

## SASCHA KONRAD, Ph.D.

Siemens Corporate Research, Inc.  
755 College Road East  
Princeton, NJ 08540  
(609) 734-3676  
[sascha.konrad@siemens.com](mailto:sascha.konrad@siemens.com)

### OBJECTIVE

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To perform cutting edge research in software engineering on methods and tools which allow the delivery of high quality software artifacts on time and in budget.

### PROFESSIONAL EXPERIENCE

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#### Siemens Corporate Research, Inc.

Princeton, NJ

*Member of Technical Staff – Software Engineering*

**10/06 – Present**

- Working as a requirements engineer on customer projects: Analyzing, reviewing, and documenting requirements and architecture-related artifacts.
- Conduct research on topics related to requirements and software engineering.
- Develop and teach Siemens training courses in requirements engineering, UML, and software analysis.
- Writing papers and invention disclosures.
- Presenting at international conferences and workshops.

#### Michigan State University

East Lansing, MI

*Research Assistant – Software Engineering and Networking Systems*

**08/01 – 09/06**

- Lead small-scale teams in conducting research on topics related to software engineering.
- Develop processes and prototypes supporting the research and publish the results in journals and conference/workshop proceedings.
- Mentor MS and 1<sup>st</sup> year PhD students.
- Funding: Assistantships provided with support from the National Science Foundation (NSF), Department of the Navy, Office of Naval Research, Eaton Corporation, Siemens Corporate Research and Michigan State University.

### EDUCATION

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#### Michigan State University (GPA 4.0/4.0)

East Lansing, MI

PhD in Computer Science and Engineering

**10/06**

*Thesis: “Model-driven Development and Analysis of High Assurance Systems”*

#### Michigan State University (GPA 4.0/4.0)

East Lansing, MI

Master of Science in Computer Science and Engineering

**8/03**

*Thesis: “Defining and Using Requirements Patterns for Embedded Systems”*

#### University of Kaiserslautern

Kaiserslautern, Germany

Intermediate diploma in Industrial Engineering and Management with major in Computer Science

**2001**

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### HONORS AND AWARDS

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#### Most Outstanding Graduate Student Award,

Selected by faculty among all graduate students of the Department of Computer Science and Engineering, Michigan State University, 2005.

#### Best Paper Award,

“Automated Analysis of Natural Language Properties for UML Models” (with Betty H.C. Cheng), in Jean-Michel Bruel, editor, *Satellite Events at the MoDELS 2005 Conference: MoDELS 2005 International Workshops OCLWS, MoDeVA, MARTES, AOM, MTiP, WiSME, MODAUI, NfC, MDD, WUsCAM*, number 3844 in Lecture Notes in Computer Science, pages 48-57. Springer Verlag, October 2005.

#### Second Place Award at Graduate Poster Contest,

Selected by judges from faculty and alumni of the Department of Computer Science and Engineering, Michigan State University, 2006.

#### Finalist Microsoft Research Fellowship, 2006

### SELECTED COMMUNITY ACTIVITIES

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- Member of the [SEKE'08 Software Engineering of Autonomic Grid Computing Systems and Applications](#) program committee.
- Member of the [ICSE 2008 Tools and Demos Track](#) program committee.
- Member of the [ICST 2008 Student Paper Tack](#) program committee.
- Member of the [EngSoft 2007](#) program committee.
- Served as a co-reviewer for [MODELS 2007](#) (in collaboration with Brian Berenbach).
- Served as a reviewer for the [IEEE Software magazine](#).
- Served as a reviewer for the [Software and System Modeling \(SoSyM\)](#) journal.
- Served as a reviewer for the [Computing and Informatics](#) journal.

### SELECTED PUBLICATIONS AND MANUSCRIPTS

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#### PhD Thesis:

1. “Model-driven Development and Analysis of High Assurance Systems”, Computer Science and Engineering, Michigan State University, October 2006.

#### M.S. Thesis:

2. “Defining and Using Requirements Patterns for Embedded Systems”, Computer Science and Engineering, Michigan State University, August 2003.

#### Refereed and Peer-Reviewed Journal Articles:

3. “Tabular Notations for State Machine-based Specifications” (with Markus Hermannsdoerfer and Brian Berenbach), *CrossTalks Journal of Defense Software Engineering*, March 2008.
4. “Object Analysis Patterns for Embedded Systems” (with Betty H.C. Cheng and L. A. Campbell), in *IEEE Transactions on Software Engineering*, 30(12):970-992, December 2004.

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### Refereed and Peer-Reviewed Book Chapters:

5. “Automated Analysis of Natural Language Properties for UML Models” (with Betty H.C. Cheng), in Jean-Michel Bruel, editor, *Satellite Events at the MoDELS 2005 Conference: MoDELS 2005 International Workshops OCLWS, MoDeVA, MARTES, AOM, MTiP, WiSME, MODAUI, NfC, MDD, WUsCAM*, number 3844 in Lecture Notes in Computer Science, pages 48-57. Springer Verlag, 2006.
6. “A Requirements Patterns-Driven Approach to Check Systems and Specify Properties” (with Laura A. Campbell, Betty H.C. Cheng, and Min Deng), in Thomas Ball and Sriram K. Rajamani, editors, *Model Checking Software, 10<sup>th</sup> International SPIN Workshop*, number 2648 in Lecture Notes in Computer Science, pages 18-33. Springer Verlag, May 2003.

### Refereed and Peer-Reviewed Conference and Workshop Proceedings:

7. “Goal-Oriented Patterns for UML-Based Modeling of Embedded Systems Requirements” (with Heather Goldsby, Betty H.C. Cheng), in *Proceedings of the IEEE High Assurance Systems Engineering Symposium (HASE 2007)*, Dallas TX, November 2007. (Acceptance rate: 30%)
8. “i<sup>2</sup>MAP – An Incremental and Iterative Modeling and Analysis Process” (with Heather Goldsby, Betty H.C. Cheng), in *Proceedings of the ACM/IEEE International Conference on Model Driven Engineering Languages and Systems (MODELS 2007)*, Nashville, TN, October 2007. (Acceptance rate: 28%)
9. “Putting the “Engineering” into Software Engineering with Models” (with Brian Berenbach), in *Proceedings of the Workshop on Modeling in Software Engineering 2007 (MISE 2007)*, Minneapolis, MN, May 2007.
10. “Enabling a Roundtrip Engineering Process for the Modeling and Analysis of Embedded Systems” (with Heather Goldsby, Betty H.C. Cheng, and Stephane Kamdoun), in *Proceedings of the ACM/IEEE International Conference on Model Driven Engineering Languages and Systems (MODELS 2006)*, Genova, Italy, October 2006. (Acceptance rate: 27%)
11. “Use Case-Based Modeling and Analysis of Failsafe Fault-Tolerance” (with Ali Ebneenasir and Betty H.C. Cheng), in *Proceedings of the IEEE International Requirements Engineering Conference (RE 06)*, Minneapolis/St. Paul, MN, September 2006. (Poster summary)
12. “Visualizing Requirements in UML Models” (with Heather Goldsby, Karli Lopez, and Betty H.C. Cheng), in *Proceedings of the International Workshop on Requirements Engineering Visualization (REV 2006)* as part of the *14th IEEE International Requirements Engineering Conference (RE'06)*, Minneapolis/St. Paul, MN, September 2006.
13. “Facilitating the Construction of Specification Pattern-based Properties” (with Betty H.C. Cheng), in *Proceedings of the IEEE International Requirements Engineering Conference (RE 05)*, pages 329-338, Paris, France, September 2005. (Acceptance rate: 20%)
14. “Real-time Specification Patterns” (with Betty H.C. Cheng), in *Proceedings of the 27<sup>th</sup> ACM/IEEE International Conference on Software Engineering (ICSE 05)*, pages 372-381, St Louis, MO, USA, May 2005. (Acceptance rate: 14%)
15. “Assurance Patterns for Distributed Real-time Embedded Systems“, in *Proceedings of the Doctoral Symposium of the 27<sup>th</sup> ACM/IEEE International Conference on Software Engineering (ICSE 05)*, page 657, St Louis, MO, USA, May 2005.
16. “Automated Analysis of Timing Information in UML Diagrams” (with Laura A. Campbell, and Betty H.C. Cheng), in *Proceedings of the 19<sup>th</sup> IEEE International Conference on Automated Software Engineering (ASE 04)*, pages 350-353, Linz, Austria, September 2004. (Poster summary)

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17. “Using Security Patterns to Model and Analyze Security Requirements” (with Betty H.C. Cheng, Laura A. Campbell, and Ronald Wassermann), in *Proceedings of the High Assurance Systems Workshop (RHAS03)* as part of the *IEEE Joint International Conference on Requirements Engineering (RE 03)*, Monterey Bay, CA, USA, September 2003.
18. “Requirements Patterns for Embedded Systems” (with Betty H.C. Cheng), in *Proceedings of the IEEE Joint International Conference on Requirements Engineering (RE 02)*, pages 127-136, Essen, Germany, September 2002. (Acceptance rate: 15%)
19. “Adding formal specifications to requirements patterns” (with Laura A. Campbell and Betty H.C. Cheng.), in *Proceedings of the Requirements for High Assurance Systems Workshop (RHAS02)* as part of the *IEEE Joint International Conference on Requirements Engineering (RE 02)*, Essen, Germany, September 2002.

### TALKS AND PRESENTATIONS GIVEN

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1. “i<sup>2</sup>MAP – An Incremental and Iterative Modeling and Analysis Process”, ACM/IEEE International Conference on Model Driven Engineering Languages and Systems (MODELS 2007), Nashville, TN, October 2007.
2. “Putting the “Engineering” into Software Engineering with Models”, Workshop on Modeling in Software Engineering 2007 (MISE 2007), Minneapolis, MN, May 2007.
3. “Use Case-Based Modeling and Analysis of Failsafe Fault-Tolerance”, IEEE International Requirements Engineering Conference (RE 06), Minneapolis/St. Paul, MN, September 2006.
4. “Visualizing Requirements in UML Models”, International Workshop on Requirements Engineering Visualization (REV 2006), Minneapolis/St. Paul, MN, September 2006.
5. “Automated Analysis of Natural Language Properties for UML Models”, 2nd MoDeVa workshop - Model design and Validation, Montego Bay, Jamaica, October 2005.
6. “Facilitating the Construction of Specification Pattern-based Properties”, IEEE International Requirements Engineering Conference (RE 05), Paris, France, September 2005.
7. “Real-time Specification Patterns”, 27<sup>th</sup> ACM/IEEE International Conference on Software Engineering (ICSE 05), St Louis, MO, May 2005.
8. “Assurance Patterns for Distributed Real-time Embedded Systems“, Doctoral Symposium of the 27<sup>th</sup> ACM/IEEE International Conference on Software Engineering (ICSE 05), St Louis, MO, May 2005.
9. “Automated Analysis of Timing Information in UML Diagrams”, 19<sup>th</sup> IEEE International Conference on Automated Software Engineering (ASE 04), Linz, Austria, September 2004.
10. “Using Security Patterns to Model and Analyze Security Requirements”, High Assurance Systems Workshop (RHAS03), Monterey Bay, CA, September 2003.
11. “A Requirements Patterns-Driven Approach to Check Systems and Specify Properties”, 10<sup>th</sup> International SPIN Workshop, Portland, OR, May 2003.
12. “Adding formal specifications to requirements patterns”, Requirements for High Assurance Systems Workshop (RHAS02), Essen, Germany, September 2002.

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### **TECHNICAL SKILLS**

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- **Programming Languages:** Java, C, C++, C#, Perl, Tcl.
- **Software Development:** Rational Rose/XDE/Software Architect, Eclipse, MS Visual Studio, UML, HTML, XMI/XML, Java Servlets, JSP, Rational ClearQuest, Rational ClearCase.
- **Operating Systems:** MS Windows, Linux, Solaris.
- **Document Processing Applications:** MS Office, LaTeX, OpenOffice.
- **Formal Methods:** Spin, SMV, Uppaal, Kronos, (real-time) temporal logics, specification patterns, Z.

### **CONTINUING EDUCATION**

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- Architecture for Software Intensive Systems – Siemens Corporate Research with SEI, November 2006
- Requirements Engineering Foundation Course – Siemens Corporate Research, November 2006
- SCRUM Master Certification – PatientKeeper Inc., December 2006
- Effective Communication, Sales & Negotiation for the Technical Professional – Morgan Training Company, December 2006
- Introduction to CMMI – Software Engineering Institute, August 2007
- Model-driven Requirement Engineering – Siemens Corporate Research, Oct 2007