

Junwen Yang

*Ph.D. in Computer Science
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Research Interests

Improving the performance and correctness 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.
 - Vibranium, (<http://hyperloop.cs.uchicago.edu/vibranium>), the first in-depth study of data-constraint problems in web applications, which helps developers better manage data constraints

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

- 2020 **Junwen Yang**, Utsav Sethi, Cong Yan, Shan Lu, Alvin Cheung, Managing data constraints in database-backed web applications, *42th International Conference on Software Engineering (ICSE'20)*.
- 2020 Cong Yan, **Junwen Yang**, Alvin Cheung, and Shan Lu, View-Driven Optimization of Database-Backed Web Applications, *The Conference on Innovative Data Systems Research (CIDR'20)*.
- 2019 **Junwen Yang**, Improving Performance and Quality of Database-Backed Software, (**SPLASH'19 Doctoral Symposium**).
- ★ John Vlissides Award

- 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
 - Featured on Morning paper
- 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

- 2019 **Improving Performance of Database-Backed Software**, *2019 MIDAS*, University of Michigan, US.
- 2019 **Improving Performance and Quality of Database-Backed Software**, *2019 SPLASH Doctoral Symposium*, Athens, Greece.
- 2019 **View-Centric Performance Optimization for Database-Backed Web Applications**, *41th International Conference on Software Engineering*, Montreal, Canada.
- 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*, Singapore.

Outreach

- 2020 **Invited to the ECOOP'20 Artifact Evaluation Committee (AEC)**.
- 2020 **Invited to ICPE 2020 Poster and Demo Track program committee**.
- 2018 **Mentor in ACM-W mentor program**, *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 SOSP 2017, SIGMOD/PODS 2017, ICSE 2019*.

- 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 **SIGSOFT Distinguished Paper Award**.
2019 **John Vlissides Award**.
2019 **University Unrestricted (UU) Fellowship**.
2017 **CERES Outstanding Research Award 1st Year Graduate**.

Internship

- 2020 **Research Intern**, *Microsoft Research*, Seattle, Supervised by Yeye He working on data discovery.
 - Working on data discovery
 - To start this June.
- 2019 **Research Scientist**, *Facebook*, Seattle, Supervised by Nathan Slingerland.
- 2014–2015 **Student Consultant**, *Microsoft Research Asia (MSRA)*, Beijing.
 - Better scheduling transient resources to run data-intensive jobs for distributed systemsSupervised by lead researcher Dr. Zhengping Qian.
- 2014.3– **Software Development in Test (SDET) intern**, *EMC*, Shanghai.
- 2014.9
 - 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.