Marcelo d'Amorim

Associate Professor, Computer Science Department
North Carolina State University

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Education

University of Illinois at Urbana-Champaign ..... Champaign, IL, US
2007 Ph.D. in Computer Science
Dissertation title: "Efficient Explicit-State Model Checking for Programs with Dynamically Allocated Data"
Advisor: Darko Marinov

Federal University of Pernambuco ..... Recife, PE, Brazil
2001 M.S. in Computer Science
1997 B.S. in Computer Science

Research Interests My research interests are in the areas of **Software Engineering and Programming Languages**, with a focus on improving software reliability through program analysis and systematic testing.

Experience

'22– **North Carolina State University** ..... Raleigh, NC, US
Associate Professor. Advising: 5PhD (1 from UFPE)

'09–'22 **Federal University of Pernambuco (UFPE)** ..... Recife, PE, Brazil
Associate Professor. Graduated: 1PhD+8MS, Co-advised: 4MS.

'15–'16 **Georgia Institute of Technology** ..... Atlanta, GA, US
Visiting Scholar at the Arktos group led by Alessandro Orso

'07–'08 **Federal University of Pernambuco** ..... Recife, PE, Brazil
Postdoctoral researcher at the SPG group led by Paulo Borba

Software https://github.com/ncsu-swat

Service https://damorim.github.io/service.html

Current PhD Students

24- Feiran (Alex) Qin, TBD
24- Lingjun Liu, TBD
22- M. M. Abid Naziri, Finding Bugs in Deep Learning Libraries at Scale
22- Ishrak Hayet, TBD
21- Denini Silva (UFPE), Practical Detection of Flaky Tests with Noise

Graduated Students

PhD'24 Sarah Elder (Co-advised with Laurie Williams), Supply-Chain Security Analysis with Score Cards
Now: Teaching Faculty at UNC Willmington

MS'23 Paulo Nunes, Detecting Failures in Autonomous Driving with XAI
Now: Software Architect at Stelantis

MS'23 Beatriz Souza, Automated Detection of Code-Comment Inconsistencies
Now: PhD student at University of Stuttgart, Germany

MS'20 Igor Lima, Leveraging Diversity to Find Bugs in JavaScript Engines
Now: Software Developer at Sensedia, Brazil

MS'19 Luis Melo, Using Docker to Assist QA Forum Users
Now: Software Development Engineer at AWS, Canada

MS'18 Jeanderson Cândido, Test Suite Parallelization in Open-Source Projects
Now: PhD student at TU Delft, Netherlands

MS'16 Paulo Barros, Resolving Java Reflection and Android Intents
Now: Senior Software Engineer at Chronicled, Brazil

MS'15 Mateus Borges, qCORAL: Quantitative Constraint Solver for Complex Mathematical Constraints
Now: Senior Backend Engineer at Elinvar Gmbh, Germany

PhD'15 Sabrina Souto, Addressing High Dimensionality and Lack of Feature Models in Testing of Software Product Lines
Now: Assistant Professor at UEPB, Brazil

MS'12 Elton Alves, Improved Fault Localization with Dynamic Slicing and Change Impact Analysis
Now: Senior Software Engineer at Zartis, Spain

MS'12 João Paulo Oliveira, Rabbit - A Novel Approach to Find Data Races in Concurrent Programs
Co-advised with Fernando Castor, Now: CEO NoxBitcoin, Brazil

MS'10 Andrei Rimsa Alvares, Efficient Static Analysis to Find Tainted Variable Attacks
Co-advised with Fernando Pereira and Roberto Bigonha, Now: Assistant Professor at CEFET-MG, Brazil

MS'09 Mitsuo Takaki, Effective CSP solvers with Particle-Swarm Optimization and Genetic Algorithms
Co-advised with Ricardo Prudêncio, Now: Principal Software Engineer at Absolute Software, Canada

MS'08 Gláucia Peres, A Black-box Testing Technique for the Detection of Crashes Based on Automated Test Scenarios
Co-advised with Alexandre Mota, Now: Director of Engineering at FreshBooks, Canada

Funding

Grant support **after** joining NC State in 2022. Amount of financial support appears as a fraction x/y, with x showing my part and y showing the total amount:

- 24-27, $571K/$571K, PI, NSF, SHF: Small: E2R2, A Comprehensive Approach to Improve Simulation-based Testing of Autonomous Driving Systems.
- 23-25, $50K/$100K, PI, NSF, Collaborative Research: FMitF: Track II: Cross-Language Support for Runtime Verification (CNS-2026928).
- 20-24, $199.9K/$404.3K, PI, NSF, Collaborative Research: SaTC: TTP: Small: eSLIC: Enhanced Security Static Analysis for Detecting Insecure Configuration Scripts. [[This PI was transferred to me from Dr. Parnin, who left NC State]]

Teaching

Classes I taught at NC State.

Term	Class
Fa 2024	CSC 591/712: Software Testing (G), 40 students
Sp 2024	[[No teaching due to FSE organization]]
Fa 2023	CSC 712: Software Testing (G), 11 students
Sp 2023	CSC 510: Software Engineering (G), 60 students

Classes I taught at the Federal University of Pernambuco (UFPE) in reverse-chronological order. The academic year at UFPE consists of two semesters, referred to as year.1 and year.2. The letters U and G indicate Undergraduate and Graduate-level courses, respectively. For undergraduate courses, there are two classes per week, and the duration of a class is 2h. Graduate-level courses are more flexible.

Term	Class 1	Class 2
2022.1	Software Engineering (U), 53 students	Advanced Software Testing (G), 22 students
2021.2	Software Engineering (U), 48 students	Advanced Software Testing (G), 16 students
2021.1	Software Engineering (U), 58 students	Advanced Software Testing (G), 19 students
2020.2	Compilers (U), 22 students	Software Testing (U), 27 students
2020.1	Compilers (U), 62 students	Software Testing (U), 17 students
2019.2	Compilers (U), 24 students	Software Testing (U), 34 students
2019.1	Compilers (U), 43 students	Advanced Software Testing (G), 21 students
2018.2	Compilers (U), 14 students	Advanced Software Testing (G), 15 students
2018.1	Compilers (U), 27 students	Advanced Software Testing (G), 18 students
2017.2	Compilers (U), 21 students	Advanced Software Testing (G), 34 students
2017.1	Compilers (U), 22 students	Advanced Software Testing (G), 20 students
2016.2	Compilers (U), 29 students	Advanced Software Testing (G), 28 students
2016.1 2015.2	sabbatical	
2015.1	Compilers (U), 45 students	Seminar in Software Testing (G), 18 students
2014.2	Compilers (U), 34 students	Seminar in Software Testing (G), 7 students
2014.1	Compilers (U), 35 students	Seminar in Software Testing (G), 9 students

2013.2	Compilers (U), 40 students	Seminar in Software Testing (G), 9 students
2013.1	Compilers (U), 31 students	Seminar in Software Testing (G), 12 students
2012.2	Compilers (U), 32 students	Introduction to Computing (U), 68 students
2012.1	Compilers (U), 38 students	Introduction to Computing (U), 71 students
2011.2	Compilers (U), 40 students	Introduction to Computing (U), 73 students
2011.1	Compilers (U), 38 students	Introduction to Computing (U), 70 students
2010.2	Introduction to Computing (U), 72 students	Introduction to Computing (U), 80 students
2010.1	Functional Programming (U), 15 students	Introduction to Static Analysis (G), 10 students
2009.2	Operating Systems (U), 24 students	Introduction to Computing (U), 91 students
2009.1	Introduction to Computing (U), 77 students	Introduction to Computing (U), 67 students

Refereed Conference papers

[C1] I. Hayet, A. Scott, and M. d'Amorim, "Feedback-directed partial execution," in *Proceedings of the 33rd ACM SIGSOFT International Symposium on Software Testing and Analysis, ISSTA 2024, Vienna, Austria, September 16-20, 2024*, 2024, pp. 781–793.

[C2] U. Kulsum, H. Zhu, B. Xu, and M. d'Amorim, "A case study of LLM for automated vulnerability repair: Assessing impact of reasoning and patch validation feedback," in *Proceedings of the 1st ACM International Conference on AI-Powered Software, AIware 2024, Porto de Galinhas, Brazil, July 15-16, 2024*, 2024.

[C3] R. Lima, K. Costa, J. Souza, L. Teixeira, B. Fonseca, M. d'Amorim, M. Ribeiro, and B. Miranda, "Do you see any problem? on the developers perceptions in test smells detection," in *Proceedings of the XXII Brazilian Symposium on Software Quality, SBQS 2023, Brasilia, Brazil, November 7-10, 2023*, 2023, pp. 21–30.

[C4] F. Molina, M. d'Amorim, and N. Aguirre, "Fuzzing class specifications," in *44th IEEE/ACM 44th International Conference on Software Engineering, ICSE 2022, Pittsburgh, PA, USA, May 25-27, 2022*, 2022, pp. 1008–1020.

[C5] S. Reis, R. Abreu, M. d'Amorim, and D. Fortunato, "Leveraging practitioners' feedback to improve a security linter," in *37th IEEE/ACM International Conference on Automated Software Engineering, ASE 2022, Rochester, MI, USA, October 10-14, 2022*, 2022, 66:1–66:12.

[C6] A. Stocco, P. J. Nunes, M. d'Amorim, and P. Tonella, "Thirdeye: Attention maps for safe autonomous driving systems," in *37th IEEE/ACM International Conference on Automated Software Engineering, ASE 2022, Rochester, MI, USA, October 10-14, 2022*, 2022, 102:1–102:12.

[C7] J. Henkel, D. Silva, L. Teixeira, M. d'Amorim, and T. W. Reps, "Shipwright: A human-in-the-loop system for dockerfile repair," in *43rd IEEE/ACM International Conference on Software Engineering, ICSE 2021, Madrid, Spain, 22-30 May 2021*, 2021, pp. 1148–1160.

[C8] S. Mondal, D. Silva, and M. d'Amorim, "Soundy automated parallelization of test execution," in *IEEE International Conference on Software Maintenance and Evolution, ICSME 2021, Luxembourg, September 27 - October 1, 2021*, 2021, pp. 309–319.

[C9] L. Teixeira, B. Miranda, H. Rebêlo, and M. d'Amorim, "Demystifying the challenges of formally specifying API properties for runtime verification," in *14th IEEE Conference on Software Testing, Verification and Validation, ICST 2021, Porto de Galinhas, Brazil, April 12-16, 2021*, 2021, pp. 82–93.

[C10] M. A. Guimarães, L. Fernandes, M. Ribeiro, M. d'Amorim, and R. Gheyi, "Optimizing mutation testing by discovering dynamic mutant subsumption relations," in *13th IEEE International Conference on Software Testing, Validation and Verification, ICST 2020, Porto, Portugal, October 24-28, 2020*, 2020, pp. 198–208.

[C11] B. Miranda, I. Lima, O. Legunsen, and M. d'Amorim, "Prioritizing runtime verification violations," in *13th IEEE International Conference on Software Testing, Validation and Verification, ICST 2020, Porto, Portugal, October 24-28, 2020*, 2020, pp. 297–308.

[C12] G. Pinto, B. Miranda, S. Dissanayake, M. d'Amorim, C. Treude, and A. Bertolino, "What is the vocabulary of flaky tests?" In *MSR '20: 17th International Conference on Mining Software Repositories, Seoul, Republic of Korea, 29-30 June, 2020*, 2020, pp. 492–502.

[C13] D. Silva, L. Teixeira, and M. d'Amorim, "Shake it! detecting flaky tests caused by concurrency with shaker," in *IEEE International Conference on Software Maintenance and Evolution, ICSME 2020, Adelaide, Australia, September 28 - October 2, 2020*, 2020, pp. 301–311.

[C14] X. Li, M. d'Amorim, and A. Orso, "Intent-preserving test repair," in *12th IEEE Conference on Software Testing, Validation and Verification, ICST 2019, Xi'an, China, April 22-27, 2019*, 2019, pp. 217–227.

[C15] S. Reis, R. Abreu, and M. d'Amorim, "Demystifying the combination of dynamic slicing and spectrum-based fault localization," in *International Joint Conference on Artificial Intelligence (IJCAI)*, 2019.

[C16] M. Fazzini, M. Prammer, M. d'Amorim, and A. Orso, "Automatically Translating Bug Reports into Test Cases for Mobile Apps," in *Proceedings of the 27th ACM SIGSOFT International Symposium on Software Testing and Analysis, ISSTA 2018, Amsterdam, The Netherlands, July 16-21, 2018*, 2018, pp. 141–152.

[C17] X. Li, S. Zhu, M. d'Amorim, and A. Orso, "Enlightened Debugging," in *Proceedings of the 40th International Conference on Software Engineering, ICSE 2018, Gothenburg, Sweden, May 27 - June 03, 2018*, 2018, pp. 82–92.

[C18] J. Candido, L. Melo, and M. d'Amorim, "Test suite parallelization in open-source projects: A study on its usage and impact," in *Proceedings of the 32nd IEEE/ACM International Conference on Automated Software Engineering, ASE 2017, Urbana, IL, USA, October 30 - November 03, 2017*, 2017, pp. 838–848.

[C19] A. Perez, R. Abreu, and M. D'Amorim, "Prevalence of single-fault fixes and its impact on fault localization," in *2017 IEEE International Conference on Software Testing, Verification and Validation (ICST)*, 2017, pp. 12–22.

[C20] S. Souto, M. d'Amorim, and R. Gheyi, "Balancing soundness and efficiency for practical testing of configurable systems," in *Proceedings of the 39th International Conference on Software Engineering, ICSE 2017, Buenos Aires, Argentina, May 20-28, 2017*, 2017, pp. 632–642.

[C21] X. Li, M. d'Amorim, and A. Orso, "Iterative user-driven fault localization," in *Hardware and Software: Verification and Testing - 12th International Haifa Verification Conference, HVC 2016, Haifa, Israel, November 14-17, 2016, Proceedings*, 2016, pp. 82–98.

[C22] P. Barros, R. Just, S. Millstein, P. Vines, W. Dietl, M. d'Amorim, and M. D. Ernst, "Static Analysis of Implicit Control Flow: Resolving Java Reflection and Android Intents," in *Proceedings of the 30th IEEE/ACM International Conference on Automated Software Engineering*, 2015, pp. 669–679.

[C23] M. Borges, A. Filieri, M. d'Amorim, and C. S. Păsăreanu, "Iterative distribution-aware sampling for probabilistic symbolic execution," in *Proceedings of the 10th Joint Meeting on Foundations of Software Engineering*, 2015, pp. 866–877.

[C24] M. Borges, A. Filieri, M. d'Amorim, C. S. Păsăreanu, and W. Visser, "Compositional solution space quantification for probabilistic software analysis," in *Proceedings of the 35th ACM SIGPLAN Conference on Programming Language Design and Implementation*, 2014, pp. 123–132.

[C25] T. Liu, M. Araújo, M. d'Amorim, and M. Taghdiri, "A comparative study of incremental constraint solving approaches in symbolic execution," in *Proceedings of the 10th International Haifa Verification Conference*, 2014, pp. 284–299.

[C26] J. Campos, R. Abreu, G. Fraser, and M. d'Amorim, "Entropy-based test generation for improved fault localization," in *Proceedings of the 28th IEEE/ACM International Conference on Automated Software Engineering*, 2013, pp. 257–267.

[C27] C. H. P. Kim, D. Marinov, S. Khurshid, D. Batory, S. Souto, P. Barros, and M. d'Amorim, "SPLat: Lightweight Dynamic Analysis for Reducing Combinatorics in Testing Configurable Systems," in *Proceedings of the 9th Joint Meeting on Foundations of Software Engineering*, 2013, pp. 257–267.

[C28] M. Borges, M. d'Amorim, S. Anand, D. H. Bushnell, and C. S. Pasareanu, "Symbolic execution with interval solving and meta-heuristic search," in *Proceedings of the Fifth IEEE International Conference on Software Testing, Verification and Validation*, 2012, pp. 111–120.

[C29] E. Alves, M. Gligoric, V. Jagannath, and M. d'Amorim, "Fault-localization using dynamic slicing and change impact analysis," in *26th IEEE/ACM International Conference on Automated Software Engineering (ASE 2011), Lawrence, KS, USA, November 6-10, 2011*, 2011, pp. 520–523.

[C30] A. Rimsa, M. d'Amorim, and F. M. Q. Pereira, "Tainted flow analysis on e-ssa-form programs," in *Proceedings of the 20th International Conference on Compiler Construction: Part of the Joint European Conferences on Theory and Practice of Software*, 2011, pp. 124–143.

[C31] M. Souza, M. Borges, M. d'Amorim, and C. S. Pasareanu, "CORAL: solving complex constraints for symbolic pathfinder," in *NASA Formal Methods - Third International Symposium, NFM 2011, Pasadena, CA, USA, April 18-20, 2011. Proceedings*, 2011, pp. 359–374.

[C32] C. Bertolini, G. Peres, M. d'Amorim, and A. Mota, "An empirical evaluation of automated black box testing techniques for crashing guis," in *Second International Conference on Software Testing Verification and Validation, ICST 2009, Denver, Colorado, USA, April 1-4, 2009*, 2009, pp. 21–30.

[C33] M. Takaki, D. Cavalcanti, R. Gheyi, J. Iyoda, M. d'Amorim, and R. B. C. Prudêncio, "A comparative study of randomized constraint solvers for random-symbolic testing," in *First NASA Formal Methods Symposium - NFM 2009, Moffett Field, California, USA, April 6-8, 2009.*, 2009, pp. 56–65.

[C34] M. d'Amorim, S. Lauterburg, and D. Marinov, "Delta execution for efficient state-space exploration of object-oriented programs," in *Proceedings of the 2007 International Symposium on Software Testing and Analysis*, 2007, pp. 50–60.

[C35] F. Chen, M. d'Amorim, and G. Roşu, "Checking and correcting behaviors of java programs at runtime with java-mop," *Electronic Notes in Theoretical Computer Science*, vol. 144, no. 4, pp. 3–20, 2006.

[C36] M. d'Amorim, C. Pacheco, T. Xie, D. Marinov, and M. D. Ernst, "An empirical comparison of automated generation and classification techniques for object-oriented unit testing," in *Proceedings of the 21st IEEE/ACM International Conference on Automated Software Engineering*, 2006, pp. 59–68.

[C37] M. d'Amorim, A. Sobeih, and D. Marinov, "Optimized execution of deterministic blocks in java pathfinder," in *Proceedings of the 8th International Conference on Formal Methods and Software Engineering*, 2006, pp. 549–567.

[C38] M. d'Amorim and G. Roşu, "Efficient monitoring of ω-languages," in *Proceedings of 17th International Conference on Computer-aided Verification*, vol. 3576, 2005, pp. 364–378.

[C39] F. Chen, M. d'Amorim, and G. Rosu, "A formal monitoring-based framework for software development and analysis," in *Formal Methods and Software Engineering, 6th International Conference on Formal Engineering Methods, ICFEM 2004, Seattle, WA, USA, November 8-12, 2004, Proceedings*, vol. 3308, 2004, pp. 357–372.

Journals

[J1] D. Silva, M. Gruber, S. Gokhale, E. Arteca, A. Turcotte, M. d'Amorim, W. Lam, S. Winter, and J. Bell, " The Effects of Computational Resources on Flaky Tests," *IEEE Transactions on Software Engineering*, no. 01, pp. 1–18, 5555.

[J2] K. Barbosa, R. Ferreira, G. Pinto, M. d'Amorim, and B. Miranda, "Test flakiness across programming languages," *IEEE Trans. Software Eng.*, vol. 49, no. 4, pp. 2039–2052, 2023.

[J3] B. Reid, M. d'Amorim, M. Wagner, and C. Treude, "NCQ: code reuse support for node.js developers," *IEEE Trans. Software Eng.*, vol. 49, no. 5, pp. 3205–3225, 2023.

[J4] A. Torres, P. H. T. Costa, L. H. V. Amaral, J. Pastro, R. Bonifácio, M. d'Amorim, O. Legunsen, E. Bodden, and E. D. Canedo, "Runtime verification of crypto apis: An empirical study," *IEEE Trans. Software Eng.*, vol. 49, no. 10, pp. 4510–4525, 2023.

[J5] L. Alcantara, G. Padilha, R. Abreu, and M. d'Amorim, "Syrius: Synthesis of rules for intrusion detectors," *IEEE Trans. Reliab.*, vol. 71, no. 1, pp. 370–381, 2022.

[J6] L. Cabral, B. Miranda, I. Lima, and M. d'Amorim, "Rvprio: A tool for prioritizing runtime verification violations," *Softw. Test. Verification Reliab.*, vol. 32, no. 5, 2022.

[J7] R. Gheyi, M. Ribeiro, B. Souza, M. A. Guimarães, L. Fernandes, M. d'Amorim, V. Alves, L. Teixeira, and B. Fonseca, "Identifying method-level mutation subsumption relations using Z3," *Inf. Softw. Technol.*, vol. 132, p. 106 496, 2021.

[J8] I. Lima, J. Silva, B. Miranda, G. Pinto, and M. d'Amorim, "Exposing bugs in javascript engines through test transplantation and differential testing," *Softw. Qual. J.*, vol. 29, no. 1, pp. 129–158, 2021.

[J9] L. Melo, I. Wiese, and M. d'Amorim, "Using docker to assist q&a forum users," *IEEE Trans. Software Eng.*, vol. 47, no. 11, pp. 2563–2574, 2021.

[J10] I. Lima, J. Cândido, and M. d'Amorim, "Practical detection of CMS plugin conflicts in large plugin sets," *Inf. Softw. Technol.*, vol. 118, 2020.

[J11] S. Souto and M. d'Amorim, "Time-space efficient regression testing for configurable systems," *Journal of Systems and Software*, vol. 137, pp. 733–746, 2018.

[J12] A. Rimsa, M. d'Amorim, F. M. Q. Pereira, and R. S. Bigonha, "Efficient static checker for tainted variable attacks," *Science of Computer Programming*, vol. 80, pp. 91–105, 2014.

[J13] A. Sobeih, M. d'Amorim, M. Viswanathan, D. Marinov, and J. C. Hou, "Assertion checking in j-sim simulation models of network protocols," *Simulation*, vol. 86, no. 11, pp. 651–673, 2010.

[J14] M. Takaki, D. Cavalcanti, R. Gheyi, J. Iyoda, M. d'Amorim, and R. B. C. Prudêncio, "Randomized constraint solvers: A comparative study," *Innovations in Systems and Software Engineering*, vol. 6, no. 3, pp. 243–253, 2010.

[J15] M. d'Amorim, S. Lauterburg, and D. Marinov, "Delta execution for efficient state-space exploration of object-oriented programs," *IEEE Transactions on Software Engineering*, vol. 34, no. 5, pp. 597–613, 2008.

[J16] M. d'Amorim and K. Havelund, "Event-based runtime verification of java programs," *SIGSOFT Software Engineering Notes*, vol. 30, no. 4, pp. 1–7, 2005.

Short Papers (Conference and Workshop)

[S1] S. Hamer, M. d'Amorim, and L. A. Williams, "Just another copy and paste? comparing the security vulnerabilities of chatgpt generated code and stackoverflow answers," in *IEEE Security and Privacy, SP 2024 - Workshops, San Francisco, CA, USA, May 23, 2024*, 2024, pp. 87–94.

[S2] M. Cordeiro, D. Silva, L. Teixeira, B. Miranda, and M. d'Amorim, "Shaker: A tool for detecting more flaky tests faster," in *36th IEEE/ACM International Conference on Automated Software Engineering, ASE 2021, Melbourne, Australia, November 15-19, 2021*, 2021, pp. 1281–1285.

[S3] D. S. Costa, C. A. B. Mello, and M. d'Amorim, "A comparative study on methods and tools for handwritten mathematical expression recognition," in *DocEng '21: ACM Symposium on Document Engineering 2021, Limerick, Ireland, August 24-27, 2021*, 2021, 26:1–26:4.

[S4] M. d'Amorim, R. Abreu, and C. Mello, "Visual sketching: From image sketches to code," in *ICSE-NIER 2020: 42nd International Conference on Software Engineering, New Ideas and Emerging Results, Seoul, South Korea, 27 June - 19 July, 2020*, 2020, pp. 101–104.

[S5] D. M. Junior, L. Melo, H. Lu, M. d'Amorim, and A. Prakash, "A study of vulnerability analysis of popular smart devices through their companion apps," in *IEEE Workshop on the Internet of Safe Things (SafeThings)*, 2019.

[S6] Q.-S. Phan, P. Malacaria, C. S. Păsăreanu, and M. d'Amorim, "Quantifying information leaks using reliability analysis," in *Proceedings of the International SPIN Symposium on Model Checking of Software*, 2014, pp. 105–108.

[S7] T. Gvero, M. Gligoric, S. Lauterburg, M. d'Amorim, D. Marinov, and S. Khurshid, "State extensions for java pathfinder," in *30th Intl. Conference on Software Engineering (ICSE 2008), Leipzig, Germany, May 10-18, 2008*, 2008, pp. 863–866.

[S8] Y. Zhou, D. Marinov, W. Sanders, C. Zilles, M. d'Amorim, S. Lauterburg, R. M. Lefever, and J. Tucek, "Delta execution for software reliability," in *Proceedings of the 3rd Workshop on on Hot Topics in System Dependability*, 2007, 16–es.

[S9] F. Chen, M. d'Amorim, and G. Rosu, "Checking and correcting behaviors of java programs at runtime with java-mop," in *Proceedings of the Fifth Workshop on Runtime Verification, RV@CAV 2005, Edinburgh, UK, July 12, 2005*, vol. 144, 2005, pp. 3–20.

[S10] M. d'Amorim and K. Havelund, "Event-based runtime verification of java programs," in *Proceedings of the Third International Workshop on Dynamic Analysis*, 2005, pp. 1–7.

[S11] M. d'Amorim and C. A. G. Ferraz, "A design for jtrader, an internet trading service," in *Innovative Internet Computing Systems, International Workshop IICS 2001, Ilmenau, Germany, June 21-22, 2001, Proceedings*, vol. 2060, 2001, pp. 159–166.