Thomas D. LaToza

Department of Computer Science
George Mason University
4400 University Drive, MS 4A5,
Fairfax, VA 22030

Developer Experience Design Lab (DevX)

http://cs.gmu.edu/~tlatoza
latoza@gmail.com

RESEARCH INTERESTS

Software engineering, programming tools, human-computer interaction, human-AI interaction

PROFESSIONAL EXPERIENCE

George Mason University   August 2021 – present
Associate Professor
Department of Computer Science, School of Computing, College of Engineering and Computing

OurCode Inc.   June 2023 – December 2024
Co-Founder and CEO

George Mason University   August 2015 – August 2021
Assistant Professor
Department of Computer Science, Volgenau School of Engineering

University of California, Irvine   March 2012 – August 2015
Postdoctoral Research Associate
Department of Informatics, Donald Bren School of Information and Computer Sciences

Microsoft Research   December 2008, July 2010
Consulting Researcher, Human Interactions in Programming
Host: Robert DeLine

Microsoft Research   Summer 2005
Intern, Human Interactions in Programming
Mentor: Gina Venolia

Carnegie Mellon University   August 2004 – February 2012
Graduate Research Assistant
Institute for Software Research, School of Computer Science

Microsoft   Summer 2001, 2002, 2003, 2004
Software Design Engineer Intern, Media Center, Publisher; **SDE in Test Intern**, Encarta

EDUCATION

Carnegie Mellon University, School of Computer Science
2012   Ph.D. in Software Engineering
        Thesis: Answering reachability questions   Advisors: Brad A. Myers and Jonathan Aldrich

University of Illinois at Urbana-Champaign
2004   B.S. (with highest honors) in Computer Science
2004   B.S. (magna cum laude, with distinction) in Psychology
            Thesis: The understanding and modification of procedural and object-oriented
            programs – when does knowledge help more?   Advisor: Alex Kirlik

HONORS AND AWARDS

George Mason University Teacher of Distinction	2024
ACM SIGSOFT Distinguished Paper Award, International Conference on Software Engineering	2023
George Mason University Department of Computer Science Outstanding Teacher Award	2022
Nominee for Most Influential Paper Award, Symposium on Visual Languages and Human-Centric Computing	2022
Best Paper Award, Symposium on Visual Languages and Human-Centric Computing	2021
Nominee for Most Influential Paper Award, Symposium on Visual Languages and Human-Centric Computing	2020
Distinguished Research Award, Information Processing Society of Japan	2020
NSF CAREER Award	2019
Best Paper Honorable Mention, Symposium on Visual Languages and Human-Centric Computing	2019
Google Scholar Classic Paper. Maintaining Mental Models: A Study of Developer Work Habits	2017
NSF Graduate Research Fellowship	2005
Psychology Honors Program	2003 – 2004
Accenture Outstanding Student Award	2002, 2003
James Scholar	2000 – 2004
Krishna Bharadwaj Scholarship	2000
Valedictorian, Waubonsie Valley High School	2000

PUBLICATIONS

(students advised underlined)

Book Chapters

1. Brad A. Myers, Amy. J. Ko, **Thomas D. LaToza**, and YoungSeok Yoon. (2019). Human-centered methods to boost productivity. In *Rethinking productivity in software engineering,* Caitlin Sadowski and Thomas Zimmermann (eds.), Apress.

Journal Articles

1. <u>Sahar Mehrpour</u> and **Thomas D. LaToza**. *(2024).* A survey of tool support for working with design decisions in code*. ACM Computing Surveys 56, 2, Article 37 (February 2024),* 37 pages.

2. Abdulaziz Alaboudi and **Thomas D. LaToza**. (2023). What constitutes debugging? An exploratory study of debugging episodes. *Empirical Software Engineering (EMSE),* 28 (117), 34 pages.

3. Matthew C. Davis, Emad Aghayi, **Thomas D. LaToza**, Xiaoyin Wang, Brad A. Myers, and Joshua Sunshine. (2023). What's (not) working in programmer user studies? *ACM Trans. Softw. Eng. Methodol. 32, 5, Article 120 (September 2023),* 32 pages.

4. Emad Aghayi and **Thomas D. LaToza**. (2023). A controlled experiment on the impact of microtasking on programming. *Empirical Software Engineering (EMSE),* 28 (10), 30 pages.

5. Sahar Mehrpour and **Thomas D. LaToza**. (2023). Can static analysis tools find more defects? A qualitative study of design rule violations found by code review*. Empirical Software Engineering (EMSE),* 28 (5), 39 pages.

6. Emad Aghayi, **Thomas D. LaToza**, Paurav Surendra, and Seyedmeysam Abolghasemi. (2021). Crowdsourced behavior-driven development. *Journal of Systems and Software (JSS), 171.*

7. **Thomas D. LaToza**. (2020). Information needs: Lessons for programming tools. *IEEE Software,* 37 (6), 52-57*.*

8. **Thomas D. LaToza**, Maryam Arab, Dastyni Loksa, and Amy J. Ko. (2020). Explicit programming strategies. *Empirical Software Engineering (EMSE),* 25, 2416–2449.

9. **Thomas D. LaToza**, Arturo Di Lecce**,** Fabio Ricci, W. Ben Towne, and André van der Hook. (2019). Microtask programming. *Transactions on Software Engineering (TSE),* 45 (11), Nov. 2019, 1106-1124.

10. Brad A. Myers, Amy J. Ko, **Thomas D. LaToza**, and YoungSeok Yoon. (2016). Programmers are users too: human-centered methods to improve software development. *IEEE Computer*, 49 (7), July 2016, 44-52.

11. **Thomas D. LaToza** and André van der Hoek. (2016). Crowdsourcing in software engineering: models, motivations, and challenges. *IEEE Software*, 33 (1), 74-80.

12. Nicolas Mangano, **Thomas D. LaToza**, Marian Petre, and André van der Hoek. (2015). How designers interact with sketches at the whiteboard. *Transactions on Software Engineering (TSE),* 41 (2), 135-156.

13. Amy J. Ko, **Thomas D. LaToza**, and Margaret M. Burnett. (2013). A practical guide to controlled experiments of software engineering tools with human participants. *Empirical Software Engineering (EMSE),* Sept. 2013, 1-32.

Refereed Conference Papers

1. Ruochen Wang and **Thomas D. LaToza**. (2025). How omniscient debuggers impact debugging behavior. *Symposium on Visual Languages and Human-Centric Computing,* 11 pages.

2. Consuelo Lopez, <u>Sahar Mehrpour,</u> Austin Z. Henley, and **Thomas D. LaToza** (2025). OurCode: Experiences Transitioning University Research into a Developer Tools Startup. *Foundations of Software Engineering, Industry Paper (FSE-IP)*, 11 pages.

3. <u>Divesh Upreti,</u> Aditi Maheshwari, Taylor Tabb, Ioannis Polykretis, Eric M. Gallo, Kenneth Michael Stewart, **Thomas D. LaToza**, and Andreea Danielescu. (2025). Advancing HCI with Neuromorphic Technology: Guidelines for Designing User-Friendly Developer Tools for Neuromorphic Development. *Conference on Human Factors in Computing Systems (CHI)*, Article 1050, 1–18.

4. Shinobu Saito, Yukako Iimura, <u>Emad Aghayi,</u> and **Thomas D. LaToza**. (2024). How many pomodoros do professional engineers need to complete a microtask of programming? *International Conference on Automated Software Engineering, Industry Showcase (ASE/IS),* 11 pages.

5. <u>Abdulaziz Alaboudi</u> and **Thomas D. LaToza** (2023). Hypothesizer: A Hypothesis-Based Debugger to Find and Test Debugging Hypotheses. *Symposium on User Interface Software and Technology (UIST)*, 9 pages.

6. Jenny Liang, <u>Maryam Arab,</u> <u>Minhyuk Ko,</u> Amy J. Ko**, Thomas D. LaToza**. (2023). A qualitative study on the implementation design decisions of developers. *International Conference on Software Engineering (ICSE),* 435-447. ***(distinguished paper award)***

7. <u>Maryam Arab,</u> **Thomas D. LaToza**, Jenny Liang, Amy J. Ko. (2022). An exploratory study of sharing strategic programming knowledge. *Conference on Human Factors in Computing Systems (CHI)*, 1-15.

8. <u>David I. Samudio</u> and **Thomas D. LaToza.** (2022). Barriers in Front-End Web Development. *Symposium on Visual Languages and Human-Centric Computing (VL/HCC)*, 11 pages.

9. <u>Abdulaziz Alaboudi</u> and **Thomas D. LaToza** (2021). Edit-run behavior in programming and debugging. *Symposium on Visual Languages and Human-Centric Computing (VL/HCC)*, 9 pages. ***(best paper award)***

10. <u>Maryam Arab,</u> Jenny Liang, <u>Yang Kyu Yoo,</u> Amy J. Ko and **Thomas D. LaToza**. (2021). HowToo: a platform for sharing, finding, and using programming strategies. *Symposium on Visual Languages and Human-Centric Computing (VL/HCC)*, 9 pages.

11. Alexander Brodsky, Yotam Gingold, **Thomas D. LaToza**, Lap-Fai Yu, and Xu Han. (2021). Catalyzing the agility, accessibility, and predictability of the manufacturing-entrepreneurship ecosystem through design environments and markets for virtual things. *International Conference on Operations Research and Enterprise Systems (ICORES).*

12. <u>Sahar Mehrpour</u>**, Thomas D. LaToza,** and Hamed Sarvari. (2020). RulePad: Interactive authoring of checkable design rules. *European Software Engineering Conference and the Symposium on the Foundations of Software Engineering (ESEC/FSE)*, 11 pages.

13. Shinobu Saito, Yukako Iimura, <u>Emad Aghayi,</u> and **Thomas D. LaToza**. (2020). Can microtask programming work in industry? *European Software Engineering Conference and the Symposium*

on the Foundations of Software Engineering, Industry Papers Track (ESEC/FSE-IP), 11 pages. ***(distinguished research award, Information Processing Society of Japan)***

14. Abdulaziz Alaboudi and **Thomas D. LaToza.** (2020). Using hypotheses as a debugging aid. *Symposium on Visual Languages and Human-Centric Computing (VL/HCC)*, 9 pages.

15. Emad Aghayi, Aaron Massey, and **Thomas D. LaToza**. (2020). Find unique usages: helping developers understand common usages. *Symposium on Visual Languages and Human-Centric Computing (VL/HCC)*, 7 pages.

16. Abdulaziz Alaboudi and **Thomas D. LaToza** (2019). An exploratory study of live-streamed programming. *Symposium on Visual Languages and Human-Centric Computing (VL/HCC)*, 5-13.

17. Sahar Mehrpour, **Thomas D. LaToza**, Rahul Kindi (2019). Active documentation: Helping developers follow design decisions. *Symposium on Visual Languages and Human-Centric Computing (VL/HCC)*, 87-96

18. Kartik Chugh, Andrea Y. Solis, and **Thomas D. LaToza**. (2019). *Editable AI: Mixed human-AI authoring of code patterns. Symposium on Visual Languages and Human-Centric Computing (VL/HCC),* 35-43. ***(best paper honorable mention)***

19. Amy J. Ko, **Thomas D. LaToza**, Stephen Hull, Ellen A. Ko, William Kwok, Jane Quichocho, Harshitha Akkaraju, and Rishin Pandit. (2019). Teaching explicit programming strategies to adolescents. *Symposium on Computer Science Education (SIGCSE),* Research Track, 469-475.

20. **Thomas D. LaToza**, Arturo Di Lecce, Fabio Ricci, W. Ben Towne, and André van der Hoek. (2015). Ask the crowd: scaffolding coordination and knowledge sharing in microtask programming. *Symposium on Visual Languages and Human-Centric Computing (VL/HCC)*, 23-27.

21. Lee Martie, **Thomas D. LaToza**, and André van der Hoek. (2015). CodeExchange: Supporting Reformulation of Code Queries in Context. *International Conference on Automated Software Engineering (ASE)*, 24-35.

22. **Thomas D. LaToza** and André van der Hoek. (2015). A vision of crowd development. *International Conference on Software Engineering, New and Emerging Results Track (ICSE NIER)*, 563-566.

23. **Thomas D. LaToza**, Micky Chen, Luxi Jiang, Mengyao Zhao, and André van der Hoek. (2015). Borrowing from the crowd: a study of recombination in software design competitions. *International Conference on Software Engineering (ICSE)*, 551-562.

24. **Thomas D. LaToza**, W. Ben Towne, Christian M. Adriano, and André van der Hoek. (2014). Microtask programming: building software with a crowd. *Symposium on User Interface Software and Technology (UIST)*, 43-54.

25. Nicolas Mangano, **Thomas D. LaToza**, Marian Petre, and André van der Hoek. (2014). Supporting informal design with interactive whiteboards. *Conference on Human Factors in Computing Systems (CHI)*, 331-340.

26. Dastyni Loksa, Nicolas Mangano, **Thomas D. LaToza**, and André van der Hoek. (2013). Enabling a classroom design studio with a collaborative sketch design tool. *International Conference on Software Engineering, Education Track (ICSE Ed),* 1073-1082.

27. Cyrus Omar, YoungSeok Yoon, **Thomas D. LaToza**, and Brad A. Myers. (2012). Active code completion. *International Conference on Software Engineering (ICSE)*, 859-869.

28. **Thomas D. LaToza** and Brad A. Myers. (2011). Visualizing call graphs. *Symposium on Visual Languages and Human-Centric Computing (VL/HCC),* 117-124. **(most influential paper nominee)**

29. **Thomas D. LaToza** and Brad A. Myers. (2010). Developers ask reachability questions. *International Conference on Software Engineering* (ICSE), 185-194.

30. **Thomas D. LaToza**, David Garlan, James D. Herblseb, and Brad A. Myers. (2007). Program comprehension as fact finding. *European Software Engineering Conference and the Symposium on the Foundations of Software Engineering (ESEC/FSE)*, 361-370.

31. **Thomas D. LaToza**, Gina Venolia, G., and Robert DeLine. (2006). Maintaining mental models: a study of developer work habits. *International Conference on Software Engineering, Experience Track,* 492-501. **(Google Scholar classic paper)**

32. David E. Goldberg, Kumara Sastry, and **Thomas LaToza**. (2001). On the supply of building blocks. *Genetic and Evolutionary Computation Conference*, 336-342.

Workshop Papers

1. Ebtesam Al Haque, Chris Brown, **Thomas D. LaToza**, and Brittany Johnson. (2025). The Evolution of Information Seeking in Software Development: Understanding the Role and Impact of AI Assistants. *Workshop on Human-Centered AI for SE (HumanAISE)*, 9 pages.

2. Sajed Jalil, Suzzana Rafi, **Thomas LaToza**, Kevin Moran, and Wing Lam. *(2023*). ChatGPT and Software Testing Education: Promises & Perils*. Software Testing Education Workshop (TestEd), 8 pages.*

3. Abdulaziz Alaboudi and **Thomas D. LaToza**. (2021). Rethinking debugging and debuggers. *Workshop on the Evaluation and Usability of Programming Languages and Tools (PLATEAU),* 9 pages.

4. Sahar Mehrpour and **Thomas D. LaToza**. (2021). Programming tools for working with design decisions in code. *Workshop on the Evaluation and Usability of Programming Languages and Tools (PLATEAU),* 9 pages.

5. Abdulaziz Alaboudi and **Thomas D. LaToza**. (2019). Supporting software engineering research and education by annotating public videos of developers programming. *Workshop on Cooperative and Human Aspects of Software Engineering (CHASE),* 117-118.

6. Jonathan Bell, **Thomas D. LaToza**, Foteini Baldmitsi and Angelos Stavrou. (2017). Advancing open science with version control and blockchains. *International Workshop on Software Engineering for Science, 2 pages.*

7. **Thomas D. LaToza**, W. Ben Towne, André van der Hoek. (2014). Harnessing the crowd: decontextualizing software work. *Workshop on Context in Software Development (CSD)*, 2 pages.

8. **Thomas D. LaToza**, W. Ben Towne, André van der Hoek., and James D. Herbsleb. (2013). Crowd development. *Workshop on Cooperative and Human Aspects of Software Engineering (CHASE),* 4 pages.

9. **Thomas D. LaToza**, Evelina Shabani, and André van der Hoek. (2013). A study of architectural decision practices. *Workshop on Cooperative and Human Aspects of Software Engineering (CHASE),* 4 pages.

10. **Thomas D. LaToza** and Brad A. Myers. (2011). Designing useful tools for developers. *Workshop on the Evaluation and Usability of Programming Languages and Tools (PLATEAU),* 45-50.

11. **Thomas D. LaToza** and Brad A. Myers. (2010). Hard-to-answer questions about code. *Workshop on the Evaluation and Usability of Programming Languages and Tools (PLATEAU),* 6 pages.

12. **Thomas D. LaToza** and Brad A. Myers. (2010). Searching across paths. *Workshop on Search-driven development: Users, Infrastructure, Tools and Evaluation (SUITE),* 29-32.

13. **Thomas D. LaToza** and Brad A. Myers. (2010). On the importance of understanding the strategies that developers use. *Workshop on Cooperative and Human Aspects of Software Engineering (CHASE)*, 72-75.

14. Marwan Abi-Antoun, Nariman Ammar, **Thomas LaToza**. (2010). Questions about object structure during coding activities. *Workshop on Cooperative and Human Aspects of Software (CHASE),* 64-71.

15. Marwan Abi-Antoun, Talia F. Selitsky, and **Thomas LaToza**. (2010). Developer refinement of runtime architectural structure. *Workshop on SHAring and Reusing architectural Knowledge (SHARK),* 80-87.

16. Brad A. Myers, Amy J. Ko, Sun Young Park, Jeffrey Stylos, **Thomas D. LaToza**, and Jack Beaton. (2008). More natural end-user software engineering. *Workshop on End-User Software Engineering (EUSES),* 30-34.

Demos, Posters, and Other Papers

1. **Thomas D. LaToza**. (2023). Connecting design to code. *IEEE Software*, Vol. 40, Jan.-Feb. 2023, 94-97.

2. Klaas-Jan Stol, **Thomas D. LaToza**, and Christian Bird. (2017). Guest Editors' Introduction: Crowdsourcing for software engineering. *IEEE Software*, 34 (2), 30-36.

3. **Thomas D. LaToza**, Eric Chiquillo, W. Ben Towne, Christian M. Adriano, and André van der Hoek. (2013). CrowdCode: a platform for crowd development. *CrowdConf 2013*, 1 page.

4. Cyrus Omar, YoungSeok Yoon, **Thomas D. LaToza**, and Brad A. Myers. (2011). Active code completion. *Visual Languages and Human-Centric Computing, Demonstration,* 261-262.

5. **Thomas D. LaToza**. (2008). Answering control flow questions about code. Poster at *Object-Oriented Programming Systems Languages and Applications (OOPSLA)*, 921-922.

6. **Thomas D. LaToza**. (2008). Answering common questions about code. Doctoral Symposium, *International Conference on Software Engineering (ICSE)*, 983-986.

7. **Thomas D. LaToza**. (2006). Using architecture to change code: studying information needs. Poster at *Object-Oriented Programming Systems, Languages, and Applications (OOPSLA)*, 764-765.

8. **Thomas D. LaToza** and Alex Kirlik. (2004). Understanding and modifying procedural versus object-oriented programs: where does domain knowledge help more? Poster at the *26th Annual Meeting of the Cognitive Science Society*.

Technical Reports

1. Gina Venolia, Robert DeLine, and **Thomas LaToza**. (Oct 2005). Software Development at Microsoft Observed: It's about people ... working together. *Microsoft Research Technical Report MSR-TR-2005-140*.

Theses

1. **Thomas D. LaToza**. (2012). Answering reachability questions. Dissertation, Institute for Software Research, Carnegie Mellon University.

2. **Thomas D. LaToza**. (2004). The understanding and modification of procedural and Object-Oriented programs – when does knowledge help more? Undergraduate Thesis, Psychology Department, University of Illinois at Urbana-Champaign.

FUNDING

External Funding
Mason: funds to Mason, Responsible: grant share responsible, Total: total award size, including other institutions

1. NSF I-Corps: Translation Potential of a Tool to Address the Challenges of Working with Unfamiliar Software Code
    Mason: $50,000   *Responsible*: $50,000
        2024 - 2026

2. 4-VA: Visualizing Code Changes to Understand Students' Mental Models in Programming Education at Scale
    Mason: $5,000   *Responsible*: $5,000
        2023 - 2024

3. Industry Gift from Accenture: Understanding Developer Challenges in Building Neuromorphic Computing Applications
    Mason: $67,278   *Responsible*: $67,278
        2022

4. NSF Workshop: Graduate Consortium at the 2022 VL/HCC Conference
        2022

Mason: $30,000   *Responsible*: $30,000

5. NSF SHF: Collaborative Research: Medium: Programming Strategies   2021
   Research Experience for Undergraduates Supplement
   Mason: $16,000   *Responsible*: $16,000

6. NSF CAREER: Debugging Mental Models   2021
   Research Experience for Undergraduates Supplement
   Mason: $16,000   *Responsible*: $16,000

7. NSF CCRI: Planning: Collaborative Research: A Platform for Conducting Software   2020 – 2023
   Engineering User Studies
   Lead PI: **Thomas LaToza**, PIs: Joshua Sunshine (Carnegie Mellon), Xiaoyin Wang (UT San Antonio)
   Mason: $27,263   *Responsible*: $27,263   *Total*: $97,254

8. **NSF CAREER**: Debugging Mental Models   2019 – 2025
   Mason: $514,952   *Responsible*: $514,952

9. NSF SHF: Collaborative Research: Medium: Programming Strategies   2019
   Research Experience for Undergraduates Supplement
   Mason: $7,000   *Responsible*: $7,000

10. National Security Administration: Science of Security   2018 – 2022
    Subcontract from Carnegie Mellon University
    PI: Jonathan Bell, Co-PIs: Foteini Baldtimsi, **Thomas LaToza**
    Mason: $236,213   *Responsible*: $59,053

11. NSF REU Site: Undergrad Research in Educational Data Mining   2018 – 2021
    PI: Huzefa Rangwala, Co-PIs: Mark Snyder, Senior Personnel: Carlotta Domeniconi, Aditya Johri,
    Thomas LaToza, Jaime Lester, Jessica Lin, Jill Nelson
    Mason: $369,982   *Responsible*: $0

12. NSF SHF: Collaborative Research: Medium: Programming Strategies   2018
    Research Experience for Undergraduates Supplement
    Mason: $7,000   *Responsible*: $7,000

13. NSF SHF: Collaborative Research: Medium: Programming Strategies   2017 – 2022
    Lead PI: **Thomas LaToza**, PI: Amy J. Ko (University of Washington)
    Mason: $592,791   *Responsible*: $592,791   *Total*: $1,094,998

14. NSF SHF: Large: CrowdProgramming   2014 – 2019
    PI: André van der Hoek (UC Irvine), Co-PI: **Thomas LaToza** (UC Irvine)
    Subcontract from UC Irvine
    Mason: $325,000   *Responsible*: $325,000   *Total*: $1,403,377

Internal Funding

1. Mason Curriculum Impact Grant: D(esign) Minor (co-PI)   2018 – 2020
   PI: Robert Matz, Co-PIs: Carryl Baldwin, Michelle Dacus Carr, Nada Dabbagh, Douglas Eyman,
   Vivian Motti, **Thomas LaToza**, Lisa Passaglia Bauman, Elizabeth Long, and William Helton

$28,000

Fellowships

1. National Science Foundation, Graduate Research Fellowship   2005 – 2008
$121,500

TEACHING

Instructor, George Mason University

Term	Subject
Fall 2025	CS 691 / SWE 699: LLMs and Programming
Summer 2025	SWE 632: User Interface Design and Development
Spring 2025	SWE 632: User Interface Design and Development
Spring 2025	SWE 621: Software Design and Architecture
Fall 2024	SWE 632: User Interface Design and Development
Spring 2024	SWE 632: User Interface Design and Development
Fall 2023	CS 695 / SWE 699: Programming Tools
Fall 2023	SWE 632: User Interface Design and Development
Fall 2022	SWE 621: Software Design and Architecture
Spring 2022	SWE 632: User Interface Design and Development
Fall 2021	SWE 632: User Interface Design and Development
Spring 2021	SWE 621: Software Design and Architecture
Spring 2020	SWE 621: Software Design and Architecture
Fall 2019	SWE 795: Software Engineering Environments
Fall 2019	SWE 432: Web Application Development
Fall 2018	SWE 621: Software Modeling and Architectural Design
Spring 2018	SWE 632: User Interface Design and Development
Fall 2017	SWE 432: Design and Implementation of Software for the Web
Spring 2017	SWE 795: Software Engineering Environments
Fall 2016	SWE 432: Design and Implementation of Software for the Web
Spring 2016	SWE 626: Software Project Laboratory
Fall 2015	SWE 632: User Interface Design and Development

Co-Instructor, Carnegie Mellon University   Spring 2011
Course: Human Aspects of Software Development (05-899D), with Brad Myers

Teaching Assistant, Carnegie Mellon University   Fall 2007
Course: Human-Computer Interaction Methods (05-610), taught by Bonnie John and Jennifer Mankoff

Teaching Assistant, Carnegie Mellon University   Fall 2006
Course: Professional Software Master Course, taught by William Scherlis and Jonathan Aldrich

Teaching Assistant, Carnegie Mellon University   Spring 2006
Course: Analysis of Software Artifacts (17-654 / 17-754), taught by Jonathan Aldrich

STUDENTS ADVISED

Dissertation Committee Chair or Co-Chair
In Progress
Ruochen Wang	Ph.D. in CS, GMU	Fall 2023 – Present
Mainul Hossain	Ph.D. in CS, GMU	Fall 2023 – Present
Farina Faiz (co-advised with Vivian Motti)	Ph.D. in CS, GMU	Fall 2021 – Present
David Farmer (co-advised with Jeff Offutt)	Ph.D. in CS, GMU	Fall 2020 – Present
S M Hasan Mansur (co-advised with Kevin Moran)	Ph.D. in CS, GMU	Fall 2018 – Present

Completed
Maryam Arab	Ph.D. in CS, GMU	Spring 2017 – Fall 2024
Sahar Mehrpour	Ph.D. in CS, GMU	Fall 2017 – Summer 2024
David Gonzalez	Ph.D. in IT, GMU	Fall 2016 – Spring 2024
Emad Aghayi	Ph.D. in CS, GMU	Fall 2017 – Spring 2024
Abdulaziz Alaboudi	Ph.D. in IT, GMU	Fall 2017 – Spring 2023

Dissertation Committee Member
Liuchuan Yu	Ph.D., expected 2028, George Mason University
Hao Yan	Ph.D., expected 2027, George Mason University
Jinyi Kim	Ph.D., expected 2027, George Mason University
Tahani Almanie	Ph.D., expected 2027, George Mason University
Steven Tong Sun	Ph.D., expected 2027, George Mason University
Arun Krishnavajjala	Ph.D., expected 2025, George Mason University
Xu Han	Ph.D., expected 2025, George Mason University
Niloofar Kalantari	Ph.D., 2025, George Mason University
Pavlína Wurzel Gonçalves	Ph.D., 2025, University of Zurich
Nicholas Bradley	Ph.D., 2024, University of British Columbia
Yong Li	Ph.D., 2024, George Mason University
Khadijah Al Safwan	Ph.D., 2023, Virginia Tech
Fernando Boccanera	Ph.D., 2022, George Mason University
Hui Zheng	Ph.D., 2021, George Mason University
Qian Hu	Ph.D., 2020, George Mason University
Lin Deng	Ph.D., 2017, George Mason University
Vasilios Tzeremes	Ph.D., 2016, George Mason University
Nariman Mirzaei	Ph.D., 2016, George Mason University
Ehsan Kouroshfar	Ph.D., 2016, George Mason University

Master's Committee Chair
Jeffrey Longo	M.S., 2023, George Mason University
Cassandra Bailey	M.S., 2020, George Mason University

Master's Committee Member
Samuel Miller	M.S., expected 2025, George Mason University
Consuelo Lopez	M.S., 2016, University of California, Irvine

Fernando Spanghero   M.S., 2016, University of California, Irvine

Undergraduate Mentees

Hayden Hanson, BS in CS Student, George Mason University	2023 - 2024
Minhyuk Ko, BS in CS student, George Mason University	2020 - 2022
Jacinta Das, BS in Data Science, College of William & Mary	2021
Nadia Domnina, BS in Mathematics student, University of Washington	2021
Ryan Kim, BS in CS student, Brown University	2019
Gennie Mansi, BS in Stats and CS, Baylor University (now PhD student at Georgia Tech)	2019 – 2020
Emily Slaughter, BS in CS student, Yale University	2019
Stephen Hull, BS in CS student, George Mason University	2018 – 2020
Andrea Solis, BS in CS student, George Mason University	2018

George Mason University Aspiring Scientists Summer Internship Program Students

Maisha Farzana, Richa Gupta, Henry Hu, Manohar Nookala, Emi Zhang, Gavin Crigger Raymond Fu, Valentina Hong	2023
Rohan Shah, Neha Konduru, Saloni Shah, Taein Kim, Riyanka Ray	2022
Aarav Bajaj, Henry Zheng, Anya Parekh, Bryant Park, Sarah Ali, Ansh Chaurasia, Mustafa Lonandwala, Aryan Kumawat, Neha Konduru	2021
Stuti Gupta, Aarav Bajaj, Saigautam Bonam, Somasekhar Patil, Ayesha Kemal	2020
Raunak Daga, Rishabh Misra, Sneha Iyer, Aarushi Dubey	2019
Ankit Gupta, Kartik Chugh, Rishin Pandit, Priyanka Mehta	2018
Simra Ali, Ramya Bhaskara, Jeffrey Currence, Rounak Das, Dolica Gopisetty, Robert Kim, Varun Kulkarni, Saarthak Maheshwari, Kimberly Perez Cruz, Minh Vu	2017
Hamza Mir, Ruyan Zhang, Rahul Kindi, Akanksha Alok, Chri Niu, Nate Pillai, Sherry Xie	2016

SERVICE

General Chair

Symposium on Visual Languages and Human-Centric Computing	2023

Organizer or Co-Chair

Dagstuhl Seminar on Theories of Programming	2022
Graduate Consortium, Symposium on Visual Languages and Human-Centric Computing	2022
Fourth International Workshop on Crowdsourcing in Software Engineering	2017
Seventh Workshop on the Evaluation and Usability of Programming Languages and Tools	2016
Third International Workshop on Crowdsourcing in Software Engineering	2016
Sixth Workshop on the Evaluation and Usability of Programming Languages and Tools	2015
Second International Workshop on Crowdsourcing in Software Engineering	2015
Fifth Workshop on the Evaluation and Usability of Programming Languages and Tools	2014
First International Workshop on Crowdsourcing in Software Engineering	2014

Steering Committee

Symposium on Visual Languages and Human-Centric Computing	2023 – present
Fifth International Workshop on Crowdsourcing in Software Engineering	2018

Editorial Board

Empirical Software Engineering journal	2025 –

Guest Editor

IEEE Software, Theme Issue on Crowdsourcing for Software Engineering	2017

Program Committee

CHI: Conference on Human Factors in Computing Systems	2026
ICPC: International Conference on Program Comprehension	2026
PLATEAU: Workshop on the Evaluation and Usability of Programming Languages and Tools	2026
FSE: International Conference on the Foundations of Software Engineering	2025
PLATEAU: Workshop on the Evaluation and Usability of Programming Languages and Tools	2025
VL/HCC: Symposium on Visual Languages and Human-Centric Computing	2024
DESIGNING: International Workshop on Designing Software	2024
PLATEAU: Workshop on the Evaluation and Usability of Programming Languages and Tools	2024
Onward!: International Symposium on New Ideas, New Paradigms, and Reflections on Programming and Software, Essays Track	2023
ICSE: International Conference on Software Engineering	2023
VL/HCC: Symposium on Visual Languages and Human-Centric Computing	2022
IUI: International Conference on Intelligent User Interfaces	2022
ICSE: International Conference on Software Engineering	2022
PAINT: First Workshop on Programming Abstractions and Interactive Notations, Tools, and Environments	2022
CHASE: Working Conference on Cooperative and Human Aspects of Software Engineering	2022
Onward!: International Symposium on New Ideas, New Paradigms, and Reflections on Programming and Software, Papers Track	2021
VL/HCC: Symposium on Visual Languages and Human-Centric Computing	2021
ICSE NIER: International Conference on Software Engineering, New Ideas and Emerging Results Track	2021
IUI: International Conference on Intelligent User Interfaces	2021
ICPC: International Conference on Program Comprehension	2021
CHASE: Working Conference on Cooperative and Human Aspects of Software Engineering	2021
ESEC/FSE: Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering	2020
VL/HCC: Symposium on Visual Languages and Human-Centric Computing	2020
IUI: International Conference on Intelligent User Interfaces	2020
CHASE: Workshop on Cooperative and Human Aspects of Software Engineering (ICSE)	2020
Onward!: International Symposium on New Ideas, New Paradigms, and Reflections on Programming and Software, Papers Track	2019
VL/HCC: Symposium on Visual Languages and Human-Centric Computing	2019
IUI: International Conference on Intelligent User Interfaces	2019
ICSE NIER: International Conference on Software Engineering, New Ideas and Emerging Results Track	2019
CHASE: Workshop on Cooperative and Human Aspects of Software Engineering (ICSE)	2019
VL/HCC: Symposium on Visual Languages and Human-Centric Computing	2018
CHASE: Workshop on Cooperative and Human Aspects of Software Engineering (ICSE)	2018
ICGSE: International Conference on Global Software Engineering	2017
VL/HCC: Symposium on Visual Languages and Human-Centric Computing	2017
ICSE NIER: International Conference on Software Engineering, New Ideas and Emerging	2017

Results Track

PLATEAU: Eighth Workshop on the Evaluation and Usability of Programming Languages and Tools	2017
CHASE: Workshop on Cooperative and Human Aspects of Software Engineering (ICSE)	2017
FSE-VaR: International Symposium on the Foundations of Software Engineering, Visions and Reflections Track	2016
Onward!: International Symposium on New Ideas, New Paradigms, and Reflections on Programming and Software	2016 2016
VL/HCC: Symposium on Visual Languages and Human-Centric Computing	2016
ICGSE: International Conference on Global Software Engineering	2016
ICSE V2025: International Conference on Software Engineering, Visions of 2025 and Beyond Track	2016
CHASE: Workshop on Cooperative and Human Aspects of Software Engineering (ICSE)	2016
VL/HCC: Symposium on Visual Languages and Human-Centric Computing	2015
ICSE Demos: International Conference on Software Engineering, Demo Track	2015
IS-EUD: International Symposium on End-User Development	2015
CHASE: Workshop on Cooperative and Human Aspects of Software Engineering (ICSE)	2015
WAWSE: Workshop on Alternative Workforces in Software Engineering (APSEC)	2015
ICSE Posters: International Conference on Software Engineering, Posters Track	2014
ICSE Demos: International Conference on Software Engineering, Demos Track	2014
CSMR-WCRE Demos: Conference on Software Maintenance, Reengineering and Reverse Engineering, Demos Track	2014
CHASE: Workshop on Cooperative and Human Aspects of Software Engineering (ICSE)	2014
CHASE: Workshop on Cooperative and Human Aspects of Software Engineering (ICSE)	2013
TOPI: Workshop on Developing Tools as Plug-ins (ICSE)	2013
IS-EUD: International Symposium on End-User Development	2013
SUITE: Workshop on the Evaluation and Usability of Programming Languages and Tools (ICSE)	2012
USER: Workshop on User Evaluation for Software Engineering Researchers (ICSE)	2012

Conference Service

VL/HCC: Symposium on Visual Languages and Human-Centric Computing, Finance Chair	2025
VL/HCC: Symposium on Visual Languages and Human-Centric Computing, Graduate Consortium Discussant	2021
SPLASH: Conference on Systems, Programming, Languages and Applications: Software for Humanity, Video Previews Czar	2015
SPLASH: Conference on Systems, Programming, Languages and Applications: Software for Humanity, Video Previews Czar	2014

Panelist / Reviewer

National Science Foundation	2014, 2016, 2017, 2019, 2020, 2025
Natural Sciences and Engineering Research Council of Canada	2020, 2025

Review Committee

Programming: The Art, Science, and Engineering of Programming, Vol. 6	2022

Review Board

ESE: Empirical Software Engineering	2014 / 2015

Reviewer

CACM: Communications of the ACM	2025

TOSEM: ACM Transactions on Software Engineering and Methodology	2011, 2012, 2014, 2019, 2020, 2024, 2025
IEEE Software	2009, 2018, 2020, 2024
CHI: ACM Conference on Human Factors in Computing Systems	2011, 2014 – 2023, 2025
UIST: ACM Symposium on User Interface Software and Technology	2011, 2013, 2016, 2017, 2019, 2023, 2025
JCL: Journal of Computer Languages	2022
TSE: IEEE Transactions on Software Engineering	2011 - 2021
TiiS: ACM Transactions on Interactive Intelligent Systems	2021
TOCE: ACM Transactions on Computing Education	2020
ESE: Empirical Software Engineering	2013, 2015, 2016, 2019
CSCW Journal: The Journal of Collaborative Computing and Work Practices	2019
JSS: Journal of Systems and Software	2014, 2015, 2016, 2019
CSCW: ACM Conference on Computer Supported Cooperative Work	2008, 2015, 2016, 2018
IEEE Computer	2012
OOPSLA: Object-Oriented Programming, Systems, Languages, and Applications	2008
ICSE**:** International Conference on Software Engineering	2007

Judging

Americas Datafest Accelerator Grants Competition	2014

George Mason University

Computer Science Student Engagement Committee	2025 – 2026
Computer Science Tenure-Track Recruitment Committee	2017 – 2020, 2021 – 2022, 2024 – 2025
Computer Science Ph.D. Committee	2015 – 2017, 2021, 2024 – 2025
ORIEI NSF Career Cohort Program	2024 – 2025
Software Engineering Seminar Coordinator	2015 –
Chair, Software Engineering Masters Admissions Committee	2023 – 2024
Software Engineering Masters Admissions Committee	2015 – 2023
Computer Science Graduate Studies Committee	2017 – 2024
TTIP AI, Social Justice, and Public Policy Recruitment Committee	2021 – 2022
Computer Science Distinguished Lecture Series Organizing Committee	2018 – 2022
Computer Science Space Committee	2019 – 2020

Carnegie Mellon University

ISR Software Engineering Ph.D. program admissions committee	2011
DEC/5 School of Computer Science Graduate Student Organization	2006 – 2008
Student volunteer, OOPSLA	2004, 2005, 2009, 2010
Software Engineering Ph.D. program representative, Graduate Student Association	2004 – 2006

University of Illinois at Urbana-Champaign

Chair, SIGSOFT at the University of Illinois at Urbana-Champaign	2002 – 2003
Internal Vice-President, Technological Frontiers Society	2001 – 2003
Engineering Council Academic Programs Committee	2001 – 2002

FORMAL PRESENTATIONS

Software Engineering Seminar, George Mason University	August 4, 2025

"Theories of Program Comprehension in the Age of LLMs"

Google August 2, 2025
"Theories of Program Comprehension in the Age of LLMs"

International Conference on Program Comprehension April 26, 2025
"Theories of Program Comprehension in the Age of LLMs" (**Keynote**)

University of Zurich January 10, 2025
"Sharing Programming Expertise"

Software Engineering Seminar, George Mason University December 5, 2024
"So you Want to Do a DevTools Startup?"

Never Work In Theory Lightning Talks April 26, 2023
"Programming Strategically"

Thoughtworks November 4, 2022
"Writing Code the Right Way: Empowering Developers to Understand Code"

Software Engineering Seminar, George Mason University September 20, 2022
"Writing Code the Right Way: Empowering Developers to Understand Code"

Microsoft August 10, 2022
"Writing Code the Right Way: Empowering Developers to Understand Code"

European Software Engineering Conference and Symposium on the Foundations of Software Engineering August 25, 2021
"Information Needs: Lessons for Programming Tools"

International Conference on Software Engineering May 25, 2021
"Explicit Programming Strategies"

Rochester Institute of Technology November 22, 2019
"Programming Tools for Crowdsourcing Insights"

MITRE Corporation October 4, 2019
"Programming Tools for Crowdsourcing Insights"

International Conference on Software Engineering May 31, 2019
"Crowdsourcing in Software Engineering: Models, Motivations, and Challenges"

European Software Engineering Conference and Symposium on the Foundations of Software Engineering November 8, 2018
"Microtask Programming"

Software Engineering Seminar, George Mason University October 29, 2018
"Microtask Programming"

Computer Science Seminar, George Mason University May 4, 2016

"Information Needs in Programming"

Computer Science Seminar Series, Northern Virginia Center, Virginia Tech   March 3, 2017
"Crowdsourcing for Software Engineering: Models, Opportunities, Challenges"

Computer Science Seminar, George Mason University   May 4, 2016
"Information Needs in Programming"

Crowdsourcing Lunch Seminar, Carnegie Mellon University   April 19, 2016
"Crowdsourcing for Software Engineering: Models, Opportunities, Challenges"

BiD Seminar, University of California Berkeley   March 8, 2016
"Crowdsourcing for Software Engineering: Models, Opportunities, Challenges"

ABB Corporate Research   January 11, 2016
"Information Needs in Programming"

Symposium on Visual Languages and Human-Centric Computing   October 19, 2015
"Ask the Crowd: Scaffolding Coordination and Knowledge Sharing in Microtask Programming"

International Conference on Software Engineering   May 21, 2015
"Borrowing from the Crowd: A Study of Recombination in Software Design Competitions"

International Conference on Software Engineering   May 20, 2015
"A Vision of Crowd Development"

George Mason University   April 20, 2015
"Building Software with the Crowd"

Texas A&M University   March 25, 2015
"Building Software with the Crowd"

University of British Columbia   March 9, 2015
"Building Software with the Crowd"

University of Texas at Dallas   March 2, 2015
"Building Software with the Crowd"

University of California, Irvine   February 17, 2015
"Building Software with the Crowd"

University of Waterloo   February 9, 2015
"Building Software with the Crowd"

Oregon State University   October 20, 2014
"Supporting Software Development Work"

Symposium on User Interface Systems and Technology   October 6, 2014
"Microtask Programming: Building Software with a Crowd"

MobileWorks April 11, 2014
"Microtasking Programming: Building Software with a Crowd"

NC State University March 5, 2014
"Supporting Information Needs in Software Development"

CrowdConf October 22, 2013
"CrowdCode: A Platform for Crowd Development"

General Electric Research October 21, 2013
"Building Software Together"

IBM Research October 8, 2013
"Microtasking Programming"

Social Coordination Across Large Environments Meeting March 25, 2013
"Crowd Development"

Workshop on the Evaluation and Usability of Programming Languages and Tools October 24, 2011
"Designing Useful Tools for Developers"

University of California, Berkeley April 15, 2011
"Answering Reachability Questions"

University of California, Santa Cruz April 14, 2011
"Answering Reachability Questions"

Stanford University April 13, 2011
"Answering Reachability Questions"

Bucknell University March 23, 2011
"Answering Reachability Questions"

Workshop on the Evaluation and Usability of Programming Languages and Tools October 18, 2010
"Hard-to-Answer Questions about Code"

Visual Languages and Human-Centric Computing September 19, 2011
"Visualizing Call Graphs"

International Conference on Software Engineering May 5, 2010
"Developers Ask Reachability Questions"

Workshop on SHAring and Reusing Architectural Knowledge May 2, 2010
"Developer Refinement of Runtime Architectural Structure"

Workshop on Search-driven development: Users, Infrastructure, Tools, and Evaluation May 1, 2010
"Searching Across Paths"

Wayne State University   January 11, 2010
"Answering Reachability Questions"

Foundations of Software Engineering   September 7, 2007
"Program Comprehension as Fact Finding"

International Conference on Software Engineering   May 25, 2006
"Maintaining Mental Models: A Study of Developer Work Habits"

Genetic and Evolutionary Computation Conference   July 9, 2001
"On the Supply of Building Blocks"

PRESS

UC Irvine Team Studying Crowdprogramming
ACM TechNews, July 30, 2014
http://technews.acm.org/#738329

UC Irvine Researchers Receive Grant to Study 'Crowdprogramming'
Techwire.net, July 28, 2014
http://www.techwire.net/uc-irvine-researchers-receive-grant-study-crowdprogramming/

UC Irvine Team Studying Crowdprogramming
Campus Technology, July 24, 2014
http://campustechnology.com/articles/2014/07/24/uc-irvine-team-studying-
crowdprogramming.aspx?admgarea=news