

Marcel Böhme

Postdoctoral Fellow at Saarland University

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Summary

Marcel Böhme is currently Postdoctoral Fellow with Prof. Andreas Zeller at Saarland University. Marcel completed his PhD at the School of Computing, National University of Singapore advised by Prof. Abhik Roychoudhury and received his Dipl.-Inf. (cf. M.Sc.) from Technische Universität Dresden, Germany in 2014 and 2009, respectively. During his studies, he spent more than four years working for companies in the domain of embedded systems and software engineering. His research is on testing, debugging, and repair of evolving programs — where he seeks to understand and elucidate *intrinsic properties* such as the *efficiency* of automated testing, the *complexity* of realistic software errors, the *reliability* of automated program repair, and the *interaction* of faults and changes, amongst others. Generally, his work is driven towards establishing and extending the formal foundations of Software Engineering.

Research Profile: <https://www.st.cs.uni-saarland.de/~boehme/>

Education

National University of Singapore

PhD, Computer Science

08/2009 – 07/2014

PhD Thesis: Regression Testing and Verification of Complex Code Changes

Advisor since 2011: Abhik Roychoudhury

Grade Point Average: 4.9/5.0

Technische Universität Dresden

Dipl.-Inf. (M.Sc.), Computer Science

Specializing in Software Technology

Minoring in Robotics and Process Automation

Publications

[SE'15] Über die Effizienz des Automatischen Testens

[Marcel Böhme](#) and Soumya Paul

Proceedings of Software Engineering 2015, Fachtagung des GI-Fachbereichs Softwaretechnik, pp. 1-2, Short version of [FSE'14], in German.

[DISS] Regression Testing and Verification of Complex Code Changes

[Marcel Böhme](#)

Thesis submitted for the degree of Doctor of Philosophy (PhD), Department of Computer Science, National University of Singapore, PhD Defense in July'14

[FSE'14] On the Efficiency of Automated Testing

Marcel Böhme and Soumya Paul

22nd ACM/SIGSOFT International Symposium on Foundations of Software Engineering (FSE) 2014, pp. 632-642

[ISSTA'14] CoREBench: Studying Complexity of Regression Errors

Marcel Böhme and Abhik Roychoudhury

23rd ACM/SIGSOFT International Symposium on Software Testing and Analysis 2014, pp. 398-408

➔ Making the **Top10 of most downloaded articles** for three months ([ACM SEN Nov'14!](#))

[ESEC/FSE'13] Regression Tests to Expose Change Interaction Errors

Marcel Böhme, Bruno C.d.S. Oliveira, and Abhik Roychoudhury

Joint meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE) 2013, pp. 339-349

[ICSE'13] Partition-based Regression Verification

Marcel Böhme, Bruno C.d.S. Oliveira, and Abhik Roychoudhury

ACM/IEEE International Conference on Software Engineering (ICSE) 2013, pp.300-309

[ADCOM'13] Regression Testing of Evolving Programs

Marcel Böhme, Abhik Roychoudhury, and Bruno C.d.S. Oliveira

Advances in Computers, Elsevier, 2013, Volume 89, Chapter 2, pp.53-88

[ICSE'12] Software Regression as Change of Input Partitioning

Marcel Böhme

ACM/IEEE International Conference on Software Engineering (ICSE) 2012, pp.1523-1526

[NUS'11] Comprehensive Test Suite Augmentation

Marcel Böhme and Abhik Roychoudhury

Technical Report, National University of Singapore, pp. 1-11

[GPCE'09] Generating Safe Template Languages

F. Heidenreich, J. Johannes, M. Seifert, C. Wende, and M. Böhme

ACM International Conference on Generative Programming and Component Engineering (GPCE) 2009, pp.99-108

Service

- *Committee Member* at ISSTA'15-AE, and ICSE'15-NIER (session chair)
 - *Reviewer* for TSE'15, ISSTA'15, TSE'14, ICST'14, ASE'13, ISSTA'13, ICST'13, FASE'13, PEPM'11
 - *Outreach* NUS to TU Dresden
 - *Co-Organizer of CSTalks*, a seminar-style talk series (2011 and 2012)
 - *Graduate Student Representative @ Graduate Liason Committee* (2010 and 2011)
 - *University Ambassador @ Technische Universität Dresden, Germany*
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Work Experience

Research Fellow at Saarland University

since June 2014

- (Co-)advisor of PhD, MSc, and BSc candidates
- Co-organizer of lecture "Programming for Engineers"
- Research on Software Testing Efficiency

Lecturer at Saarland University

November 2014 - February 2015 (4 months)

- Seminar on Automated Debugging (organized as reading group)
- Voted **Best Seminar**
- Voted **Top-3 among *all* courses** in Computer Science at Saarland University

Teaching Assistant at National University of Singapore

November 2013 - April 2014 (6 months)

- CS4218 Software Testing and Debugging (Weekly exercises, labs, tutorials, and grading)
- Involved in designing the schedule and details for exercises, labs, and tutorials
- First time the course was provided

Teaching Assistant at National University of Singapore

August 2010 - November 2010 (4 months)

- CS3215 Software Engineering Project (Weekly consultations, lab, and grading)

Research Assistant at TU Dresden

January 2009 - July 2009 (7 months)

- Graph-based Model Transformation Tool (Tornado)
- Component-based Software Composition System (TraCo)
- Conference paper based on my Master Thesis (GPCE'09)

Full-time (40h/week)

Software Engineer at NXP Semiconductors Dresden

November 2006 - November 2008 (2 years 1 month)

- Debugger - Eclipse Debugging Framework interfacing a DUT in real time
- Code Generator (+Editor) from IpXact to VHDL, C,..

Part-time (20h/week)

Software Engineer at NXP Semiconductors Singapore

April 2007 - October 2007 (7 months)

- Service-oriented Test Automation in a distributed environment with Unit Tests
- Several research presentations

Full-time (43h/week)

Teaching Assistant at TU Dresden

April 2006 - October 2006 (7 months)

- Software Technology Practical Course

Software Engineer at Gesellschaft für Softwaremanagement

April 2005 - October 2006 (1 year 7 months)

- Involved in several projects on requirements elicitation, business process management specification, and 3D visualization

Part-time (20h/week)

Regional Team Leader (Dresden) at Deutsche Hochschulwerbung

April 2003 - March 2005 (2 years)

- Promotion, marketing, billposting

Part-time (20h/week)

Certifications

IBM Certified Database Administrator

--- DB2 Universal Database V8.1

IBM Certified Database Associate

--- DB2 Universal Database V8.1 Family

Gamification

--- Statement of Accomplishment

Coursera.org (Prof. Werbach - Wharton School, University of Pennsylvania)

Data Analysis & Statistical Inference --- Statement of Accomplishment w/Distinction

Coursera.org (Dr. Çetinkaya-Rundel - Department of Statistical Science, Duke University)

Invited Talks, Honors, and Awards

Research Achievement Award

Outstanding Research Performance, SoC, NUS

Certificate of Appreciation

Contributions as Graduate Student Representative, SoC, NUS (2010 & 2011)

ACM SIGSOFT CAPS Award

Merit-based Travel Grant to ICSE'13, San Francisco

Invited Talks

“On the Efficiency of Automated Testing” at *SOLA, University of Darmstadt, Germany*, 06.2015

“On the Efficiency of Automated Testing” at *CREST, University College London, UK*, 04.2015

“On the Efficiency of Automated Testing” at *SE, Nanyang Technical University, Singapore*, 04.2015

“On the Efficiency of Automated Testing” at *ISTD, Singapore Univ. of Technology and Design*, 04.2015

“Automated Regression Testing and Verification of Complex Code Changes” at *CSI, A*STAR*, 06.2014

“Regression Testing via Symbolic Execution” at *Prof. Zeller's Chair, Saarland Uni., Germany*, 08.2013

Invited Service

Focus Group Discussions with MoE. Nominated and selected to participate in discussions with the Ministry of Education about the future of graduate studies in Singapore (1 rep. per faculty/school)

GYSS'14. Nominated and selected to participate in Global Young Scientist Summit -- a meeting of bright young scientists with Nobel Laureates and Fields Medal Winners (1 rep. per faculty/school).

Session Chair @ ICSE'15-NIER. Invited to chair the “New Formalisms” session for the “New Ideas and Emerging Results” track at ICSE 2015 (4 session chairs out of 44 committee members)