

Han Zhang

Curriculum Vitae

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Languages

C++ (proficient), Python, Java (experience - research projects), Go (experience - course projects).

Research Interests

Computer Networks, Security and Privacy, Mobile Systems, Internet of Things, Program Analysis.

Education

2017–current **PhD student in Computer Science**, Carnegie Mellon University, Pittsburgh, PA.

Advisors: Yuvraj Agarwal, Matt Fredrikson.

2014–2017 **B.S. in Computer Science**, *With High Distinction*, University of Michigan, Ann Arbor, MI.

Recent Projects

- Capture**
 - Design novel Internet-of-Things firmware architecture providing single instances of software libraries shared across different local devices.
 - Apply existing Linux and networking isolation techniques to maintain security goals (e.g., VLAN, WPA2 Enterprise, cgroups, TOMOYO Linux).
 - Language: C++.
- GuardRail**
 - Designed behavior specification language for describing Android apps' private data usage.
 - Designed and implemented a policy enforcement system to verify apps' behaviors according to developer-provided behavior policy, with tools including FlowDroid, Soot, Apktool.
 - Language: Java.

Experience

Summer 2016 Software Engineering Intern, Area 1 Security, Inc, Redwood City, CA.

- Developed new on-boarding dashboard, in Flask and PostgreSQL, to automate clients' DNS record updates and email server configurations for integration with Area 1's email security products.
- Conducted testing phishing campaign for client organization, with management consents, to raise employee awareness.
- Language: Python, SQL.

2014–2015 Undergraduate research at Merit Network, Inc, Ann Arbor, MI.

Mentor: Michalis Kallitsis.

- Implemented efficient anomaly detection algorithms to analyze high volume network traffics.
- Created web dashboard, in PHP, to interactively display IP heatmaps and analysis results.
- Managed MongoDB database to store traffic metadata and to provide backend API endpoints.

Publications

- HotNets 2016 Towards Comprehensive Repositories of Opinions.
Han Zhang, Kasra Edalat Nejad, Amir Rahmati, and Harsha V. Madhyastha, 15th ACM Workshop on Hot Topics in Networks, Atlanta, GA, November 2016.

Teaching

- Fall 2019 Teaching assistant, 15-440/640: Distributed Systems, Carnegie Mellon University.
 - Design and improve course projects, in Go, and help students with their programming questions during office hours.
 - Manage and maintain the autograder system, in Linux VM and shell scripts, and automate other course logistic tasks.
- Fall 2016 Teaching assistant, EECS 388: Intro to Computer Security, University of Michigan.

Honors and Awards

- 2019 Qualcomm Innovation Fellowship - Finalist
Do-it-Yourself-Locally: An IoT architecture For Localized DataControl for Privacy and Security
- 2015 Summer Undergraduate Research in Engineering Program, University of Michigan.
- 2014-2015 Undergraduate Research Opportunity Program, University of Michigan.