Yiyang Chang

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Education

Purdue University - Expect to graduate before Summer 2019 — West Lafayette, IN
Ph.D. Candidate in Computer Engineering, ECE (GPA: 3.9/4.0) — Aug 2013 – Present

Peking University — Beijing, China
B.S. in Micro-electronics, EECS (GPA: 3.6/4.0) — Sept 2009 – July 2013

Research Experience

Network Performance SLOs Certification — Purdue, West Lafayette, IN
Advisors: Prof. **Sanjay Rao** and Prof. **Mohit Tawarmalani** — Oct 2015 – Present
- Built a system for certifying network performance SLOs, under various types of failures
- Implemented the framework and algorithms in GAMS and Gurobi Python Interface

Scalable Distributed SDN Controller — Purdue, West Lafayette, IN
Advisors: Prof. **Sanjay Rao** and Prof. **T. N. Vijaykumar** — Nov 2014 – July 2015
- Designed SDN controllers with functional partition instead of topological partition
- Extended Floodlight SDN controller source (Java, sloc: 100k) to measure performance

App-specific Virtual Machine (VM) Selection in the Cloud — Purdue, West Lafayette, IN
Advisors: Prof. **Sanjay Rao** and Prof. **T. S. Eugene Ng** — Sept 2013 – Aug 2014
- Cost-aware VM selection based on historical workload and online measurement
- Investigated the root cause of performance variation on AWS EC2

Industry Experience

Research Intern on Distributed Deep Learning Training System — Microsoft Research, Redmond, WA
Manager: Dr. **Jin Li** — May 2017 – Aug 2017
- Prototyped a distributed deep learning training system over RDMA, accelerating a production-level model training speed by 6.5X
- Contributed to TensorFlow open source project (#11416)

SDE Intern on TCP Congestion Control — Microsoft, Redmond, WA
Manager: **Praveen Balasubramanian** — May 2016 – July 2016
- Prototyped and shipped TCP CUBIC congestion control in Windows 10
- Designed experiments to demonstrate throughput improvement in data transfer

Research Intern on SDN-based Cloud Monitoring System — Huawei, Santa Clara, CA
Mentors: Dr. **Shuo Yang** and Dr. **Haoyu Song** — May 2014 – Aug 2014
- Built an SDN-based cloud monitoring system with OpenStack, Ryu, and Ganglia
- Implemented a physical SDN with Pica8 switches and Ryu controller

Course Projects

Real-time Video Analysis System (C++) — ECE 673: Distributed Computing Systems (A+)
- Prototyped a real-time video analysis system using content-aware partition and pipelines
- Improved the video analysis accuracy by 25%, compared with state-of-the-art

Linux Kernel Hacking (C) — ECE 695: Operating System (A)
- Built a usage-limiting CPU scheduler based on Linux Complete Fair Scheduler
- Visualized the memory page reference count in a Linux-ARM kernel

Paxos and Reliable Multicast (C) — CS 505: Distributed System (A)
- Implemented a Paxos-based replication protocol, a total-ordering multicast service, and Leslie Lamport's Byzantine Generals algorithm

Selected Publication

- **Yiyang Chang**, Sanjay Rao, and Mohit Tawarmalani. "Robust Validation of Network Designs under Uncertain Demands and Failures", **NSDI**, 2017 (Acceptance rate: 46/253 = 18.2%).

Honors and Awards

Facebook Fellowship Finalist, Facebook Inc. — Jan 2018
Bilsland Dissertation Fellowship, Purdue University — Jan 2018
National Scholarship, Peking University — Dec 2012
Google Excellence Scholarship, Google Inc. — May 2012

Languages & Technical Skills

Python (proficient), C/C++, Java, Matlab, GAMS, Gubori, AWS, Kubernetes, SDN, TensorFlow, Git, Vim