

Yixue Zhao, PhD

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Summary

- **7+ years** of experience in **Software Engineering research**, including mobile applications, network performance, program analysis, automated testing, software architecture
 - **16 conference publications** in Software Engineering, including ICSE, ESEC/FSE, and ASE
 - **2 U.S. patents** granted, focusing on mobile-app security and performance optimization
 - **12 students** mentored, including high-school students and underrepresented groups
 - **185k+ grants and awards** received, including Microsoft Research Dissertation Grant, CIFellow
 - **9 program committees** and **organizing committees**, including ICSE, ASE, and womENCourage
 - **Programming Languages:** Python, Java, R, C/C++, Javascript, Bash [see [Github](#)]
 - **Transferable Skills:** Verbal Communication [see [talks](#)], Written Communication [see [blogs, publications](#)], Leadership and Teamwork [see [mentoring](#)], Creativity [see [classes](#) and diverse research topics], Collaboration and Outreach [see diverse co-authors and [academic services](#)]
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Education

University of Southern California (USC)	USA
Doctor of Philosophy in Computer Science	2014 – 2020
Advisor: Nenad Medvidović	
Cumulative GPA - 3.91/4.0	
University of Oxford & York University	UK
Engineering Summer School	Summer, 2013
Harbin Institute of Technology (HIT)	China
Bachelor of Engineering in Software Engineering	2010 – 2014
Advisor: Zhongjie Wang	
Cumulative GPA - 88.93/100 (Rank 1/136)	

Work Experience

Research Computer Scientist • Information Sciences Institute (ISI)	Arlington (VA), USA
Next-Generation Processors for Spaceships	
• developing fault-tolerant libraries for novel RISC-V processors, part of NASA's HPSC project .	
Mental Health and Digital Well-being	Since 2022
Computing Innovation Fellow (CIFellow Postdoc) • LASER Lab	UMass Amherst, USA
Improving Natural Language Feedback Quality	
• using NLP techniques to understand and improve peer reviews for scientific papers, focusing on text summarization and co-reference resolution	
Automated UI Test Generation	
• developing automated test generation techniques centered around usage scenarios, by learning from app videos using AI-assisted computer-vision techniques	2021 – 2022
Graduate Research Assistant • SoftArch Lab	USC, USA
Reducing User-Perceived Latency in Mobile Apps via Prefetching & Caching (PhD Dissertation)	
• won best dissertation award in CS department at USC [award talk]	
• won Microsoft Research Dissertation Grant [press]	
• resulted in 4 first-author full conference publications	
• won 1st place in the Student Research Competition (SRC) at MOBILESoft	2014 – 2020
Infrastructure Support for Open Science [lightning talk]	2019 – 2020
Reducing Inter-Component Security Vulnerabilities in Android Apps	2016 – 2017
Architecture Change and Decay in Open-Source Systems	2015 – 2017
Visiting Scholar • CREST Centre	UCL, UK
Designed and developed a framework FrUITeR for evaluating UI test reuse [website]	Summer, 2019

Awards & Honors

William F. Ballhaus Jr. Best Dissertation Award, Finalist (winner in CS department)	USC, 2021
Computing Innovation Fellow (59 recipients in North America)	CRA & CCC & NSF, 2020
Microsoft Research Dissertation Grant (11 recipients in North America)	MSR, 2019 – 2020
UIUC Rising Star in EECS	UIUC, 2019
WiSE Merit Award (3 recipients in the Engineering School at USC)	USC, 2019
Best Research Assistant Award (3 recipients in CS Department)	USC, 2018
Jenny Wang Excellence in Teaching Award (1 recipient in CS Department)	USC, 2018
1st Place in MOBILESoft Student Research Competition	MOBILESoft, 2017
University Graduate Fellowship	USC, 2014 – 2018
University Scholarships, <i>consecutive</i>	HIT, 2010 – 2014
Outstanding Student Awards, <i>consecutive</i>	HIT, 2010 – 2014
China National Scholarship (0.2% in China)	Ministry of Education of China, 2013

Publications

PhD Dissertation

Reducing User-Perceived Latency in Mobile Applications via Prefetching and Caching

Yixue Zhao. 2020. [[pdf](#)] [[talk](#)]

Conference Papers

C16: AVGUST: A Tool for Generating Usage-Based Tests from Videos of App Executions (to appear)

Saghar Talebipour, Hyojae Park, Kesina Baral, Leon Yee, Safwat Ali Khan, Kevin Moran, Yuriy Brun, Nenad Medvidovic, and Yixue Zhao

International Conference on Software Engineering (ICSE 2023), Demo Track.

C15: AVGUST: Automating Usage-Based Test Generation from Videos of App Executions

Yixue Zhao, Saghar Talebipour, Kesina Baral, Hyojae Park, Leon Yee, Safwat Ali Khan, Yuriy Brun, Nenad Medvidovic, and Kevin Moran

Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2022), acceptance rate: 22% = 99/449.

[[pdf](#)] [[talk](#)] [[artifact](#)]

C14: UI Test Migration Across Mobile Platforms

Saghar Talebipour, Yixue Zhao, Luka Dojcilovic, Chenggang Li, and Nenad Medvidovic

International Conference on Automated Software Engineering (ASE 2021), acceptance rate: 19% = 82/427. [[pdf](#)]

C13: Identifying Casualty Changes in Software Patches

Adriana Sejfa, Yixue Zhao, and Nenad Medvidovic

Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2021). [[pdf](#)]

C12: Assessing the Feasibility of Web-Request Prediction Models on Mobile Platforms

Yixue Zhao, Siwei Yin, Adriana Sejfa, Marcelo Schmitt Laser, Haoyu Wang and Nenad Medvidovic

International Conference on Mobile Software Engineering and Systems (MOBILESoft 2021), acceptance rate: 38%.

[[pdf](#)] [[talk](#)] [[artifact](#)]

C11: FrUITeR: A Framework for Evaluating UI Test Reuse

Yixue Zhao, Justin Chen, Adriana Sejfa, Marcelo Schmitt Laser, Jie Zhang, Federica Sarro, Mark Harman, Nenad Medvidovic

Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2020), acceptance rate: 28% = 101/360.

[[pdf](#)] [[talk](#)] [[artifact](#)]

C10: Mobile-App Analysis and Instrumentation Techniques Reimagined with DECREE

Yixue Zhao, Nenad Medvidovic

International Conference on Software Engineering (ICSE 2019), ROSE Festival (Position Paper).

[[pdf](#)] [[talk](#)]

- C9: A Microservice Architecture for Online Mobile App Optimization**
Yixue Zhao, Nenad Medvidovic
 International Conference on Mobile Software Engineering and Systems (**MOBILESoft 2019**),
 Visions Track.
[\[pdf\]](#) [\[talk\]](#)
- C8: Mobile-App Analysis and Instrumentation Techniques Reimagined with DECREE**
Yixue Zhao
 International Conference on Software Engineering (**ICSE 2019**), Doctoral Symposium,
 acceptance rate: 29% = 9 (oral presentation)/31. [\[pdf\]](#)
- C7: Empirically Assessing Opportunities for Prefetching and Caching in Mobile Apps**
Yixue Zhao, Paul Wat, Marcelo Schmitt Laser, Nenad Medvidovic
 International Conference on Automated Software Engineering (**ASE 2018**),
 acceptance rate: 20% = 69/346.
[\[pdf\]](#) [\[talk\]](#) [\[artifact\]](#)
- C6: Leveraging Program Analysis to Reduce User-Perceived Latency in Mobile Applications**
Yixue Zhao, Marcelo Schmitt Laser, Yingjun Lyu, Nenad Medvidovic
 International Conference on Software Engineering (**ICSE 2018**), acceptance rate: 21% = 105/502.
[\[pdf\]](#) [\[talk\]](#) [\[artifact\]](#)
- C5: MOBILESoft: G: Reducing Latency in Mobile Apps via Program Analysis**
Yixue Zhao
 ACM Student Research Competition Grand Final 2018. [\[pdf\]](#)
- C4: Toward Client-Centric Approaches for Latency Minimization in Mobile Applications**
Yixue Zhao
 International Conference on Mobile Software Engineering and Systems (**MOBILESoft 2017**),
 Student Research Competition. [\[pdf\]](#)
- C3: A SEALANT for Inter-App Security Holes in Android**
 Youn Kyu Lee, Jae young Bang, Gholamreza Safi, Arman Shahbazian, Yixue Zhao, Nenad Medvidovic
 International Conference on Software Engineering (**ICSE 2017**), acceptance rate: 17% = 68/398.
- C2: Code Anomalies Flock Together: Exploring Code Anomaly Agglomerations for Locating Design Problems**
 Willian Oizumi, Alessandro Garcia, Leonardo da Silva Sousa, Bruno Cafeo, Yixue Zhao
 International Conference on Software Engineering (**ICSE 2016**), acceptance rate: 19% = 101/530
- C1: A Linked Data based Personal Service Data Collection and Semantics Unification Method**
Yixue Zhao, Zhongjie Wang, Liping Zou, Jiaqiu Wang, Youqiang Hao
 International Conference on Service Science (**ICSS 2014**)

Book Chapters

- B1: Mining the Social Web, 2nd Edition. Matthew A. Russell (Chinese Translation)**
 Tonghua Su, Tong Wei, Yixue Zhao, Shuoxing Wang, Zhiyue Liu
China Machine Press, 2015

Patents

- Latency Minimization in Mobile Applications**
Yixue Zhao, et al. Patent Number: US20200311173 2022
- SEALANT: Security for End-users of Android via Light-weight Analysis Techniques**
 Youn Kyu Lee, et al. Patent Number: US10827349 2020

Mentoring and Teaching

- I have mentored 12 students, including high-school students and underrepresented groups [see [mentoring](#)]
- Mentored high school student Diana Balderas in [Young Researchers Program](#) *Summer, 2017*
- Outcome: the resulting project has won the [2017 Congressional App Challenge](#)
- Mentored high school students Hyojae Park, Leon Yee, Arthur Wu *2021 – Present*
- Outcome: the resulting project was accepted to ESEC/FSE 2022 technical track
- Mentored undergraduates: Justin Chen, Siwei Yin, Paul Wat, Marcelo Laser *2017 – Present*
- Outcome: 4 full conference papers
- Mentored PhD students: Adriana Sejfia, Marcelo Laser, Saghar Talebipour, Kesina Baral *2017 – Present*

- Outcome: 3 full conference papers
- TA for CSCI-310: Software Engineering, Instructor: Nenad Medvidović USC, Fall 2016, 2017
- TA for CSCI-585: Database Systems, Instructor: Saty Raghavachary USC, Spring 2016
- Outcome: Jenny Wang Excellence in Teaching Award (1 recipient in CS Department)
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Online Course Certificates

I love learning! In my spare time, I have taken 20+ classes outside of my major [see [classes](#)]

Introduction to Psychology by Paul Bloom [certificate]	2022
Learning How to Learn by Barbara Oakley and Terry Sejnowski [certificate]	2021
Fundamentals of Project Planning and Management by Yael Grushka-Cockayne [certificate]	2020
Neural Networks and Deep Learning [certificate]	2020

Academic Services

Program Committee: [ICSE 2022](#), [MOBILESoft 2022](#), [womENCourage 2021](#), [SERVICES-IWIOS 2021](#), [MOBILESoft 2021](#)

Organizing Committee: [ICSE 2023 Student Mentoring Workshop Chair](#), [MOBILESoft 2020 Publicity Chair](#), [ASE 2019 Social Media Chair](#), [MOBILESoft 2019 Publicity and Social Media Chair](#)

Journal Review: [TSE 2020](#), [TSE 2021](#)

Panelist: [ESEC/FSE 2020](#), [ICSE 2018](#)

Session Chair: [ESEC/FSE 2020](#), [MOBILESoft 2019](#)

Student Volunteer: [ICSE 2017](#)

Invited Talks

Better App, Better Life?	MIT, 2022
From Mobile App Technique to Open Science Infrastructure	HKUST, 2020
Reducing User-Perceived Latency in Mobile Apps via Data Prefetching	UIUC, 2019
Networking at Research Conferences	USC, 2019
Reducing User-Perceived Latency in Mobile Apps via Data Prefetching	PKU, 2018
Program Analysis for Latency Optimization in Mobile Apps (Guest Lecture)	USC, 2018
Program Analysis for Latency Optimization in Mobile Apps (Networked Systems Lab)	USC, 2017

Professional Activities

UMass Alumni Mentorship Program, Mentor	2023
ICSE 2022 Student Mentoring Workshop, Mentor	2022
CRA-WP Early Career Mentoring Workshop, Participant	2020
PL + HCI "Swimmer" School, Participant	2020
Women in Computing Club Organizing Committee	USC, 2019 – 2020
Microsoft Research PhD Summit, Participant	MSR, 2019
UIUC EECS Rising Stars Workshop, Participant	UIUC, 2019
<i>Byte of Life</i> Seminar on Work-Life Balance, Panelist	USC, 2019
Viterbi Teaching Assistant Training, Panelist	USC, 2018
Quantitative Finance Women's PhD Mentorship Program (8 recipients in USA)	Morgan Stanley, 2017
CRA-WP Grad Cohort, Participant	CRA-WP, 2017
Fake Fancy - Academic and Industry Panel, Panelist	USC, 2017
Grace Hopper Celebration of Women in Computing, Participant	AnitaB.org, 2015

Press Coverage

Rising Star Honored for Early Achievements and Promise	USC, 2019
Dissertation grant recipients embarking on diverse paths to scientific and societal impact	MSR, 2019
Interviewed by American Language Institute to Represent International Students	USC, 2018