Wentao Shang

Curriculum Vitae

Education

2012–Present	**PhD in Computer Science**, *UCLA*, Los Angeles, CA.
2009–2012	**MS in Electronic Engineering**, *Tsinghua University*, Beijing, China.
2005–2009	**BS in Electronic Engineering**, *Tsinghua University*, Beijing, China.

Project Experience

2012.9–Present   **Research Assistant**, *Internet Research Lab, UCLA*, Los Angeles, CA.

Participated in the *Named Data Networking (NDN)* research project. NDN is a future Internet architecture that adopts data-oriented communication paradigm. My PhD research focuses on developing network systems that explore the potential of the NDN architecture, as well as addressing new challenges. Below is a list of selected research projects:

- **NDN-RIOT**: an NDN protocol stack implementation on RIOT-OS platform in C language, with client-side API support. The goal is to bring NDN support to constrained IoT devices. The demo applications can run on an ARM-based IoT board with 32kB RAM, 256kB Flash and communicate over IEEE 802.15.4 radio.
- **NDN.JS**: an NDN client library written in JavaScript, with full-featured API for developing Web applications on top of the NDN architecture. In the 2016 NDN Hackathon, I participated in a project that uses NDN.JS and WebExtensions API to develop an in-browser NDN forwarder, which was awarded the "Best External Impact" project.
- **NDNFS**: a user-space file system that stores the file data blocks as NDN packets that can be directly transmitted on the network. The file system is implemented in C++ using the FUSE library and exposes a subset of the POSIX file system interface to the local applications.
- **SwiftNDN**: an NDN client library written in Swift that I created while learning the Swift programming language for fun. The library is intended for developing native NDN applications on macOS and iOS platforms.

2016.6–2016.9   **Software Engineer Intern, PhD**, *Google*, Mountain View, CA.

Worked on Google's software-defined L4 load balancer called *Maglev*. My main intern project was to implement a service that monitors the stability of the load distribution configuration that Maglev receives from its controller. The data collected by the monitor can help understand the dynamics of anycast load balancing and its impact on the user traffic.

2015.6–2015.9   **Software Engineer Intern, PhD**, *Google*, Mountain View, CA.

Worked on *Maglev*, Google's software-defined L4 load balancer. My main intern project was to implement new metrics for network load accounting and evaluate the performance impact of the new approach. I also contributed to the *NSDI'16* paper that describes the Maglev load balancer.

2014.6– **PhD Student Intern**, *Cisco Systems*, Cambridge, MA.
2014.8 Focused on evaluating the applicability of the NDN protocol in a typical sensor mesh network environment using constrained wireless channels like IEEE 802.15.4. My intern project was to design and implement an NDN network emulator that allows experimenting with various NDN-based sensor applications.

2009.3– **Research Assistant**, *CERNET Center, Tsinghua University*, Beijing, China.
2012.6 Worked on the design and implementation of *IVI*, an IPv4/IPv6 packet translator (NAT64) that supports stateless mapping between IPv4/IPv6 addresses (RFC 6145). The IVI module was implemented for both Linux and Windows kernels.

Skills

Programming Languages   C, C++, JavaScript, Python

Computer Science   Algorithms, Operating Systems, Network Systems, Distributed Systems, Databases, Lambda Calculus