Biographical Sketch: Ravi Netravali

Professional Preparation

Institution	Location	Major	Degree, Date
Columbia University	New York, NY	Electrical Engineering	B.S., 2012
Massachusetts Institute of Technology	Cambridge, MA	Computer Science	S.M., 2015
Massachusetts Institute of Technology	Cambridge, MA	Computer Science	Ph.D., 2018

Appointments

Organization	Position	Dates
University of California, Los Angeles (UCLA)	Assistant Professor	1/2018-present
Hewlett-Packard Labs	Summer Research Intern	5/2012-9/2012
Hewlett-Packard Labs	Summer Research Intern	5/2011-9/2011

Products (publications)

Five publications most related to proposal:

1. **Vesper: Measuring Time-to-Interactivity for Modern Web Pages**
   Ravi Netravali, Vikram Nathan, James Mickens, Hari Balakrishnan
   USENIX NSDI 2018

2. **Prophecy: Accelerating Mobile Page Loads Using Final-state Write Logs**
   Ravi Netravali, James Mickens
   USENIX NSDI 2018

3. **Vroom: Accelerating the Mobile Web with Server-Aided Dependency Resolution**
   Vaspol Ruamviboonsuk, Ravi Netravali, Muhammed Uluyol, Harsha Madhyastha
   ACM SIGCOMM 2017

4. **Polaris: Faster Page Loads Using Fine-grained Dependency Tracking**
   Ravi Netravali, Ameesh Goyal, James Mickens, Hari Balakrishnan
   USENIX NSDI 2016

5. **Mahimahi: Accurate Record-and-Replay for HTTP**
   Ravi Netravali, Anirudh Sivaraman, Keith Winstein, Somak Das, Ameesh Goyal, James Mickens, Hari Balakrishnan
   USENIX ATC 2015

Selected other publications:

1. **Remote-Control Caching: Proxy-based URL Rewriting to Decrease Mobile Browsing Bandwidth**
   Ravi Netravali, James Mickens
   ACM HotMobile 2018

2. **Neural Adaptive Video Streaming with Pensieve**
   Hongzi Mao, Ravi Netravali, Mohammad Alizadeh
   ACM SIGCOMM 2017

3. **Room-Area Networks**
   Peter Iannucci, Ravi Netravali, Ameesh Goyal, Hari Balakrishnan
   ACM HotNets 2015

4. **WiFi, LTE, or Both? Measuring Multi-homed Wireless Internet Performance**
   Shuo Deng, Ravi Netravali, Anirudh Sivaraman, Hari Balakrishnan
   ACM IMC 2014

Synergistic Activities

- My co-authors and I are actively commercializing several of the web optimization systems that we have built. In particular, we are working with several companies to integrate our research prototypes into their backend, content generation pipelines. For example, trial deployments of Polaris (http://web.mit.edu/polaris) are actively underway at companies like American Express and Bounce Exchange. In addition, we are working with Facebook's Content Delivery Team to improve the interactivity of their internal pages.

- I led the development of Mahimahi, a suite of tools that enable developers to record and replay HTTP traffic over emulated networks (http://mahimahi.mit.edu/). Mahimahi is open source, ships with the latest Ubuntu operating system distribution, and is available as a Debian package. It has been used by industry (e.g., Google, AT&T), academic research groups (e.g., MIT, Stanford, Harvard, University of Michigan, Duke), and has been incorporated into the networking courses at Stanford, MIT, and NYU.

- I am currently developing an undergraduate course in distributed systems at UCLA (to be offered in Spring 2019). The course will introduce undergraduate students to fundamental principles and practices that underly networked information systems. Topics include replication, consistency, and fault tolerance. A special focus will be placed on hands-on activites that explain how topics come together to realize practical systems such as distributed databases and file systems, web applications, and more.

- My collaborative work with the University of Michigan, Vroom (published at SIGCOMM 2017), received the 2018 IRTF Applied Networking Research Prize. My colleague, Vaspol Ruamviboonsuk, presented Vroom at IETF-101 in London.