

Thomas D. LaToza

Assistant Professor

*Department of Computer Science
Volgenau School of Engineering
George Mason University*

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*4400 University Drive, MS 4A5,
Fairfax, VA 22030*

RESEARCH INTERESTS

Software engineering, developer experience design, human-computer interaction, crowdsourcing

EMPLOYMENT

George Mason University

Assistant Professor

Department of Computer Science, Volgenau School of Engineering

August 2015 – present

University of California, Irvine

Postdoctoral Research Associate

Department of Informatics, Donald Bren School of Information and Computer Sciences

March 2012 – August 2015

Microsoft Research

Consulting Researcher, Human Interactions in Programming

Host: Rob DeLine

December 2008; July 2010

Microsoft Research

Intern, Human Interactions in Programming

Mentor: Gina Venolia

Summer 2005

Carnegie Mellon University

Graduate Research Assistant

Institute for Software Research, School of Computer Science

August 2004 – February 2012

Microsoft

Software Design Engineer Intern, Media Center & Publisher

Summer 2002, 2003, 2004

Microsoft

Software Design Engineer in Test Intern, Encarta

Summer 2001

EDUCATION

Ph.D. in Software Engineering

August 2004 – February 2012

Institute for Software Research

School of Computer Science

Carnegie Mellon University

Dissertation: Answering reachability questions

Advised by Brad A. Myers and Jonathan Aldrich

Thesis committee: Brad A. Myers (co-chair), Jonathan Aldrich (co-chair), Aniket Kittur, Thomas Ball

B.S. (with highest honors) in Computer Science

May 2004

Department of Computer Science

University of Illinois at Urbana-Champaign

B.S. (magna cum laude, with distinction in psychology) in Psychology

May 2004

Department of Psychology

University of Illinois at Urbana-Champaign

Honors thesis: The understanding and modification of procedural and object-oriented programs – when does knowledge help more?

Advised by Alex Kirlik

PUBLICATIONS

Journal Articles

- [J6] LaToza, T. D., Di Lecce, A., Ricci, F., Towne, W. B., and van der Hook, André (2018). Microtask programming. *Transactions on Software Engineering (TSE)*, to appear.
- [J5] Stol, K. J., LaToza, T. D., and Bird, C. (2017). Crowdsourcing for software engineering. *IEEE Software*, 34 (2), 30-36.
- [J4] Myers, B. A., Ko, A. J., LaToza, T. D., and Yoon, Y. (2016). Programmers are users too: human-centered methods to improve software development. *IEEE Computer*, 49 (7), July 2016.
- [J3] LaToza, T. D., and van der Hoek, A. (2016). Crowdsourcing in software engineering: models, motivations, and challenges. *IEEE Software*, 33 (1), 74-80.
- [J2] Mangano, N., LaToza, T.D., Petre, M, and van der Hoek, A. (2015). How designers interact with sketches at the whiteboard. *Transactions on Software Engineering (TSE)*, 41 (2), 135-156.
- [J1] Ko, A. J., LaToza, T.D., and Burnett, M. M. (2013). A practical guide to controlled experiments of software engineering tools with human participants. *Empirical Software Engineering (ESE)*, Sept. 2013, 1-32.

Book Chapters

- [B1] Myers, Brad A., Ko, A.J., LaToza, T.D., and Yoon, Y. (2018). Human-centered methods to boost productivity. In *Rethinking productivity in software engineering*, Caitlin Sadowski and Thomas Zimmermann (eds.), Apress.

Refereed Conference Papers

- [C13] LaToza, T. D., Di Lecce, A., Ricci, F., Towne, W. B., and van der Hoek, A. (2015). Ask the crowd: scaffolding coordination and knowledge sharing in microtask programming. *Symposium on Visual Languages and Human-Centric Computing (VL/HCC)*, 23-27.
- [C12] Martie, L., LaToza, T. D., and van der Hoek, A. (2015). CodeExchange: Supporting Reformulation of Code Queries in Context. *International Conference on Automated Software Engineering (ASE)*, 24-35. (acceptance rate: **21%**)
- [C11] LaToza, T.D., van der Hoek, A. A vision of crowd development. (2015). *International Conference on Software Engineering, New and Emerging Results Track (ICSE NIER)*, 563-566. (acceptance rate: **18%**)
- [C10] LaToza, T.D., Chen, M., Jiang, L., Zhao, M., and van der Hoek, A. (2015). Borrowing from the crowd: a study of recombination in software design competitions. *International Conference on Software Engineering (ICSE)*, 551-562. (acceptance rate: **19%**)
- [C9] LaToza, T.D., Towne, W.B., Adriano, C.M., van der Hoek, A. (2014). Microtask programming: building software with a crowd. *Symposium on User Interface Software and Technology (UIST)*, 43-54. (acceptance rate: **22%**)
- [C8] Mangano, N., LaToza, T.D., Petre, M., and van der Hoek, A. (2014). Supporting informal design with interactive whiteboards. *Conference on Human Factors in Computing Systems (CHI)*, 331-340. (acceptance rate: **23%**).
- [C7] Loksa, D., Mangano, N, LaToza, T., and van der Hoek, A. (2013). Enabling a classroom design studio with a collaborative sketch design tool. *International Conference on Software Engineering, Education Track (ICSE Ed)*, 1073-1082. (acceptance rate: **27%**)
- [C6] Omar, C., Yoon, Y., LaToza, T.D., and Myers, B.A. (2012). Active code completion. *International Conference on Software Engineering (ICSE)*, 859-869. (acceptance rate: **21%**)
- [C5] LaToza, T.D., & Myers, B.A. (2011). Visualizing call graphs. *Symposium on Visual Languages and Human-Centric Computing (VL/HCC)*, 117-124. (acceptance rate: **33%**)
- [C4] LaToza, T.D., & Myers, B.A. (2010). Developers ask reachability questions. *International Conference on Software Engineering (ICSE)*, 185-194. (acceptance rate: **14%**)
- [C3] LaToza, T.D., Garlan, D., Herbiseb, J.D., and Myers, B.A. (2007). Program comprehension as fact finding. *European Software Engineering Conference and the Symposium on the Foundations of Software Engineering (ESEC/FSE)*, 361-370. (acceptance rate: **17%**)
- [C2] LaToza, T.D., Venolia, G., & DeLine, R. (2006). Maintaining mental models: a study of developer work habits. *International Conference on Software Engineering, Experience Track*, 492-501. (acceptance rate: **18%**)

- [C1] Goldberg, D.E., Sastry, K, & LaToza, T. (2001). On the supply of building blocks. *Genetic and Evolutionary Computation Conference*, 336-342. (acceptance rate: **48%**)

Refereed Workshop Papers

- [W11] Bell, J., LaToza, T. D. 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.
- [W10] LaToza, T.D., Towne, W.B., van der Hoek, A. (2014). Harnessing the crowd: decontextualizing software work. *Workshop on Context in Software Development (CSD)*, 2 pages.
- [W9] LaToza, T. D., Towne, W. B., van der Hoek, A., and Herbsleb, J. D. (2013). Crowd development. *Workshop on Cooperative and Human Aspects of Software Engineering (CHASE)*, 4 pages.
- [W8] LaToza, T. D., Shabani, E., and van der Hoek, A. (2013). A study of architectural decision practices. *Workshop on Cooperative and Human Aspects of Software Engineering (CHASE)*, 4 pages.
- [W7] LaToza, T. D., & Myers, B. A. (2011). Designing useful tools for developers. *Workshop on the Evaluation and Usability of Programming Languages and Tools (PLATEAU)*, 45-50.
- [W6] LaToza, T. D., & Myers, B. A. (2010). Hard-to-answer questions about code. *Workshop on the Evaluation and Usability of Programming Languages and Tools (PLATEAU)*, 6 pages.
- [W5] LaToza, T. D., & Myers, B. A. (2010). Searching across paths. *Workshop on Search-driven development: Users, Infrastructure, Tools and Evaluation (SUITE)*, 29-32.
- [W4] LaToza, T. D., & Myers, B. A. (2010). On the importance of understanding the strategies that developers use. *Workshop on Cooperative and Human Aspects of Software Engineering (CHASE)*, 72-75.
- [W3] Abi-Antoun, M., Ammar, N., LaToza, T. (2010). Questions about object structure during coding activities. *Workshop on Cooperative and Human Aspects of Software (CHASE)*, 64-71.
- [W2] Abi-Antoun, M., Selitsky, T. F., and LaToza, T. (2010). Developer refinement of runtime architectural structure. *Workshop on SHaring and Reusing architectural Knowledge (SHARK)*, 80-87.
- [W1] Myers, B. A., Ko, A. J., Park, S. Y., Stylos, J., LaToza, T. D., & Beaton, J. (2008). More natural end-user software engineering. *Workshop on End-User Software Engineering (EUSES)*, 30-34.

Refereed Demos, Posters, and Other Papers

- [O6] LaToza, T. D., Chiquillo, E., Towne, W. B., Adriano, C. M., and van der Hoek, A. (2013). CrowdCode: a platform for crowd development. *CrowdConf 2013*, 1 page.

- [O5] Omar, C., Yoon, Y., LaToza, T.D., and Myers, B. A. (2011). Active code completion. *Visual Languages and Human-Centric Computing, Demonstration*, 261-262.
- [O4] LaToza, T. D. (2008). Answering control flow questions about code. Poster at *Object-Oriented Programming Systems Languages and Applications (OOPSLA)*, 921-922.
- [O3] LaToza, T. D. (2008). Answering common questions about code. Doctoral Symposium, *International Conference on Software Engineering (ICSE)*, 983-986.
- [O2] LaToza, T. D. (2006). Using architecture to change code: studying information needs. Poster at *Object-Oriented Programming Systems, Languages, and Applications (OOPSLA)*, 764-765.
- [O1] LaToza, T. D., & Kirlik, A. (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

- [R1] Venolia, G., DeLine, R., and LaToza, T. (Oct 2005). Software Development at Microsoft Observed: It's about people ... working together. *Microsoft Research Technical Report MSR-TR-2005-140*.

Theses

- [T2] LaToza, T.D. (2012). Answering reachability questions. Dissertation, Institute for Software Research, Carnegie Mellon University.
- [T1] LaToza, T.D. (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

Mason Curriculum Impact Grant: D(esign) Minor (co-PI) \$28,000	2018 – 2019
NSF, SHF: Collaborative Research: Medium: Programming Strategies (lead PI) \$1,079,998 (GMU share: \$592,791)	2017 – 2021
NSF, SHF: Large: CrowdProgramming (co-PI) \$1,403,377 (GMU share: \$325,000)	2014 – 2018
National Science Foundation, Graduate Research Fellowship \$121,500	2005 – 2008

TEACHING

Instructor , George Mason University <i>Course: Software Modeling and Architectural Design (SWE-621)</i>	Fall 2018
Instructor , George Mason University <i>Course: User Interface Design and Development (SWE-632)</i>	Spring 2018, Fall 2015
Instructor , George Mason University <i>Course: Design and Implementation of Software for the Web (SWE-432)</i>	Fall 2017, Fall 2016
Instructor , George Mason University <i>Course: Software Engineering Environments (SWE-795)</i>	Spring 2017
Instructor , George Mason University <i>Course: Software Project Laboratory (SWE-626)</i>	Spring 2016
Instructor , Conference on Systems, Programming Languages, and Applications in the Service of Humanity (SPLASH) <i>Tutorial: Evaluating Programming Languages and Tools in Studies with Human Participants</i>	Fall 2015
Co-Instructor , Carnegie Mellon University <i>Course: Human Aspects of Software Development (05-899D), with Brad Myers</i>	Spring 2011
Guest Lecturer , Wayne State University <i>Course: Software Engineering Environments and Tools (CSC 7110), taught by Marwan Abi-Antoun</i>	Winter 2010
Teaching Assistant , Carnegie Mellon University <i>Course: Human-Computer Interaction Methods (05-610), taught by Bonnie John and Jennifer Mankoff</i>	Fall 2007
Teaching Assistant , Carnegie Mellon University <i>Course: Professional Software Master Course, taught by William Scherlis and Jonathan Aldrich</i>	Fall 2006
Teaching Assistant , Carnegie Mellon University <i>Course: Analysis of Software Artifacts (17-654 / 17-754), taught by Jonathan Aldrich</i>	Spring 2006

SERVICE

Co-Chair

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

Fifth International Workshop on Crowdsourcing in Software Engineering	2018
Guest Editor	
IEEE Software, Theme Issue on Crowdsourcing for Software Engineering	2017
Program Committee	
ICSE NIER: International Conference on Software Engineering, New Ideas and Emerging Results Track	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 Results Track	2017
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
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	
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	
National Science Foundation	2014, 2016, 2017

Review Board

ESE: Empirical Software Engineering 2014 / 2015

Reviewer

TSE: IEEE Transactions on Software Engineering 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018
 CHI: ACM Conference on Human Factors in Computing Systems 2011, 2014, 2015, 2016, 2017, 2018
 CSCW: ACM Conference on Computer Supported Cooperative Work 2008, 2015, 2016, 2018
 IEEE Software 2009, 2018
 UIST: ACM Symposium on User Interface Software and Technology 2011, 2013, 2016, 2017
 TOSEM: ACM Transactions on Software Engineering and Methodology 2011, 2012, 2014
 ESE: Empirical Software Engineering 2013, 2015, 2016
 JSS: Journal of Systems and Software 2014, 2015, 2016
 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 Graduate Studies Committee 2017 –
 Computer Science Distinguished Lecture Series Organizing Committee 2018 –
 Computer Science Recruitment Committee 2017 – 2018
 Computer Science Ph.D. Admissions Committee 2015 – 2017
 Software Engineering Masters Admissions Committee 2015 –
 Software Engineering Seminar Coordinator 2015 –

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

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

HONORS AND AWARDS

Google Scholar Classic Paper. Maintaining Mental Models: A Study of Developer Work Habits 2017
 NSF Graduate Research Fellowship 2005
 Psychology Honors Program 2003 – 2004
 Phi Kappa Phi 2003
 Accenture Outstanding Student Award 2002, 2003
 Tau Beta Pi 2001
 Alpha Lambda Delta 2001
 James Scholar 2000 – 2004

Krishna Bharadwaj Scholarship	2000
National Advanced Placement Scholar	2000
Valedictorian, Waubonsie Valley High School	2000

STUDENTS ADVISED

Dissertation Committee Chair

Abdulaziz Alaboudi	Ph.D., expected 2024, George Mason University
Emad Aghayi	Ph.D., expected 2024, George Mason University
Sahar Mehrpour	Ph.D., expected 2023, George Mason University
Maryam Arab	Ph.D., expected 2023, George Mason University
David Gonzalez	Ph.D., expected 2019, George Mason University

Dissertation Committee Member

Fatemah Husain	Ph.D., expected 2020, George Mason University
Qian Hu	Ph.D., expected 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 Kourosfar	Ph.D., 2016, George Mason University

Master's Committee Member

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

George Mason University Aspiring Scientists Summer Internship Program (ASSIP) Students

Simra Ali, Ramya Bhaskara, Jeffrey Currence, Rounak Das, Dolica Gopisetty, Robert Kim,	2017
Varun Kulkarni, Saarthak Maheshwari, Kimberly Perez Cruz, Minh Vu	
Hamza Mir, Ruyan Zhang, Rahul Kindi, Akanksha Alok, Chri Niu, Nate Pillai, Sherry Xie	2016

FORMAL PRESENTATIONS

Computer Science Seminar Series, Northern Virginia Center, Virginia Tech "Crowdsourcing for Software Engineering: Models, Opportunities, Challenges"	March 3, 2017
Computer Science Seminar, George Mason University "Information Needs in Programming"	May 4, 2016
Crowdsourcing Lunch Seminar, Carnegie Mellon University "Crowdsourcing for Software Engineering: Models, Opportunities, Challenges"	April 19, 2016
BiD Seminar, University of California Berkeley "Crowdsourcing for Software Engineering: Models, Opportunities, Challenges"	March 8, 2016
ABB Corporate Research "Information Needs in Programming"	January 11, 2016
Symposium on Visual Languages and Human-Centric Computing "Ask the Crowd: Scaffolding Coordination and Knowledge Sharing in Microtask Programming"	October 19, 2015

International Conference on Software Engineering "Borrowing from the Crowd: A Study of Recombination in Software Design Competitions"	May 21, 2015
International Conference on Software Engineering "A Vision of Crowd Development"	May 20, 2015
George Mason University "Building Software with the Crowd"	April 20, 2015
Texas A&M University "Building Software with the Crowd"	March 25, 2015
University of British Columbia "Building Software with the Crowd"	March 9, 2015
University of Texas at Dallas "Building Software with the Crowd"	March 2, 2015
University of California, Irvine "Building Software with the Crowd"	February 17, 2015
University of Waterloo "Building Software with the Crowd"	February 9, 2015
Oregon State University "Supporting Software Development Work"	October 20, 2014
Symposium on User Interface Systems and Technology "Microtask Programming: Building Software with a Crowd"	October 6, 2014
MobileWorks "Microtasking Programming: Building Software with a Crowd"	April 11, 2014
NC State University "Supporting Information Needs in Software Development"	March 5, 2014
CrowdConf "CrowdCode: A Platform for Crowd Development"	October 22, 2013
General Electric Research "Building Software Together"	October 21, 2013
IBM Research "Microtasking Programming"	October 8, 2013
Social Coordination Across Large Environments Meeting "Crowd Development"	March 25, 2013
Workshop on the Evaluation and Usability of Programming Languages	October 24, 2011

and Tools

“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>