Junwen Yang

Ph.D. in Computer Science

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Research Interests

Improving the quality of **big-data software**.

Research Projects

2016-now **Hyperloop (`http://hyperloop.cs.uchicago.edu`)**, *an ongoing project that aims to understand, detect, and solve performance problems for web applications built with Object-Relational Mapping (ORM) frameworks*.

- A comprehensive study on existing open-source applications built with Ruby-on-Rails
- PowerStation (`http://hyperloop.cs.uchicago.edu/powerstation`), a RubyMine plugin to automatically identify and suggest fixes for performance issues
- Panorama, (`http://hyperloop.cs.uchicago.edu/panorama`), a view-centric and database-aware development environment for web developers to understand the data-processing costs and explore better application design opportunities.

Education

2016–now **Ph.D in Computer Science**, *University of Chicago*, (Advised by Prof. Shan Lu).

2011–2015 **BEng in Software Engineering**, *Fudan University*, *3.6/4.0*, Rank 5/79.

2013–2014 **Exchange student in Computer Science**, *National Tsinghua University*, *4.2/4.3*.

Publication

2019 **Junwen Yang**, Cong Yan, Chengcheng Wan, Shan Lu, Alvin Cheung, View-Centric Performance Optimization for Database-Backed Web Applications, *41th International Conference on Software Engineering* (**ICSE'19**).

★ SIGSOFT Distinguished Paper Award

2018 **Junwen Yang**, Cong Yan, Pranav Subramaniam, Shan Lu, Alvin Cheung, PowerStation: Automatically Detecting and Fixing Inefficiencies of Database-backed Web Applications in IDE, *26th Foundations of Software Engineering* (**FSE'18 Demonstration Track**).

2018 **Junwen Yang**, Cong Yan, Pranav Subramaniam, Shan Lu, Alvin Cheung, How not to structure your database-backed web applications: a study of performance bugs in the wild, *40th International Conference on Software Engineering* (**ICSE'18**).

- Featured on Morning paper, HackerNews, and RubyWeekly.

2017 Cong Yan, **Junwen Yang**, Alvin Cheung, and Shan Lu, Understanding Performance Inefficiencies in Real-world Database-backed Applications, *26th Conference on Information and Knowledge Management* (**CIKM'17**).

Talk

2018 **PowerStation: Automatically Detecting and Fixing Inefficiencies of Database-backed Web Applications in IDE**, *26th Foundations of Software Engineering*, Florida, United States.

2018 **How not to structure your database-backed web applications: a study of performance bugs in the wild**, *40th International Conference on Software Engineering*, Gothenburg, Sweden.

2017 **Understanding Performance Inefficiencies in Real-world Database-backed Applications**, *26th Conference on Information and Knowledge Management*, Singarpore.

Outreach

2018 **ACM-W mentor program**, *a program for mentoring undergraduate students*.

2018&2019 **Instructor in compileHer (FEMMES) Tech Capstone Teaching**, *a workshop to lead middle school girls through CS and STEM concepts*.

2017 **Student volunteer**, *for 26th ACM Symposium on Operating Systems Principles*.

2017 **Student volunteer**, *for ACM SIGMOD/PODS Conference*.

2017 **Attended Diversity at SOSP'17: The Ada Workshop**, *a forum for female and minority students at the graduate and advanced undergraduate levels who have interests in computer systems research*.

Award

2019 **University Unrestricted (UU) Fellowship**.

2017 **CERES Outstanding Research Award 1st Year Graduate**.

Internship

2014–2015 **Student Consultant**, *Microsoft Research Asia (MSRA)*, Beijing.
- Better scheduling transient resources to run data-intensive jobs for distributed systems Supervised by lead researcher Dr. Zhengping Qian.

2014.3–2014.9 **Software Development in Test (SDET) intern**, *EMC*, Shanghai.
- Automate testing frameworks of Mozy, a cloud platform.
- Create incremental code coverage rate finder.

Teaching Experience

2016 **TA for Introduction to Computer Security (CMSC 23200/33250)**, *University of Chicago*, Ariel Feldman.

2014 **TA for Discrete Mathematics**, *Fudan University*, Yiming Zhao.