

Thomas D. LaToza

Assistant Professor

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

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Fairfax, VA 22030*

RESEARCH INTERESTS

Software engineering, human aspects of software development, human-computer interaction, crowdsourcing

EMPLOYMENT

George Mason University

August 2015 – present

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: Rob 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 2002, 2003, 2004

Software Design Engineer Intern, Media Center & Publisher

Microsoft

Summer 2001

Software Design Engineer in Test Intern, Encarta

UNETY Systems

Summer 2000

CORE Intern

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

- [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.

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., Herblseb, 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

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: Design and Implementation of Software for the Web (SWE-432)</i>	Fall 2017, Fall 2016
Instructor , George Mason University	Spring 2017

Course: Software Engineering Environments (SWE-795)

Instructor, George Mason University Spring 2016
Course: Software Project Laboratory (SWE-626)

Instructor, George Mason University Fall 2015
Course: User Interface Design and Development (SWE-632)

Instructor, Conference on Systems, Programming Languages, and Applications in the Service of
 Humanity (SPLASH) Fall 2015
Tutorial: Evaluating Programming Languages and Tools in Studies with Human Participants

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

Guest Lecturer, Wayne State University Winter 2010
Course: Software Engineering Environments and Tools (CSC 7110), taught by Marwan Abi-Antoun

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

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

Guest Editor

IEEE Software, Theme Issue on Crowdsourcing for Software Engineering	2017
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Program Committee

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
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Review Board

ESE: Empirical Software Engineering	2014 / 2015
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Reviewer

TSE: IEEE Transactions on Software Engineering	2011, 2012, 2013, 2014, 2015, 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
CHI: ACM Conference on Human Factors in Computing Systems	2011, 2014, 2015, 2016, 2017
UIST: ACM Symposium on User Interface Software and Technology	2011, 2013, 2016, 2017
CSCW: ACM Conference on Computer Supported Cooperative Work	2008, 2015, 2016
IEEE Computer	2012
IEEE Software	2009
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 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

GRADUATE STUDENTS ADVISED

Dissertation Committee Chair

Sahar Mehrpour Ph.D., expected 2022, George Mason University
 Maryam Arab Ph.D., expected 2022, George Mason University
 David Gonzalez Ph.D., expected 2019, George Mason University

Dissertation Committee Member

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
Fernando Spanghero

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

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	October 20, 2014

“Supporting Software Development Work”	
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 and Tools “Designing Useful Tools for Developers”	October 24, 2011
University of California, Berkeley “Answering Reachability Questions”	April 15, 2011
University of California, Santa Cruz “Answering Reachability Questions”	April 14, 2011
Stanford University “Answering Reachability Questions”	April 13, 2011
Bucknell University “Answering Reachability Questions”	March 23, 2011
Workshop on the Evaluation and Usability of Programming Languages and Tools “Hard-to-Answer Questions about Code”	October 18, 2010
Visual Languages and Human-Centric Computing “Visualizing Call Graphs”	September 19, 2011
International Conference on Software Engineering “Developers Ask Reachability Questions”	May 5, 2010
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>