

Thomas Reidemeister

treideme@gmail.com

Highlights

- Experienced in embedded- and distributed systems,
- Familiar with certification processes of safety-critical systems,
- IBM-certified Software Quality Professional,
- Certified ScrumMaster and experienced with agile development processes (Scrum, RUP, XP),
- Mentoring graduate students,
- University-level teaching experience.

Expertise and Proficiency

Programming Languages:	Python, C, shell scripting, SQL, CUDA, NodeJS, Scala
Programming Environments/ Architectures:	System: Linux, Windows, QNX, Embedded: MPC555x, AM335x, STM32, MSP430, Hcs12, Kinetis K-series Enterprise: PostgreSQL, SQLAlchemy, Hadoop, Zookeeper, ZeroMQ
Tools:	Rapita RVS, Eclipse, GNU tools, ARM DS-5, Altium, Cadsoft Eagle, NI LabView, NI Veristand

Professional Experience

Post-Doctoral Fellow, University of Waterloo Jan 2015 – ongoing

- Research and development of real-time software systems and safety-critical systems
- Mentoring graduate students on research projects

Research Associate, University of Waterloo May 2012 – Dec 2014

- Research and development of real-time software systems and safety-critical systems
- Mentoring graduate students on research projects

Research Partner, Pratt & Whitney Canada May 2012 – ongoing

- Research in worst case execution time analysis and model-driven software development.

Research Partner, IBM Canada May 2007 – December 2011

- Work closely together with development teams to aid and automate failure detection and fault diagnosis in enterprise software systems; outcomes of this research are incorporated in IBM products.

Software Engineer (Hard- and Software), Engenuity Corporation May 2008 – August 2009

- Designed embedded hard- and software.
- Gained experience in agile development processes.

*Research Assistant,
Otto-von-Guericke University, Magdeburg, Germany* August 2003 – March 2007

Teaching Experience

Primary Instructor Real-time Operating Systems (SE 350) Winter 2011, Winter 2014, Winter 2015

- Prepared, organized and delivered lecture for 90+ students

Lab Instructor Real-time and Embedded Systems (ECE455), Fischmeister Spring 2013

- Developed, organized and hosted a lab for 100 students

Introduction to Computer Structures & Real-Time Systems (MTE241, ECE354) Fall 2010, Winter 2010

Introduction to Computer Structures & Real-Time Systems (MTE241), Dasiewicz Fall 2007

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Selected Projects

Software Product Lines for Turbofan Engines (Collaboration with Pratt & Whitney Canada) May 2012 – ongoing

- Propose software product line engineering

[DataMill](#) (Collaboration with IBM & Google) May 2012 – September 2013

- Build a core infrastructure to facilitate 'honest' performance evaluation
- Technologies: Python, Django, ARM application processors, Linux kernel monitoring

[HLS Cloud](#) (Collaboration with IBM Canada) January 2010 – December 2011

- Cloud infrastructure monitoring,
- Large-scale log mining for recurrent fault-diagnosis,
- Technologies in use: Ruby, Riak, HBASE, Zookeeper, ElasticFox, Hadoop, XMPP, libvirt, XEN

WatProblem (Collaboration with IBM Canada) 2009 – 2010

- IBM Log and Trace Analyzer plug-in to automatically mine, identify, and efficiently encode symptoms of failure from log files of business information systems.
- Based on publications one, two and four.
- Technologies in use: Java (Eclipse, TPTP, JNI), IBM Generic Log Adapter, IBM DB2, IBM WAS

[Acushot Needlefree Injector](#) 2008 – 2009

- Supported firmware development, simulation, and testing.
- Supported prototyping, EMC debugging, part-selection of embedded circuits.
- Assisted organizing large-scale PCB assembly, production testing, and management.
- Technologies in use: Python (ctypes, win32), C (Freescale HC12), Cadsoft Eagle

Education

Doctor of Philosophy, Computer Engineering,
University of Waterloo May 2007 – May 2012

- Thesis: Fault Diagnosis in Enterprise Systems Using Discrete Monitoring Data.

Diplom Ingenieurinformatiker, Dipl Ing.-Inf. (Computer Systems in Engineering)
Otto-von-Guericke University, Magdeburg, Germany October 2001 – March 2007

- Thesis Topic: "SCUQ – A Class-Library for the Evaluation of Scalar- and Complex-valued Uncertain Quantities"
- Graduated with 1.2 (on a scale from 1 to 5, where 1 is best).

Bakkalaureus Ingenieurinformatik (Bachelor in Computer Systems in Engineering)
Otto-von-Guericke University, Magdeburg, Germany October 2001 – July 2006

- Thesis Topic: "Malicious Behaviour in Content-Addressable Networks"
- Pass with distinction: 1.0 (on a scale from 1 to 5, where 1 is best).

Scholarships & Awards

University of Waterloo Graduate Student Scholarship (valued at 1000 \$ each) 2009, 2010, 2011

IBM Doctoral Fellowship (valued at 28000 \$ p.a.) 2008 – December 2011

Student Travel Award, CNSR 2005 (valued at 300 \$) May 2005

- Student paper award at the Communication Services and Networks Conference, Halifax, NS, Canada

Refereed Publications

1. Jean-Christophe Petkovich, Augusto Born Oliveira, Thomas Reidemeister, Sebastian Fischmeister; DataMill: A Distributed Heterogeneous Infrastructure for Robust Experimentation, Software: Practice and Experience 2015
2. Jean-Christophe Petkovich, Augusto Born Oliveira, Thomas Reidemeister, Sebastian Fischmeister; DataMill: Rigorous Empirical Performance Analysis Made Easy, ICPE 2013
3. Thomas Reidemeister, Miao Jiang, Paul A.S. Ward; Learning to Self-Recover; BDIM 2011 (at IM 2011)
4. Thomas Reidemeister, Miao Jiang, Paul A.S. Ward; Mining Unstructured Log Files for Recurrent Fault Diagnosis; IM 2011
5. Miao Jiang, Mohammad A. Munawar, Thomas Reidemeister, Paul A.S. Ward; Efficient Fault Detection and Diagnosis in Complex Software Systems by Information-Theoretic Monitoring; IEEE TDSC Journal 2011
6. Thomas Reidemeister, Miao Jiang, Paul A.S. Ward; An Extensible Framework for Repair-Driven Monitoring; CNSM 2010
7. Miao Jiang, Thomas Reidemeister, Mohammad A. Munawar, Paul A.S. Ward; Dependency-aware Fault Diagnosis with Metric-Correlation Models In Enterprise Software Systems; CNSM 2010
8. Thomas Reidemeister, Mohammad A. Munawar, Paul A.S. Ward; Identifying Symptoms of Recurrent Faults in Log Files of Distributed Information Systems; NOMS 2010
9. Thomas Reidemeister, Miao Jiang, Mohammad Ahmad Munawar, Paul A.S. Ward, Gabriel Iszlai Failure Detection and Root-Cause Analysis Using Log Files and Management Metrics; CASCON 2009 Technology Showcase poster
10. Rui Yan, Thomas Reidemeister, Igor Juristica, Paul A.S. Ward, Gabriel Iszlai; Failure Diagnosis in Enterprise Software Systems using Machine Learning Methods; CASCON 2009 Technology Showcase poster
11. Thomas Reidemeister, Mohammad Ahmad Munawar, Miao Jiang, Paul A.S. Ward; Diagnosis of Recurrent Faults using Log Files; CASCON 2009
12. Miao Jiang, Mohammad A. Munawar, Thomas Reidemeister, and Paul A.S. Ward; Automatic Fault Detection and Diagnosis in Complex Software Systems by Information-Theoretic Monitoring; DSN2009
13. Mohammad A. Munawar, Miao Jiang, Thomas Reidemeister, Paul A.S. Ward; Filtering system metrics for minimal correlation-based self-monitoring; SASO2009
14. Miao Jiang, Mohammad A. Munawar, Thomas Reidemeister, Paul A.S. Ward; System monitoring with metric-correlation models: problems and solutions; ICAC2009
15. Miao Jiang, Mohammad A. Munawar, Thomas Reidemeister, Paul A.S. Ward; Heteroscedastic Models to Track Relationships between Management Metrics; IM2009
16. Michael Jiang, Mohammad Ahmad Munawar, Thomas Reidemeister, Paul A.S. Ward. Information-Theoretic Modeling for Tracking the Health of Complex Software Systems; CASCON 2008.
17. Mohammad A. Munawar, Thomas Reidemeister, Michael Jiang, Allen George, and Paul A.S. Ward. Adaptive Monitoring with Dynamic Tracing-based Diagnosis; DSOM2008 in MANWEEK 2008.
18. Thomas Reidemeister, Mohammad A. Munawar, and Paul A.S. Ward. Model-based Symptoms for Problem Determination in Enterprise Software Systems; Proceedings of the Fourth International Workshop on Engineering Autonomic Software Systems, CASCON, 2007.
19. Mohammad A. Munawar, Thomas Reidemeister, Michael Jiang, Paul A. S. Ward, Eric Labadie, Marin Litoiu. WatProblem; CASCON Technology Showcase Poster, 2007
20. Thomas Reidemeister, Mohammad A. Munawar and Paul A.S. Ward. Memory-usage prediction in systems using automatic memory management; In IBM Academy of Technology 3rd Proactive Problem Prediction, Avoidance and Diagnosis Conference, 2005.
21. Thomas Reidemeister, Klemens Boehm, Erik Buchmann, and Paul A.S. Ward. Malicious behaviour in content-addressable peer-to-peer networks; In CNSR, 2005.

Extra-Curricular Activities

- Martial arts (member: <http://www.hogosha.com/>),
- Rocketry engineering (software team advisor: <http://uwrocketry.uwaterloo.ca/>),
- Classic car restoration and artisan welding (contributor: <http://www.190er-freunde-deutschland.de/>).