

Stanford



Keith Winstein

Assistant Professor of Computer Science and, by courtesy, of Electrical Engineering

 Curriculum Vitae available Online

Bio

BIO

Keith Winstein is an assistant professor of computer science and, by courtesy, of electrical engineering at Stanford University. His research group creates new kinds of networked systems by rethinking abstractions around communication, compression, and computing. Some of his research has found broader use, including the Mosh tool, the Puffer video-streaming site, the Lepton compression tool, the Mahimahi network emulators, the gg lambda-computing framework, and the use of a temporal reordering threshold to detect packet loss. His work has received the Sloan Research Fellowship, the Usenix NSDI Community Award (2020, 2017), the Applied Networking Research Prize (2021, 2014), the Usenix ATC Best Paper Award, a Google Faculty Research Award (2017, 2015), a Facebook Faculty Award, the ACM SIGCOMM Doctoral Dissertation Award, and a Sprowls award for best doctoral thesis in computer science at MIT. Winstein previously served as a staff reporter at The Wall Street Journal, was one of the story consultants for HBO's "Silicon Valley," and worked at Ksplice, a startup company (now part of Oracle) where he was the vice president of product management and business development and also cleaned the bathroom. He did his undergraduate and graduate work at MIT.

ACADEMIC APPOINTMENTS

- Assistant Professor, Computer Science
- Assistant Professor (By courtesy), Electrical Engineering

Teaching

COURSES

2020-21

- Introduction to Computer Networking: CS 144 (Aut)
- Main Stage Theater Project: TAPS 122M (Win)
- Project Lab: Video and Audio Technology for Live Theater in the Age of COVID: CS 349T, EE 192T (Aut)

2019-20

- Computers, Ethics, and Public Policy: CS 181 (Spr)
- Computers, Ethics, and Public Policy (WIM): CS 181W (Spr)
- Introduction to Computer Networking: CS 144 (Aut)

2018-19

- Advanced Topics in Networking: CS 244 (Spr)
- Computers, Ethics, and Public Policy: CS 181 (Aut)
- Computers, Ethics, and Public Policy (WIM): CS 181W (Aut)

- Introduction to Computer Networking: CS 144 (Win)

2017-18

- Advanced Topics in Networking: CS 244 (Spr)
- Computers, Ethics, and Public Policy: CS 181 (Win)
- Computers, Ethics, and Public Policy (WIM): CS 181W (Win)
- Introduction to Computer Networking: CS 144 (Aut)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Pan Hu, Collin Lee, Yilong Li

Doctoral Dissertation Advisor (AC)

Sadjad Fouladi

Master's Program Advisor

Elena Berman, Euirim Choi, Aditya Iswara, Derrick Li, Andrew Malty, Qianli Song

Doctoral Dissertation Co-Advisor (AC)

Luke Hsiao, Riad Wahby

Doctoral (Program)

Sadjad Fouladi

Publications

PUBLICATIONS

- **Learning in situ: a randomized experiment in video streaming**
Yan, F. Y., Ayers, H., Zhu, C., Fouladi, S., Hong, J., Zhang, K., Levis, P., Winstein, K., USENIX Assoc
USENIX ASSOC.2020: 495–511
- **Demo Abstract: RF Soil Moisture Sensing via Radar Backscatter Tags**
Josephson, C., Barnhart, B., Katti, S., Winstein, K., Chandra, R., IEEE
IEEE.2020: 365–66
- **Cracking open the DNN black-box: Video Analytics with DNNs across the Camera-Cloud Boundary**
Emmons, J., Fouladi, S., Ananthanarayanan, G., Venkataraman, S., Savarese, S., Winstein, K., ACM
ASSOC COMPUTING MACHINERY.2019: 27–32
- **From Laptop to Lambda: Outsourcing Everyday Jobs to Thousands of Transient Functional Containers**
Fouladi, S., Romero, F., Iyer, D., Li, Q., Chatterjee, S., Kozyrakis, C., Zaharia, M., Winstein, K., USENIX Assoc
USENIX ASSOC.2019: 475–88
- **Multidecadal observations of the Antarctic ice sheet from restored analog radar records.** *Proceedings of the National Academy of Sciences of the United States of America*
Schroeder, D. M., Dowdeswell, J. A., Siegert, M. J., Bingham, R. G., Chu, W. n., MacKie, E. J., Siegfried, M. R., Vega, K. I., Emmons, J. R., Winstein, K. n.
2019
- **Salsify: Low-Latency Network Video Through Tighter Integration Between a Video Codec and a Transport Protocol**
Fouladi, S., Emmons, J., Orbay, E., Wu, C., Wahby, R. S., Winstein, K., USENIX Assoc
USENIX ASSOC.2018: 267–82
- **Encoding, Fast and Slow: Low-Latency Video Processing Using Thousands of Tiny Threads**
Fouladi, S., Wahby, R. S., Shacklett, B., Balasubramaniam, K., Zeng, W., Bhalerao, R., Sivaraman, A., Porter, G., Winstein, K., USENIX Assoc

USENIX ASSOC.2017: 363–76

- **The Design, Implementation, and Deployment of a System to Transparently Compress Hundreds of Petabytes of Image Files For a File-Storage Service**
Horn, D., Elkabany, K., Lesniewski-Laas, C., Winstein, K., USENIX Assoc
USENIX ASSOC.2017: 1–15
- **The Case For Secure Delegation**
Kogan, D., Stern, H., Tolbert, A., Mazieres, D., Winstein, K., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2017: 15–21
- **Network Stack as a Service in the Cloud**
Niu, Z., Xu, H., Han, D., Cheng, P., Xiong, Y., Chen, G., Winstein, K., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2017: 65–71
- **Congestion-Control Throwdown**
Schapira, M., Winstein, K., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2017: 122–28