# Thomas D. LaToza

## Assistant Professor

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

cs.gmu.edu/~tlatoza
tlatoza@gmu.edu

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

## RESEARCH INTERESTS

Software engineering, developer experience design, 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**

# 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) 2017 – 2021
$1,079,998 (GMU share: $592,791)

NSF, SHF: Large: CrowdProgramming (co-PI) 2014 – 2018
$1,403,377 (GMU share: $325,000)

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

## TEACHING

**Instructor,** George Mason University Spring 2018, Fall 2015
*Course: User Interface Design and Development (SWE-632)*

**Instructor,** George Mason University Fall 2017, Fall 2016
*Course: Design and Implementation of Software for the Web (SWE-432)*

**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,** 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

**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**
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 2016

and Reflections Track
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
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, 2018
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 Kouroshfar 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

**Aspiring Scientists Summer Interns**

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

## FORMAL PRESENTATIONS

**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