Yixue Zhao, PhD

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Summary

- **10+ years** of experience in **Software Engineering research**, including Mobile-App Analysis and Testing, Predictive Modeling, Program Analysis, **Mental Health**, **Digital Wellbeing**
- **20+ publications** in top venues, including ICSE, FSE, and ASE
- **2 U.S. patents** granted, focusing on mobile-app security and performance optimization
- **20+ students** mentored, including high-school students and underrepresented groups
- **10+ program committees** and **organizing committees**, including ICSE, ASE, and CHI
- **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**]

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 • USC Information Sciences Institute (USC/ISI)   Arlington, USA
Mental Fitness and Well-being
- developing context-aware, personalized recommendation systems for mental health interventions
- developing digital well-being interventions through the lens of mindfulness

Next-Generation Processors for Space Computing
- developing fault-tolerant libraries for RISC-V processors, part of NASA's HPSC project   *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 [**lightening 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   ACM, *2017*
University Graduate Fellowship   USC, *2014 – 2018*
University Scholarships, *consecutive*   HIT, *2010 – 2014*
Outstanding Student Awards, *consecutive*   HIT, *2010 – 2014*
China National Scholarship (0.2% in China)   Ministry of Education of China, *2013*

Grants

Computing Innovation Fellow, $150,000   CRA & CCC & NSF, *2020 – 2021*
Microsoft Research Dissertation Grant, $25,000   MSR, *2019 – 2020*

Publications

PhD Dissertation

Reducing User-Perceived Latency in Mobile Applications via Prefetching and Caching
Yixue Zhao. 2020. [pdf] [talk]

Conference Papers

C21: Predicting and Understanding College Student Mental Health with Interpretable Machine Learning
Meghna Roy Chowdhury, Wei Xuan, **Yixue Zhao**, and Yi Ding
International Conference on Connected Health: Applications, Systems, and Engineering Technologies (**CHASE 2025**). [pdf]

C20: AffectEval: A Modular and Customizable Affective Computing Framework
Emily Zhou, Khushboo Khatri, **Yixue Zhao**, and Bhaskar Krishnamachari
International Conference on Connected Health: Applications, Systems, and Engineering Technologies (**CHASE 2025**). [pdf]

C19: Unlocking Mental Health: Exploring College Students' Well-being through Smartphone Behaviors
Wei Xuan, Meghna Roy Chowdhury, Yi Ding, and **Yixue Zhao**
International Conference on Mobile Software Engineering and Systems (**MOBILESoft 2025**).
[pdf] [artifact]

C18: Digital Wellbeing Redefined: Toward User-Centric Approach for Positive Social Media Engagement [pdf] [talk]
Yixue Zhao, Tianyi Li, and Michael Sobolev
International Conference on Mobile Software Engineering and Systems (**MOBILESoft 2024**).

C17: CAREForMe: Contextual Multi-Armed Bandit Recommendation Framework for Mental Health
Sheng Yu, Narjes Nourzad, Randye J. Semple, **Yixue Zhao**, Emily Zhou, and Bhaskar Krishnamachari
International Conference on Mobile Software Engineering and Systems (**MOBILESoft 2024**).
[pdf] [talk] [artifact]

C16: AVGUST: A Tool for Generating Usage-Based Tests from Videos of App Executions
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. [pdf]

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, <u>**Yixue Zhao**</u>, 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 Sejfia, <u>**Yixue Zhao**</u>, 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
<u>**Yixue Zhao**</u>, Siwei Yin, Adriana Sejfia, 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
<u>**Yixue Zhao**</u>, Justin Chen, Adriana Sejfia, 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
<u>**Yixue Zhao**</u>, Nenad Medvidovic
International Conference on Software Engineering (**ICSE 2019**), ROSE Festival (Position Paper).
[pdf] [talk]

C9: A Microservice Architecture for Online Mobile App Optimization
<u>**Yixue Zhao**</u>, 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
<u>**Yixue Zhao**</u>
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
<u>**Yixue Zhao**</u>, 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
<u>**Yixue Zhao**</u>, 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
<u>**Yixue Zhao**</u>
ACM Student Research Competition Grand Final 2018. [pdf]

C4: Toward Client-Centric Approaches for Latency Minimization in Mobile Applications
<u>**Yixue Zhao**</u>
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, <u>**Yixue Zhao**</u>, 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, <u>**Yixue Zhao**</u>
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
<u>**Yixue Zhao**</u>, 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 enjoyed mentoring many students than I can count, including high-school students and underrepresented groups. [see highlights in **mentoring**]

Mentored high school student Diana Balderas in USC 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   *since 2021*
- Outcome: the resulting project was accepted to ESEC/FSE 2022 technical track

Mentored undergraduates: Justin Chen, Siwei Yin, Paul Wat, Marcelo Laser   *since 2017*
- Outcome: 4 conference papers

Mentored PhD students: Adriana Sejfia, Marcelo Laser, Saghar Talebipour, Kesina Baral, Meghna Roy Chowdhury, Wei Xuan, Emily Zhou
- Outcome: 8 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)**

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

Steering Committee: ICSE Student Mentoring Workshop (SMeW)

Program Committee: CHI 2024, ICSE 2022, MOBILESoft 2022, womENcourage 2021, SERVICES-IWIOS 2021, MOBILESoft 2021

Organizing Committee:
- ICSE 2025 Africa Initiative Organizer (sponsored by ACM SIGSOFT)
- ICSE 2024 Africa Initiative Organizer (sponsored by ACM SIGSOFT)
- ICSE 2024 Student Mentoring Workshop Chair
- ICSE 2023 Student Mentoring Workshop Chair
- MOBILESoft 2020 Publicity Chair
- ASE 2019 Social Media Chair
- MOBILESoft 2019 Publicity and Social Media Chair

Proposal Review: NSF Panel 2025

Journal Review: TSE 2020, TSE 2021, JMIR Online Journal of Public Health Informatics 2024

Panelist: ICSE 2025, ESEC/FSE 2020, ICSE 2018

Session Chair: CHASE 2025, ESEC/FSE 2020, MOBILESoft 2019

Student Volunteer: ICSE 2017

Invited Talks

Better App, Better Life?	OSU, *2024*
Better App, Better Life?	MIT, *2022*
Better App, Better Life?	Apple, *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 – Present*
CRA Career Mentoring Workshops, Participant	Washington DC, *2024*
CRA-WP Early & Mid Career Mentoring Workshop, Participant	Chicago, *2023*
ICSE 2022 Student Mentoring Workshop, Mentor	Melbourne, *2022*
CRA-WP Early Career Mentoring Workshop, Participant	Washington DC, *2020*
PL + HCI "Swimmer" School, Participant	Online, *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*
Byte of Life 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*