

TIANYI ZHANG

Assistant Professor in Computer Science

Lawson 3154H, Purdue University

tianyi@purdue.edu · (512) 913-7789

<https://tianyi-zhang.github.io/>

RESEARCH INTERESTS

Software Engineering, Human-Computer Interaction, Interactive Machine Learning, Mining Software Repositories, Program Synthesis, Software Evolution.

EDUCATION

Ph.D. in Computer Science

June 2019

University of California, Los Angeles

Advisor: Miryung Kim

Committee: Todd Millstein, Jens Palsberg, Westley Weimer

Dissertation: Leveraging Program Commonalities and Variations for Systematic Software Development and Maintenance

Bachelor of Science, Computer Science

June 2013

Huazhong University of Science and Technology, Wuhan, China

HONORS AND AWARDS

CHI 2021 Best Paper Honorable Mention Award

2020 Distinguished Reviewer for ACM Transactions on Software Engineering and Methodology (TOSEM)

2017-2018 UCLA Dissertation Year Fellowship

University of California, Los Angeles, 2017

2017-2018 Google Outstanding Graduate Student Research Award

University of California, Los Angeles, 2017

Teaching Award in Recognition of Excellence in Teaching

The University of Texas at Austin, 2014

PEER-REVIEWED CONFERENCE PAPERS

* denotes equal contribution.

[C.14] Interpretable Program Synthesis

Tianyi Zhang, Zhiyang Chen, Yuanli Zhu, Priyan Vaithilingam, Xinyu Wang, Elena L. Glassman

In *Proceedings of the 2020 Conference on Human Factors in Computing Systems (CHI 2021)*, 24 pages, ACM, 2020 (Acceptance Rate: 26%).

[C.13] Visualizing Examples of Deep Neural Networks at Scale 🏆 **Honorable Mention Award**

Litao Yan, Elena L. Glassman, **Tianyi Zhang**

In *Proceedings of the 2020 Conference on Human Factors in Computing Systems (CHI 2021)*, 22 pages, ACM, 2020 (Acceptance Rate: 26%).

- [C.12] **Interactive Program Synthesis by Augmented Examples**
Tianyi Zhang, London Lowmanstone, Xinyu Wang, Elena L. Glassman
In *Proceedings of the 33rd ACM User Interface Software and Technology Symposium (UIST 2020)*, 15 pages, ACM, 2020 (Acceptance Rate: 22%).
- [C.11] **Enabling Data-Driven API Design with Community Usage Data: A Need-Finding Study**
Tianyi Zhang, Björn Hartmann, Miryung Kim, Elena L. Glassman
In *Proceedings of the 2020 Conference on Human Factors in Computing Systems (CHI 2020)*, pages 1-13, ACM, 2020 (Acceptance Rate: 24%).
- [C.10] **JShrink: In-depth Investigation into Debloating Modern Java Applications**
Bobby Bruce*, Tianyi Zhang*, Jaspreet Arora, Guoqing Harry Xu, Miryung Kim
In *Proceedings of the 28th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2020)*, 12 pages, ACM, 2020 (Acceptance Rate: 28%).
- [C.9] **An Analysis of Adversarial Attacks and Defenses on Autonomous Driving Models**
Yao Deng, James Xi Zheng, Tianyi Zhang, Chen Chen, Guannan Lou, Miryung Kim
In *Proceedings of the 2020 IEEE International Conference on Pervasive Computing and Communications (PerCom 2020)*, pages 1-10, IEEE, 2020 (Acceptance Rate: 15%).
- [C.8] **Exempla Gratis (E.G.): Code Examples for Free**
Celeste Barnaby, Koushik Sen, Tianyi Zhang, Elena L. Glassman, Satish Chandra
In *Proceedings of the 28th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2020 Industry Track)*, 12 pages, ACM, 2020 (Acceptance Rate: 36%).
- [C.7] **Analyzing and Supporting Adaptation of Online Code Examples**
Tianyi Zhang, Di Yang, Cristina Lopes, Miryung Kim
In *Proceedings of the 41th International Conference on Software Engineering (ICSE 2019)*, pages 316-327, IEEE, 2019 (Acceptance Rate: 21%).
- [C.6] **Active Inductive Logic Programming for Code Search**
Aishwarya Sivaraman, Tianyi Zhang, Guy Van den Broeck, Miryung Kim
In *Proceedings of the 41th International Conference on Software Engineering (ICSE 2019)*, pages 292-303, IEEE, 2019 (Acceptance Rate: 20.6%).
- [C.5] **An Empirical Study of Common Challenges in Developing Deep Learning Applications**
Tianyi Zhang*, Cuiyun Gao*, Lei Ma, Michael R. Lyu, Miryung Kim
In *Proceedings of the 30th International Symposium on Software Reliability Engineering (ISSRE 2019)*, 12 pages, IEEE, 2019 (Acceptance Rate: 31.3%).
- [C.4] **Are Code Examples on an Online Q&A Forum Reliable? A Study of API Misuse on Stack Overflow**
Tianyi Zhang, Ganesha Upadhyaya, Anastasia Reinhardt, Hridesh Rajan, Miryung Kim
In *Proceedings of the 40th International Conference on Software Engineering (ICSE 2018)*, pages 886-896, ACM, 2018 (Acceptance Rate: 21%).
- [C.3] **Visualizing API Usage Examples at Scale**
Elena L. Glassman*, Tianyi Zhang*, Björn Hartmann, Miryung Kim
In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI 2018)*, pages 580-591, ACM, 2018 (Acceptance Rate: 26%).
- [C.2] **Automated Transplantation and Differential Testing for Clones**
Tianyi Zhang, Miryung Kim
In *Proceedings of the 39th International Conference on Software Engineering (ICSE 2017)*, pages 665-676, IEEE, 2017 (Acceptance Rate: 16%).

- [C.1] **Interactive Code Review for Systematic Changes**
Tianyi Zhang, Myoungkyu Song, Joseph Pinedo, Miryung Kim
In *Proceedings of the 37th International Conference on Software Engineering (ICSE 2015)*, Volume 1, pages 111-122. IEEE, 2015 (Acceptance Rate: 19%).

DEMO PAPERS, POSTERS, BOOK CHAPTERS

- [D.3] **WebJShrink: A Web Service for Debloating Java Bytecode**
Konner Macias, Mihir Mathur, Bobby R. Bruce, Tianyi Zhang, Miryung Kim
In *Proceedings of the 28th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2020)*, 4 pages, ACM, 2020.
- [B.1] **Software Evolution**
Miryung Kim, Na Meng, Tianyi Zhang
In *Handbook of Software Engineering*, pages 223-284, Springer, 2019.
- [D.2] **Augmenting Stack Overflow with API Usage Patterns Mined from GitHub**
Anastasia Reinhardt, Tianyi Zhang, Mihir Mathur, Miryung Kim
In *Proceedings of the 26th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2018)*, pages 880-883, ACM, 2018.
- [P.1] **Grafter: Transplantation and Differential Testing for Clones**
Tianyi Zhang, Miryung Kim
In *Proceedings of the 40th International Conference on Software Engineering (ICSE 2018)*, pages 422-423, ACM, 2018.
- [D.1] **Critics: An Interactive Code Review Tool for Searching and Inspecting Systematic Changes**
Tianyi Zhang, Myoungkyu Song, Miryung Kim
In *Proceedings of the 22nd ACM SIGSOFT International Symposium on Foundations of Software Engineering (FSE 2014)*, pages 755-758, ACM, 2014.

SERVICES

Organizing Committee:

ESEC/FSE 2022 Publication Co-Chair

Program Committee:

MSR Technical Track 2022

ICSE Poster Track 2022

ESEC/FSE Demonstration Track 2020, 2021

ICSE Artifact Evaluation 2019, 2020

ESEC/FSE Artifact Evaluation 2021

ASE Artifact Evaluation 2021

MSR Data Showcase Track 2021

PerCom Work-in-Progress Track 2020

ISEC Student Research Competition 2022

HATRA 2021

ACM TOSEM Board of Distinguished Reviewers 2020

External Reviewer:

CSCW 2020, 2021

UIST 2020, 2021

DIS 2021

Journal Reviewer:

Transactions on Software Engineering (TSE) 2018, 2019, 2020, 2021
Transactions on Computer-Human Interaction (TOCHI) 2019, 2020
Transactions on Software Engineering and Methodology (TOSEM) 2019, 2020
Empirical Software Engineering (EMSE) 2019, 2020, 2021
Information and Software Technology (IST) 2019, 2021
IEEE Software 2019, 2020

UCLA Graduate Society of Women Engineers Mentorship Program 2018-2019

UCLA Computer Science Ph.D. Open House Panelist 2018

INVITED TALKS

Rethinking Modern Programming Tools with Human-Centered Intelligence
AI Seminar at Information Sciences Institute
University of Southern California, Sept 27, 2021

Supporting and Democratizing Modern Programming with Big Code and Interactive Program Synthesis
Harvard ABCD WWW Seminar
Harvard University, Nov 18, 2020

Interactive and White-box Program Synthesis
Guest Lecture, EECS 598 Program Synthesis: Techniques and Applications
University of Michigan, Ann Arbor, Nov 17, 2020

Programming at Scale by Harnessing the Power of Big Code
Facebook
Menlo Park, CA, Nov 3, 2019

Visualizing and Assessing Code Examples at Scale
Guest Lecture, CS230 Software Engineering in Spring 2018 and Spring 2019
University of California, Los Angeles

Peer Code Review: Practices and Advanced Techniques
Guest Lecture, CS230 Software Engineering in Spring 2018 and Spring 2019
University of California, Los Angeles

Visualizing and Assessing Code Examples at Scale
ONR TPCP Grant Kickoff Meeting
University of California, Los Angeles, Jan 26, 2018

Automated Test Reuse via Code Transplantation
Dagstuhl Seminar in Automated Program Repair
Schloss Dagstuhl, Germany, Jan 9-13, 2017

Towards Differential Testing of Similar Repairs
Air Force Research Laboratory Grant PI Meeting
University of Virginia, Aug 9, 2016

Interactive Code Review for Systematic Edits
SoCal Programming Languages and Systems Workshop
University of California, San Diego, Dec 6, 2014

RESEARCH & WORK EXPERIENCE

Harvard University <i>Postdoctoral Fellow</i>	<i>July 2019 — Present</i>
University of California, Los Angeles <i>Graduate Research Assistant</i>	<i>Oct. 2014 — June 2019</i>
Microsoft Research , Redmond, WA <i>Research Intern</i>	<i>Jun. 2015 — Sept. 2015</i>
Salesforce.com , San Francisco, CA <i>Quality Engineer Intern</i>	<i>June 2014 — Aug. 2014</i>
The University of Texas at Austin <i>Graduate Research Assistant</i>	<i>Jan. 2014 — May. 2014</i>
Microsoft , Beijing, China <i>Software Development Engineer Intern</i>	<i>July 2012 — Sept. 2012</i>

TEACHING EXPERIENCE

University of California, Los Angeles <i>Teaching Assistant, CS230 Software Engineering</i>	<i>Spring 2017</i>
University of California, Los Angeles <i>Teaching Assistant, CS130 Software Engineering</i>	<i>Fall 2016</i>
University of California, Los Angeles <i>Teaching Assistant, CS130 Software Engineering</i>	<i>Fall 2015</i>
The University of Texas at Austin 🏆 <i>Teaching Award</i> <i>Teaching Assistant, EE461L Software Engineering and Design Laboratory</i>	<i>Fall 2013</i>

MENTORED STUDENTS

* Students are summer interns at UCLA

London Lowmanstone, <i>Undergraduate Student, Harvard</i>	<i>Feb 2020 — Present</i>
Litao Yan, <i>Master Student, Harvard</i>	<i>Oct 2019 — Present</i>
Chenlu Wang, <i>Master Student, Harvard</i>	<i>Oct 2019 — Present</i>
Jaspreet Arora, <i>Master Student, UCLA</i>	<i>June 2019 — Sept 2019</i>
Yao Deng, <i>Co-advised PhD Student from Macquarie University, Australia</i>	<i>Jan. 2019 — Present</i>
Winnie Sun, <i>Undergraduate Student, UCLA</i>	<i>Jan. 2019 — Jun 2019</i>
Konner Macias, <i>Undergraduate Student, UCLA, Now at Northrop Grumman</i>	<i>Oct. 2018 — May 2019</i>
Lekha Priya Patil*, <i>Undergraduate Student, UC Berkeley</i>	<i>June 2018 — Sept. 2018</i>
Mihir Mathur, <i>Undergraduate Student, UCLA, now at Lyft</i>	<i>Jan. 2018 — May 2019</i>
Zongheng Ma, <i>Master Student, UCLA, now at Google</i>	<i>Jan. 2018 — Jan. 2019</i>
Aishwarya Sivaraman, <i>PhD student, UCLA</i>	<i>Oct. 2017 — Jan. 2019</i>
Anastasia Reinhardt*, <i>Undergraduate Student at George Fox University,</i>	<i>May 2017 — Aug. 2017</i>

Now PhD at UW

Andrew Lin, *Undergraduate Student, UCLA, Now at Nordstrom*

Oct. 2016 — May 2018

Richter Macdonald, *Local High School Student in LA*

Oct. 2016 — Aug. 2017

Joseph Pinedo, *Undergraduate Student, UT Austin, Now at Sogeti*

Jan. 2014 — May 2014

REFERENCES

Miryung Kim

Professor

University of California, Los Angeles

✉ miryung@cs.ucla.edu

Elena L. Glassman

Stanley A. Marks and William H. Marks Assistant Professor

Harvard University

✉ glassman@seas.harvard.edu

Björn Hartmann

Associate Professor

University of California, Berkeley

✉ bjoern@eecs.berkeley.edu

Westley Weimer

Professor

University of Michigan, Ann Arbor

✉ weimerw@umich.edu

Christian Bird

Principal Researcher

Microsoft Research

✉ Christian.Bird@microsoft.com