

Mattia Fazzini

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INTERESTS

Software Engineering, Software Testing, Software Maintenance, Software Security

My research aims to improve the overall quality of software. The central theme of my research is the development of techniques for software testing and maintenance. I am also interested in defining techniques for investigating software attacks and securing software.

EMPLOYMENT

University of Minnesota 2019-Present
Assistant Professor
Department of Computer Science & Engineering

EDUCATION

Georgia Institute of Technology 2013-2019
Ph.D., Computer Science
Advisor: Alessandro Orso

Politecnico di Milano 2010-2012
M.S., Engineering of Computing Systems

University of Illinois at Chicago 2010-2012
M.S., Computer Science
Double degree program with Politecnico di Milano

Politecnico di Torino 2010-2012
M.S., Computer Systems Engineering
Double degree program with Politecnico di Milano

University of Ferrara 2006-2009
B.S., Information Engineering

PUBLICATIONS

Conference Publications

Identifying and Characterizing Silently-Evolved Methods in the Android API

P. Liu, L. Li, Y. Yan, M. Fazzini, and J. Grundy.

In Proceedings of the 43rd International Conference on Software Engineering (ICSE), Software Engineering in Practice (SEIP) track, 2021.

A Framework for Automated Test Mocking of Mobile Apps

M. Fazzini, A. Gorla, and A. Orso.

In Proceedings of the 35th IEEE/ACM International Conference on Automated Software Engineering (ASE), New Ideas and Emerging Results (NIER) track, 2020

Managing App Testing Device Clouds: Issues and Opportunities

M. Fazzini, and A. Orso.

In Proceedings of the 35th IEEE/ACM International Conference on Automated Software Engineering (ASE), Late Breaking Results (LBR) track, 2020

APIMigrator: An API-Usage Migration Tool for Android Apps

M. Fazzini, Q. Xin, and A. Orso.

In Proceedings of the 6th International Conference on Mobile Software Engineering and Systems (MOBILESoft), Tool Demos and Mobile Apps track, 4 pages, 2020

Automated API-usage update for Android apps

M. Fazzini, Q. Xin, and A. Orso

In Proceedings of the 28th ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA), 2019

Identifying Features of Android Apps from Execution Traces

Q. Xin, F. Behrang, M. Fazzini, and A. Orso

In Proceedings of the 6th International Conference on Mobile Software Engineering and Systems (MOBILESoft), Short Paper, 2019

Automated Support for Mobile Application Testing and Maintenance

M. Fazzini

In Proceedings of the 12th Joint European Software Engineering Conference and the Symposium on the Foundations of Software Engineering (ESEC/FSE), Doctoral Symposium, 2018

Enabling Refinable Cross-Host Attack Investigation with Efficient Data Flow Tagging and Tracking

Y. Ji, S. Lee, M. Fazzini, J. Allen, E. Downing, T. Kim, A. Orso, and W. Lee

In Proceedings of the 27th USENIX Conference on Security Symposium (USENIX Security), 2018

Automatically Translating Bug Reports into Test Cases for Mobile Apps

M. Fazzini, M. Prammer, M. d'Amorim, and A. Orso

In Proceedings of the 27th ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA), 2018

RAIN: Refinable Attack Investigation with On-demand Inter-Process Information Flow Tracking

Y. Ji, S. Lee, E. Downing, W. Wang, M. Fazzini, T. Kim, A. Orso, and W. Lee

In Proceedings of the 2017 ACM SIGSAC Conference on Computer and Communications Security (CCS), 2017

Automated Cross-Platform Inconsistency Detection for Mobile Apps

M. Fazzini and A. Orso

In Proceedings of the 32nd IEEE/ACM International Conference on Automated Software Engineering (ASE), 2017

Barista: A Technique for Recording, Encoding, and Running Platform Independent Android Tests

M. Fazzini, E. N. D. A. Freitas, S. Roy Choudhary, and A. Orso

In Proceedings of the 2017 IEEE International Conference on Software Testing, Verification and Validation (ICST), 2017

AutoCSP: Automatically Retrofitting CSP to Web Applications

M. Fazzini, P. Saxena, and A. Orso

In Proceedings of the 37th International Conference on Software Engineering (ICSE), 2015

ViewPoints: Differential String Analysis for Discovering Client- and Server-Side Input Validation Inconsistencies

M. Alkhalaf, S. Roy Choudhary, M. Fazzini, T. Bultan, A. Orso, and C. Kruegel

In Proceedings of the 2012 International Symposium on Software Testing and Analysis (ISSTA), 2012

RESEARCH GRANTS**AND AWARDS**

Moka: Improving App Testing with Automated Mocking
 Facebook, Inc.
 PI: M. Fazzini
 Co-PIs: A. Gorla (IMDEA Software Institute), A. Orso (Georgia Institute of Technology)
 Awarded in October 2019, \$49, 838

TEACHING

CSCI 5802 Software Engineering II Instructor	Spring 2021
CSCI 3081W Program Design and Development Instructor	Fall 2020
CSCI 8980 Automated Software Engineering Instructor	Spring 2020
CS 8803 Advanced Software Engineering Teaching Assistant	Spring 2017
CS 6300 Software Development Process (Online) Teaching Assistant	Summer 2016
CS 6300 Software Development Process (Online) Teaching Assistant	Spring 2016
CS 6300 Software Development Process (Online) Teaching Assistant	Fall 2015
CS 6300 Software Development Process (Online) Teaching Assistant	Summer 2015
CS 6300 Software Development Process (Online) Teaching Assistant	Spring 2015
CS 8803 Advanced Software Engineering Teaching Assistant	Fall 2014
CS 6300 Software Development Process (Online) Teaching Assistant	Fall 2014

MENTORING**M.S. Students**

Jia Zhang	Fall 2020-Present
Chase Choi	Fall 2020-Present
Pranay Pratil	Fall 2019

Undergraduate Students

Emily Steinebrey	Fall 2020
Gabriel Lee	Fall 2020-Present
Andrew Lee	Fall 2020-Present
Hemant Gouni	Fall 2020-Present
Muskan Bagati	Spring 2020
Tyler Wendland	Fall 2019-Present
Martin Prammer	Fall 2017-Spring 2019
Anthony Teachey	Fall 2018

**PROFESSIONAL
ACTIVITIES**

International Conference on Mobile Software Engineering and Systems (MOBILESoft) Program co-chair	2021
IEEE/ACM International Conference on Automated Software Engineering (ASE) Diversity co-chair	2021
IEEE/ACM International Conference on Automated Software Engineering (ASE) Program Committee Member	2021
IEEE International Conference on Software Testing, Verification and Validation (ICST) Program Committee Member	2021
Empirical Software Engineering (EMSE) Reviewer	2020
ACM Transactions on Software Engineering and Methodology (TOSEM) Reviewer	2020
Languages and Tools for Next Generation Testing Workshop (LANGETI) Program Committee Member	2020
Journal of Systems and Software (JSS) Reviewer	2020
IEEE Transactions on Software Engineering (TSE) Reviewer (x3)	2020
International Conference on Automated Software Engineering (ASE) Tool Demonstrations Program Committee Member	2020
International Symposium on Software Testing and Analysis (ISSTA) Student volunteer co-chair	2020
2020 International Symposium on Software Testing and Analysis (ISSTA) Tool Demonstrations Program Committee Member	2020
International Conference on Mobile Software Engineering and Systems (MOBILESoft) Program Committee Member (Vision track)	2020
International Conference on Software Testing (ICST) Program Committee Member (Posters Track)	2020
International Symposium on Software Testing and Analysis (ISSTA) Artifact Evaluation Committee Member	2019
Automated Software Engineering Journal (AUSE) Reviewer	2019
Journal of Systems and Software Reviewer	2018
International Symposium on Software Testing and Analysis (ISSTA) Artifact Evaluation Committee Member	2018
International Symposium on Engineering Secure Software and Systems (ESSoS) Program Committee Member	2018
Transactions on Privacy and Security (TOPS) Reviewer	2016
International Conference on Information Systems Security (ICISS) Subreviewer	2015

**INVITED TALKS
AND PANELS**

Future challenges in mobile software engineering Panel, MOBILESoft 2020	2020
Automated Support for Testing and Maintenance of Mobile Applications Talk, A-Mobile	2019
Automated Support for Mobile Application Testing and Debugging Talk, Politecnico di Milano	2018
THEIA: Tagging and Tracking of Multi-Level Host Events for Transparent Computing and Information Assurance Talk, urdue University	2017
AutoCSP: Automatically Retrofitting CSP to Web Applications Talk, Politecnico di Milano	2015

**PROFESSIONAL
EXPERIENCE**

University of California, Berkeley, USA Research Internship Mentor: Dawn Song	Summer 2014
National University of Singapore, Singapore Research Internship Mentors: Abhik Roychoudhury and Prateek Saxena	Summer 2013
Georgia Institute of Technology, USA Research Scholar Mentor: Alessandro Orso	2012-2013
NTT DATA Corporation, Japan Research Internship Mentor: Yuji Shono	2009-2010
Bristol Centre for Complexity Sciences, England Research Internship Mentor: Mario Di Bernardo	Summer 2009