Fabrizio Pastore | Research Scientist

Personal

Date of birth: September 21, 1982

Citizenship: Italian

Google Scholar: goo.gl/W95KtF

Personal Web page: www.fabriziopastore.com

Employment History

University of Luxembourg, SnT Centre — **Luxembourg, Luxembourg**
Research Scientist — *05/2017 – present*

Università degli Studi di Milano - Bicocca — **Milano, Italy**
Assistant Professor — *12/2015 – 04/2017*

University of Luxembourg, SnT Centre — **Luxembourg, Luxembourg**
Research Associate — *8/2014 – 11/2015*

Università degli Studi di Milano - Bicocca — **Milano, Italy**
Postdoctoral Researcher — *01/2011 – 07/2014*

Università della Svizzera Italiana — **Lugano, Switzerland**
Postdoctoral Researcher — *01/2010 – 12/2010*

Education

Università degli Studi di Milano - Bicocca — **Milano, Italy**
PhD, Computer Science — *11/2006 – 02/2010*

Università degli Studi di Milano - Bicocca — **Milano, Italy**
MSc, Computer Science — *10/2004 – 10/2006*

Università degli Studi del Piemonte - Orientale — **Alessandria, Italy**
BSc, Computer Science — *10/2001 – 10/2004*

Career Highlights

Research interests: software testing, program analysis, autonomous and self-* systems, crowdsourcing.
More than 30 peer-reviewed publications. H-index: 13, Citations: 583 (Google scholar, past 10 years, as of November 2018).

Currently Pastore is lead scientist for some of the workpackages of an EU project (AAL scheme) and two industrial projects involving Huawei Technologies Co. Ltd. and IEE Luxembourg. In the past, Pastore has been lead scientist for two industrial projects involving IEE Luxembourg and SES Luxembourg. Also, Pastore has ten years of experience with different types of EU funded projects: two STREP projects, one IP project.

Invited talks at FSE'17 (TOSEM journal first), VSSE'14, VSSE'13. Co-organizer of the 1st International Workshop on Crowdsourcing in Software Engineering (CSI-SE'13). PC member of FASE and ISSRE.

Qualified in April 2017 to be hired as Associate Professor in Italian Universities (national qualification). Co-supervised four Ph.D. students, three Master students, 18 Bachelor students. Ten years of teaching experience.

Holder of a Research grant at University of Milano - Bicocca (Italy), from Jan. 2011 to Dec. 2014.

Selected Publications

1. Chunhui Wang, Fabrizio Pastore, Lionel Briand. Oracles for Testing Software Timeliness with Uncertainty. ACM Transactions on Software Engineering and Methodology (IF 2017 2.516). 2019. To appear. https://orbilu.uni.lu/handle/10993/36987

2. Chunhui Wang, Fabrizio Pastore, Lionel Briand. Automated Generation of Constraints from Use Case Specifications to Support System Testing. 11th International Conference on Software Testing, Verification and Validation (ICST). Västerås Sweden, 2018. IEEE. Pages 23 - 33. ISBN: 978-1-5386-5012-7 DOI: 10.1109/ICST.2018.00013.

3. Daniel Di Nardo, Fabrizio Pastore, Lionel Briand. Augmenting field data for testing systems subject to incremental requirements changes. ACM Transactions on Software Engineering and Methodology (IF 2016/17 2.516). Vol 26 (1). ACM, 2017. ISSN:1049-331X EISSN:1557-7392 DOI: 10.1145/3053430

4. Fabrizio Pastore, Leonardo Mariani, Daniela Micucci. BDCI: behavioral driven conflict identification. In Proceedings of the 11th Joint Meeting on Foundations of Software Engineering (ESEC/FSE '17). Pages 570-581. Padernborn, Germany, 2017. ISBN: 978-1-4503-5105-8. DOI: 10.1145/3106237.3106296. ACM.

5. Fabrizio Pastore, Leonardo Mariani. ZoomIn: Discovering Failures by Detecting Wrong Assertions. In Proceedings of the 37th International Conference on Software Engineering (ICSE'15). Pages 66 – 76. Firenze, Italy, 2015. IEEE. ISBN: 978-1-4799-1934-5.

List of Peer Reviewed Publications

1. Chunhui Wang, Fabrizio Pastore, Lionel Briand. Oracles for Testing Software Timeliness with Uncertainty. ACM Transactions on Software Engineering and Methodology (IF 2017 2.516). 2019. To appear. https://orbilu.uni.lu/handle/10993/36987.

2. Xuan Phu Mai, Fabrizio Pastore, Arda Goknil, Lionel Briand. A Natural Language Programming Approach for Requirements-based Security Testing. In Proceedings of the 29th IEEE International Symposium on Software Reliability Engineering (ISSRE 2018). Memphis (TN, USA), October 15-18, 2018. http://hdl.handle.net/10993/36301.

3. Xuan Phu Mai, Arda Goknil, Lwin Khin Shar, Fabrizio Pastore, Lionel Briand, Shaban Shaame. Modeling Security and Privacy Requirements: a Use Case-Driven Approach. Information and Software Technology (IF 2017 2.627). Volume 100. Pages 165 - 182. ISSN : 0950-5849. Elsevier Science, Amsterdam (Netherlands).

4. Xuan Phu Mai, Fabrizio Pastore, Arda Goknil, Lionel Briand. A Natural Language Programming Approach for Requirements-based Security Testing. 29th IEEE International Symposium on Software Reliability Engineering (ISSRE 2018). Memphis, Tennessee, USA, October 15-18, 2018. http://hdl.handle.net/10993/36301.

5. Chunhui Wang, Fabrizio Pastore, Lionel Briand. Automated Generation of Constraints from Use Case Specifications to Support System Testing. 11th International Conference on Software Testing, Verification and Validation (ICST). Västerås Sweden, 2018. IEEE. Pages 23 - 33. ISBN: 978-1-5386-5012-7 DOI: 10.1109/ICST.2018.00013.

6. Lionel Briand, Domenico Bianculli, Shiva Nejati, Fabrizio Pastore, Mehrdad Sabetzadeh. The Case for Context-Driven Software Engineering Research: Generalizability Is Overrated. IEEE Software (IF 2016/17 2.19). Vol. 34 (5). Pages 72 - 75. IEEE, 2017. ISSN: 0740-7459, DOI: 10.1109/MS.2017.3571562.

7. Luca Gazzola, Leonardo Mariani, Fabrizio Pastore, Mauro Pezzè. An Exploratory Study of Field Failures. In Proceedings of the 28th international Symposium on Software Reliability Engineering (ISSRE '17). Toulouse, France, 2017. IEEE.

8. Fabrizio Pastore, Leonardo Mariani, Daniela Micucci. BDCI: behavioral driven conflict identification. In Proceedings of the 11th Joint Meeting on Foundations of Software Engineering (ESEC/FSE '17). Pages 570-581. Padernborn, Germany, 2017. ISBN: 978-1-4503-5105-8. DOI: 10.1145/3106237.3106296. ACM.

9. Chunhui Wang, Fabrizio Pastore, Lionel Briand. System Testing of Timing Requirements Based on Use Cases and Timed Automata. In Proceedings of the 10th IEEE International Conference on Software Testing, Verification and Validation (ICST '17). Pages 299 - 309. Tokyo, Japan, 2017. ISBN: 978-1-5090-6031-3. DOI: 10.1109/ICST.2017.43. IEEE.

10. Fabrizio Pastore, Daniela Micucci, Leonardo Mariani. Timed k-Tail: Automatic Inference of Timed Automata. In Proceedings of the 10th IEEE International Conference on Software Testing, Verification and Validation (ICST '17). Pages 401 - 411. Tokyo, Japan, 2017. ISBN: 978-1-5090-6031-3. DOI: 10.1109/ICST.2017.43. IEEE.

11. Daniel Di Nardo, Fabrizio Pastore, Lionel Briand. Augmenting field data for testing systems subject to incremental requirements changes. ACM Transactions on Software Engineering and Methodology (IF 2016/17 2.516). Vol 26 (1). ACM, 2017. ISSN:1049-331X EISSN:1557-7392 DOI: 10.1145/3053430

12. Fabrizio Pastore, Leonardo Mariani. Dynamic Analysis of Regression Problems in Industrial Systems: Challenges and Solutions. In Proceedings of the 7TH International Symposium on Leveraging Applications of Formal Methods, Verification and Validation (ISOLA'16). Corfù, Greece, 2016.

13. Daniel Di Nardo, Fabrizio Pastore, Andrea Arcuri, Lionel Briand. Evolutionary Robustness Testing of Data Processing Systems Using Models and Data Mutation. In Proceedings of the 30th IEEE/ACM International Conference on Automated Software Engineering (ASE'15). Pages 126-137. Lincoln, Nebraska (USA), 2015. IEEE.

14. Chunhui Wang, Fabrizio Pastore, Arda Goknil, Lionel Briand, Muhammad Zohaib Iqbal. Automatic Generation of System Test Cases from Use Case Specifications. Proceedings of the International Symposium on Software Testing and Analysis (ISSTA'15). Pages 385-396. Baltimore, USA, 2015. ACM. ISBN: 978-1-4503-3620-8. DOI 10.1145/2771783.2771812

15. D. Di Nardo, F. Pastore, L. Briand. Generating Complex and Faulty Test Data through Model-Based Mutation Analysis. Proceedings of the 8th International Conference on Software Testing, Verification and Validation (ICST), Graz, Austria, 2015. IEEE. INSPEC: 15111241 DOI:

10.1109/ICST.2015.710258

16. Fabrizio Pastore, Leonardo Mariani. ZoomIn: Discovering Failures by Detecting Wrong Assertions. In Proceedings of the 37th International Conference on Software Engineering (ICSE'15). Pages 66 – 76. Firenze, Italy, 2015. IEEE. ISBN: 978-1-4799-1934-5.

17. Daniele Zuddas, Wei Jin, Fabrizio Pastore, Leonardo Mariani, Alessandro Orso. MIMIC: Locating and Understanding Bugs by Analyzing Mimicked Executions. Proceedings of the 29th ACM/IEEE International Conference on Automated Software Engineering (ASE'14). Pages 815 - 826. Vasteras, Sweden, 2014. ACM. ISBN: 978-1-4503-3013-8.

18. F. Pastore, L. Mariani, A. E. J. Hyvärinen, G. Fedyukovich, N. Sharygina, S. Sehestedt, A. Muhammad. Verification Aided Regression Testing. Proceedings of the 2014 International Symposium on Software Testing and Analysis. Pages 37 – 48. San Jose, USA, 2014. ACM. ISBN: 978-1-4503-2645-2.

19. Mehdi Mirzaaghaei, Fabrizio Pastore, and Mauro Pezzè. Automatic Test Case Evolution. Software Testing, Verification and Reliability (IF3 2014 1.348). Vol.24 (5). Pages 386 – 411. John Wiley & Sons. 2014. ISSN: 1099-1689, DOI: 10.1002/stvr.1527.

20. Leonardo Mariani, Fabrizio Pastore. MASH: tool integration made easy. Software: Practice and Experience (IF3 2013 1.148). Pages 419–433. John Wiley & Sons, 2013. ISSN: 1097-024X, DOI:10.1002/spe.2129.

21. Fabrizio Pastore, Leonardo Mariani, Gordon Fraser. CrowdOracles: Can the Crowd Solve the Oracle Problem?. In ICST'13: Proceedings of the 6th IEEE International Conference on Software Testing, Verificaton and Validation. Pages 342-351. Luxemburg. 2013. IEEE Computer Society.

22. F. Pastore, L. Mariani and A. Goffi. RADAR: a Tool for Debugging Regression Problems in C/C++ Software. Proceedings of the International Conference on Software Engineering (ICSE) - Tool Demo Track. Pages 1335 – 1338. San Francisco, USA, 2013. IEEE Press. ISBN: 978-1-4673-3073-2.

23. F. Pastore and L. Mariani. AVA: Supporting Debugging with Failure Interpretations. Proceedings of the International Conference on Software Testing Verification and Validation (ICST) - Tool Demo Track. Pages 416 – 421. Luxemburg. 2013. IEEE Computer Society. ISBN: 978-1-4673-5961-0. DOI: 10.1109/ICST.2013.58.

24. Fabrizio Pastore, Leonardo Mariani, Alberto Goffi, Manuel Oriol and Michael Wahler. Dynamic Analysis of Upgrades in C/C++ Software. In ISSRE'12: Proceedings of the 23rd IEEE International Symposium on Software Reliability Engineering. Dallas, USA, 2012. IEEE Computer Society. ISBN: 978-1-4673-4638-2.

25. Mehdi Mirzaaghaei, Fabrizio Pastore, and Mauro Pezzè. Supporting Test Suite Evolution through Test Cases Adaptation. In ICST'12: Proceedings of the 5th International Conference on Software Testing, Verification and Validation. Montreal, Canada. 2012. IEEE Computer Society. ISBN: 978-1-4577-1906-6.

26. Leonardo Mariani, Fabrizio Pastore, Mauro Pezzè. Dynamic Analysis for Diagnosing Integration Faults. IEEE Transactions on Software Engineering (IF3 2011 1.98), Vol. 37 (4). Pages 486 - 508. IEEE Computer Society, 2011. ISSN: 0098-5589. DOI: 10.1109/TSE.2010.93.

27. Leonardo *Mariani, Fabrizio Pastore.* MASH: A Tool For End-User Plug-In Composition. In ICSE'12: Proceedings of the 34th International Conference on Software Engineering (Formal Tool Demo paper). Zurich, Switzerland. 2012. IEEE Computer Society. ISSN: *0270-5257.* DOI: *10.1109/ICSE.2012.6227241*

28. Leonardo Mariani, Fabrizio Pastore. Supporting Plug-in Mashes to Ease Tool Integration. In Proceedings of the First International Workshop on Developing Tools as Plug-ins (TOPI) - colocated with the International Conference on Software Engineering (ICSE). Pages 1-4. Waikiki, HI, USA. *2011.* ACM.

29. Mehdi Mirzaaghaei, Fabrizio Pastore, Mauro Pezzè. Automatically Repairing Test Cases for Evolving Method Declarations. In ICSM'10: Proceedings of 26th IEEE International Conference on Software Maintenance (short paper). Timisoara, Romania. 2010. ACM. DOI: 10.1109/ICSM.2010.5609549.

30. Anton Babenko, Leonardo Mariani and Fabrizio Pastore. AVA: Automated Interpretation of Dynamically Detected Anomalies. In ISSTA'09: Proceedings of the 2009 International Symposium on Software Testing and Analysis. Chicago, IL, USA. Pages 237-248. 2009. ACM.

31. Leonardo Mariani, Fabrizio Pastore, Mauro Pezzè. A toolset for Automated Failure Analysis. In proceedings of the 2009 IEEE 31st International Conference on Software Engineering – Volume 00 (Formal Tool Demo paper). Vancouver, Canada. Pages 563-566. 2009. IEEE Computer Society. DOI: 10.1109/ICSE.2009.5070556. ISBN: 978-1-60558-338-9.

32. Leonardo Mariani, and Fabrizio Pastore. Automated Identification of Failure Causes in System Logs. In proceedings of the 2008 19th International Symposium on Software Reliability Engineering. ISSRE. Seattle, WA, USA . Pages 117-126. 2008. IEEE Computer Society. ISBN: 978-0-7695-3405-3.

33. Domenico Cotroneo, Roberto Pietrantuono, Leonardo Mariani, Fabrizio Pastore. Investigation of Failure Causes in Workload-Driven Reliability Testing. In Fourth international Workshop on Software Quality Assurance: in Conjunction with the 6th ESEC/FSE Joint Meeting. SOQUA '07. Dubrovnik, Croatia. Pages 78-85. 2007. ACM.

Book Chapters

1. Fabrizio Pastore, Leonardo Mariani, Alberto Goffi, Manuel Oriol, Michael Wahler. Hana Chockler, Daniel Kroening, Leonardo Mariani, Natasha Sharygina, (Editors) RADAR: Dynamic Analysis of Upgrades in C/C++ Software. Validation of Evolving Software, ISBN 978-3-319-10622-9, Springer, 2015.
2. F. Pastore, L. Mariani, A. E. Hyvärinen, G. Fedyukovich, N. Sharygina, S. Sehestedt, A. Muhammad. Hana Chockler, Daniel Kroening, Leonardo Mariani, Natasha Sharygina, (Editors) Regression Checking of Changes in C Software. Validation of Evolving Software, ISBN 978-3-319-10622-9, Springer, 2015.
3. Leonardo Mariani, Fabrizio Pastore, Mauro Pezzè, Mauro Santoro. Mining Finite-State Automata with Annotations. Mining Software Specifications: Methodologies and Applications. Pages 29–57. CRC Press, 2011. ISBN: 978-1-4398-0626-5

Distinctions and Awards

2017: Italian National Qualification to be appointed as Associate Professor. April 2017.
2017: Invited talk (journal first paper) at 11th Joint Meeting on Foundations of Software Engineering.
2013/2014: Invited talks at 3rd and 4th Workshop on Validation Strategies for Software Evolution (VSSE)
2011: University of Milano – Bicocca, Four-years Research Grant

Professional Service and Editorial Responsibilities

- **Member of the Organizing Committee**: "1st International Workshop on Crowdsourcing in Software Engineering (CSI-SE)", co-located with ICSE, 31 May – 7 June 2014, Hyderabad, India.
- **Technical Program Committee:** FASE 2015, FASE 2016, FASE 2017, ISSRE 2018.
- **Reviewer activity for Journals:** IEEE Transactions on Software Engineering (TSE, IF: 3.331), ACM Transactions on Software Engineering and Methodology (TOSEM, IF 2.516) Journal of Systems and Software (JSS, IF: 1.352), Wiley Software: Practice and Experience (SPE, IF: 1.148), Springer Software and Systems Modeling (SOSYM, IF: 0.820), Wiley Journal of Software: Evolution and Process (JSME, IF: 0.624), Springer Software Quality Journal (SQJ, IF: 0.787), Oxford University Press: The Computer Journal (IF: 1.0), Elsevier Information and Software Technology (IST, IF: 1.569), IEEE Software (IF: 1.053)

Key Research Projects

11/2018: Lead scientist in project workpackage with Huawei Technologies Co., Ltd.
11/2018-today: Lead scientist in project workpackage with IEE Luxembourg.
5/2017-today: EDLAH2, EU AAL project, WP leader.
10/2014-11/2018: Lead scientist in project workpackage with IEE Luxembourg.
10/2014-10/2015: Lead scientist in project workpackage with SES Luxembourg.
1/2011-11/2013: EU STREP PINCETTE, PI: Leonardo Mariani, Role: WP leader
1/2010-12/2010: EU IP RESERVOIR, PI: Mauro Pezzè, Role: Task leader
1/2006-09/2009: EU STREP SHADOWS, PI: Mauro Pezzè, Role: Task leader

PhD Supervision (Complete List)

Ongoing

2017-today Xuan Phu Mai. "Security Requirements Modelling and Testing"
Ongoing Ph.D. project.
PhD Thesis Co-supervisor
Funding scheme: **EU project**
Interdisciplinary Centre for Security, Reliability and Trust, University of Luxembourg.

Completed

2014-2017 Chunhui Wang. "Automatic Generation of Traceable Test Cases from Requirements. Communication Systems"
PhD Thesis Co-supervisor
Funding scheme: **PEARL**
Current position: Research Associate, SnT
Academic dissemination: 3 conference papers
Interdisciplinary Centre for Security, Reliability and Trust, University of Luxembourg.

2014-2016 Daniel Di Nardo. "Model-Based Test Automation Strategies for Data Processing Systems."
PhD Thesis Co-supervisor

Funding scheme: **FNR**
Current position: Industry
Academic dissemination: 2 conference papers, 1 journal paper
Interdisciplinary Centre for Security, Reliability and Trust, University of Luxembourg.

2010-2012 Mehdi Mirzaghaei. "Automatically Evolving Test Suites."
PhD Thesis Co-supervisor
Funding scheme: **-**
Current position: Industry
Academic dissemination: 2 conference papers, 1 journal paper
Università della Svizzera Italiana, Lugano, Switzerland