

Colin Scott

Curriculum Vitae

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Education

- 2011-2016 **Ph.D. Computer Science (ICTD minor)**, *University of California, Berkeley.*
- 2007-2011 **B.S. Computer Science (Philosophy minor)**, *University of Washington.*
GPA 3.95/4.0; Graduated Magna Cum Laude With College Honors.

Work Experience

- 2020 - *Staff Software Engineer*, GOOGLE, DATACENTER NETWORK INFRASTRUCTURE.
I am a technical lead for self-driving network management.
- 2018 - 2020 *Senior Software Engineer*, GOOGLE, NEXT BILLION USERS.
I was a technical lead of Files By Google.
- 2016 - 2018 *Postdoctoral Researcher*, MICROSOFT RESEARCH INDIA, TEM GROUP.
Sneakernet is the project I conceived of with Bill Thies. Sneakernet seeks to enhance the ecosystem (1B+ users) of phone-to-phone file transfers with automatic proximity detection. I was invited to **present Sneakernet to Satya Nadella and the senior leadership team** at Microsoft. Microsoft Research deployed Sneakernet with [several partners](#).
- Summer 2014 *Software Development Intern*, GOOGLE, MOBILE PERFORMANCE TEAM.
Published a paper on Google's data compression proxy & modified Chrome to selectively route requests through the proxy depending on cost/benefit.
- Summer 2013 *Software Development Intern*, GOOGLE, MOBILE PERFORMANCE TEAM.
Evaluated and deployed experimental protocol optimizations to Google's data compression proxy for mobile clients.
- Summer 2012 *Software Development Intern*, NICIRA. (*Acquired by VMware, July 2012*).
Developed a framework for tracking down bugs in Nicira's distributed systems, by aggregating logs, inferring anomalous behavior, and interactively displaying diagnostics.
- Summer 2010 *Software Development Intern*, AMAZON WEB SERVICES, CLOUDFRONT TEAM.
Developed a system for identifying, prioritizing and diagnosing network problems affecting latency between client networks and CloudFront PoPs.

Software Artifacts

- I am passionate about deploying real world software. Excluding proprietary projects:
- [STS](#) has been used as part of the development process for two major SDN controllers: [ON.Lab's ONOS](#) & [BigSwitch](#). It is also the basis of [SDNRacer](#).
 - [DEMi](#) inspired Salesforce to fuzz (and find bugs in) their Raft system.
 - Sneakernet has been deployed by multiple partners, e.g. [AltBalaji](#).

Technical Skills

Languages.

C++ (3 years full time), Java (4 years full time), Python (3 years full time), Scala (2 years full time), Go (9 months full time), Ruby (2 years full time), Javascript (3 months full time).

Expertise.

Computer networking, bug finding & debugging tools, distributed algorithms.

Selected Talks

Sneakernet.

MSR India Annual Lab Review '18 [20 minute talk], Disruptive Technology Review for Senior Leadership at Microsoft, '18.

Minimizing Faulty Executions of Distributed Systems.

NSDI '16 [17 minute talk], MSR Redmond [60 minute talk], MSR India, RICON, Google, Salesforce, VMware, Cornell, USC, UW, UC Berkeley.

Flywheel: Google's Data Compression Proxy for the Mobile Web.

NSDI '15 [20 minute talk], University of Washington, Google, UC Berkeley.

Troubleshooting SDN Control Software with Minimal Causal Sequences.

SIGCOMM '14, Google, BigSwitch Networks, Intel, Forward Networks, OpenDayLight Meetup, Stanford CTO Summit, University of Washington.

Publications

B. Liu, C. Scott, M. Tariq, A. Ferguson, P. Gill, O. Alipourfard, R. Alimi, D. Arulkanan, V. Beauregard, P. Conner, B. Godfrey, X. Lin, M. Patel, J. Ong, A. Sabaa, A. Singh, A. Smirnov, M. Verma, P. Viswanadham, and A. Vahdat. *CAPA: An Architecture For Operating Cluster Networks With High Availability*. NSDI '24.

D. Mehta, A. Sharma, R. Mothilal, Chiraag, A. Shukla, V. Prasad, W. Thies, Venkanna, C. Scott, and A. Sharma. *Facilitating Media Distribution with Monetary Incentives*. CHI '20.

Y. Jin, C. Scott, A. Dhamdhere, V. Giotsas, A. Krishnamurthy, and S. Shenker. *Stable and Practical AS Relationship Inference with ProbLink*. NSDI '19.

M. Chopra, I. Medhi Thies, J. Pal, C. Scott, W. Thies, and V. Sheshadri. *Exploring Crowdsourced Work in Low-Resource Settings*. CHI '19.

S. Singanamalla, V. Potluri, C. Scott, and I. Medhi-Thies. *PocketATM: Understanding and Improving ATM Accessibility in India*. ICTD '19.

S. Singanamalla, W. Thies, and C. Scott. *Avatar: Enabling Immersive Collaboration via Live Mobile Video*. AltMM '18.

C. Scott. *Crowd Powered Media Delivery: Facilitating Ubiquitous Device-To-Device File Transfers*. (Extended abstract) ACM DEV '16.

J. Vesuna, C. Scott, M. Buettner, M. Piatek, A. Krishnamurthy, and S. Shenker. *Caching Doesn't Improve Mobile Web Performance (Much)*. ATC '16.

C. Scott, A. Panda, V. Brajkovic, G. Necula, A. Krishnamurthy, and S. Shenker. *Minimizing Faulty Executions of Distributed Systems*. NSDI '16.

V. Agababov, M. Buettner, V. Chudnovsky, M. Cogan, B. Greenstein, S. McDaniel, M. Piatek, C. Scott, M. Welsh, and B. Yin. *Flywheel: Google's Data Compression Proxy for the Mobile Web*. NSDI '15.

C. Scott, A. Wundsam, B. Raghavan, Z. Liu, S. Whitlock, A. El-Hassany, A. Or, J. Lai, E. Huang, H. B. Acharya, K. Zarifis, and S. Shenker. *Troubleshooting SDN Control Software with Minimal Causal Sequences*. SIGCOMM '14.

A. Panda, C. Scott, A. Ghodsi, T. Koponen, and S. Shenker. *CAP for Networks*. HotSDN '13.

B. Heller, C. Scott, N. Mckeown, S. Shenker, A. Wundsam, H. Zeng, S. Whitlock, V. Jeyakumar, N. Handigol, M. McCauley, K. Zarifis, and P. Kazemian. *Leveraging SDN Layering to Systematically Troubleshoot Networks*. HotSDN '13.

S. Whitlock, C. Scott, and S. Shenker. *Brief Announcement: Techniques for Programmatically Troubleshooting Distributed Systems*. PODC '13.

J. Sherry, S. Hasan, C. Scott, A. Krishnamurthy, S. Ratnasamy, and V. Sekar. *Making Middleboxes Someone Else's Problem: Network Processing as a Cloud Service*. SIGCOMM '12.

E. Katz-Bassett, C. Scott, D. Choffnes, Í. Cunha, V. Valancius, N. Feamster, H. Madhyastha, T. Anderson, and A. Krishnamurthy. *LIFEGUARD: Practical Repair of Persistent Route Failures*. SIGCOMM '12.

S. Hasan, Y. B. David, C. Scott, E. Brewer, and S. Shenker. *Enabling Rural Connectivity with SDN*. Technical report, UCB EECS Department '12.

E. Katz-Bassett, D. Choffnes, Í. Cunha, C. Scott, T. Anderson, and A. Krishnamurthy. *Machiavellian Routing: Improving Internet Availability with BGP Poisoning*. HotNets '11.

E. Katz-Bassett, H. Madhyastha, V. Adhikari, C. Scott, J. Sherry, P. Van Wesep, T. Anderson, and A. Krishnamurthy. *Reverse Traceroute*. **Best Paper Award**. NSDI '10.

Theses

Reducing Faulty Executions of Distributed Systems. UC Berkeley PhD, 2016.

LIFEGUARD: Locating Internet Failure Events and Generating Usable Alternate Routes Dynamically. UW Senior Thesis, 2011. **Best Senior Thesis Award**.

External Service

Summer 2018 ICTD '18 Program Committee Member.

Spring 2018 ACM CompaSS '18 Program Committee Member.

Summer 2017 ICTD '17 Program Committee Member.