

## Panelists

1. “Next-Gen Wireless Systems: Where Physics Meets Large Models and Edge AI.”  
*The Networking Channel*, Apr 2, 2025
2. “Networking Meets Cloud and Edge Applications.”  
*Microsoft Research Summit*, Oct 19, 2021

## STUDENTS

---

### Current Students at UIUC

1. Han-Ting Liang (Ph.D. student, co-advised by Indy Gupta)
2. Seoyul Oh (Ph.D. student, co-advised by Deepak Vasisht)
3. Nikhil Chandrasekar (M.S. student)
4. Chan Ju (Martin) Chong (M.S. student)
5. Anya Gill (M.S. student)
6. Ang Li (M.S. student)
7. Tianyi Zhong (M.S. student)
8. Luke Hsiao (undergraduate)
9. Yiqi Mei (undergraduate)
10. Yuxuan Tang (undergraduate from Tsinghua)
11. Ian Zhang (undergraduate)

### Former Students at UIUC (with publications or significant collaborations)

1. Jiajun Ruan (M.S. student) → Ph.D. student at the University of Minnesota
2. Kai Luo (visiting undergraduate from Tsinghua) → Research Engineer at Tencent
3. William Zheng (undergraduate) → Ph.D. student at Berkeley
4. Yikai Zheng (visiting undergraduate from Tsinghua) → Ph.D. student at Tsinghua

### Former Students at Microsoft Research (with publications or significant collaborations)

1. Neil Agarwal (Ph.D. from Princeton, 2025) → Research Scientist at Meta
2. Yihua Cheng (Ph.D. from UChicago, 2025) → CTO & Co-Founder at Tensormesh
3. Shuowei Jin (Ph.D. from Michigan, 2025) → Applied Scientist at Amazon
4. Ruiying Ma (B.S. from Tsinghua, 2025) → Ph.D. student at Berkeley
5. Yun Ni (B.S. from Nanjing University, 2025) → M.S. student at CMU
6. Zhengxu Xia (Ph.D. from UChicago, 2024) → Google
7. Zhiying Xu (Ph.D. from Harvard, 2024) → Applied Scientist at Amazon
8. Michael Rudow (Ph.D. from CMU, 2023) → CTO at Treseder AI
9. Tong Chen (B.S. from Tsinghua, 2022) → Ph.D. student at UW
10. Pinghe Li (B.S. from USTC, 2022) → Ph.D. student at ETH Zürich
11. Hang Zhu (Ph.D. from Johns Hopkins, 2022) → Research Scientist at ByteDance
12. Zibo Wang (joint Ph.D. student, USTC & MSR Asia)
13. Yajie (Lesley) Zhou (Ph.D. student at Maryland)