

Gabor Madl

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- SUMMARY**
- ◇ **Accomplishments:** Developed methods and tools for the model-based verification and performance analysis of distributed real-time embedded systems. Research acknowledged by awards from ACM and NSF.
 - ◇ **Research interests:** Model-based design, mixed time- and event-driven systems, cyber-physical systems, real-time and performance analysis, discrete event systems, hybrid systems, supervisory control.
- EDUCATION**
- ◇ **University of California, Irvine, USA.**
Ph.D. in Computer Science, 2005/09 - 2009/06. GPA: 4.0
Dissertation title: *Model-based Analysis of Event-driven Distributed Real-time Embedded Systems*.
 - ◇ **Vanderbilt University, Nashville TN, USA.**
M.Sc. in Computer Science, 2003/01 - 2005/06. GPA: 3.87
 - ◇ **Budapest University of Technology and Economics, Hungary.**
M.Sc. in Computer Engineering (Technical Informatics), 1997/09 - 2002/06.
- RESEARCH & INDUSTRY EXPERIENCE**
- ◇ **Honeywell Aerospace Advanced Technology, Golden Valley MN, USA.**
R&D Scientist, 2009/08 - present.
Working on Honeywell's next-generation avionics platform. Applying model-based design and analysis methods to mission-critical aerospace systems.
 - ◇ **Google, Santa Monica CA, USA.**
Software Engineer Intern, summer of 2008.
Refactored the AdSense for Domains (AFD) frontend for mixed search and content ads.
 - ◇ **Fujitsu Laboratories of America, Sunnyvale CA, USA.**
Intern, summer of 2007.
Worked on the real-time analysis of an internal 802.16 (WiMAX) HW/SW IP. Integrated the open-source DREAM tool in the Scenery project.
 - ◇ **ARM, Irvine CA, USA.**
Intern, summer of 2005.
Integrated the Spirit IP-reuse standard in SoC Designer (MaxSim) tool.
 - ◇ **University of California, Irvine, USA.**
Graduate Student Researcher, 2005/09 - 2009/06.
Developed model-based real-time verification and performance estimation methods for distributed real-time embedded systems.
 - ◇ **Vanderbilt University, Nashville TN, USA.**
Research Assistant, 2003/01 - 2005/06.
Proposed a timed automata-based formal verification method for real-time CORBA applications in the context of the Boeing Bold Stroke platform.

- AWARDS
- ◇ **2009:** National Science Foundation Computing Innovation Fellow Award. 60 post-doctoral research grants awarded, 526 Ph.D. applicants from U.S. universities (~11.4% acceptance rate). Did not accept, joined Honeywell.
 - ◇ **2007:** The ACM SIGBED Frank Anger Memorial Award for promoting the crossover of ideas between the embedded software and software engineering communities.
- OPEN-SOURCE PROJECTS
- ◇ **Open-source DREAM tool (<http://dre.sourceforge.net>)**
Developed for the performance analysis and real-time verification of distributed real-time embedded systems.
 - ◇ **ALDERIS (<http://alderis.ics.uci.edu>)**
Domain-specific modeling language for the real-time analysis of distributed real-time embedded systems.
- JOURNAL PUBLICATIONS
- ◇ **Gabor Madl, Sudeep Pasricha, Qiang Zhu, Luis Angel D. Bathen, Nikil Dutt:** Combining Transaction-level Simulations and Model Checking for MPSoC Verification and Performance Evaluation, submitted to *ACM Transactions on Design Automation of Electronic Systems*.
 - ◇ **Gabor Madl, Sudeep Pasricha, Nikil Dutt, Sherif Abdelwahed:** Cross-abstraction Functional Verification and Performance Analysis of Chip Multiprocessor Designs, *IEEE Transactions on Industrial Informatics, Special Section on Real-time and (Networked) Embedded Systems (accepted for publication)*.
 - ◇ **Gabor Madl, Sherif Abdelwahed, Douglas C. Schmidt:** Verifying Distributed Real-time Properties of Embedded Systems via Graph Transformations and Model Checking, *Real-Time Systems, Special Issue: Invited Papers from the 25th IEEE International Real-Time Systems Symposium*, Volume 33, Numbers 1–3, Pages 77–100, July 2006.
 - ◇ **Chulho Shin, Peter Grun, Nizar Romdhane, Christopher Lennard, Gabor Madl, Sudeep Pasricha, Nikil Dutt, Mark Noll:** Enabling heterogeneous cycle-based and event-driven simulation in a design flow integrated using the SPIRIT consortium specifications, *Design Automation for Embedded Systems*, Volume 11, Numbers 2-3, September 2007.
 - ◇ **Dror G. Feitelson, Tokunbo O. S. Adeshiyan, Daniel Balasubramanian, Yoav Etsion, Gabor Madl, Esteban P. Osses, Sameer Singh, Karlkim Suwanmongkol, Charlie Xie, and Stephen R. Schach:** Fine-Grain Analysis of Common Coupling and its Application to a Linux Case Study, *Journal of Systems and Software*, Volume 80, Issue 8, Pages 1239–1255, 2007.
 - ◇ **Stephen R. Schach, Tokunbo O. S. Adeshiyan, Daniel Balasubramanian, Gabor Madl, Esteban P. Osses, Sameer Singh, Karlkim Suwanmongkol, Minhui Xie, and Dror G. Feitelson:** Common Coupling and Pointer Variables, with Application to a Linux Case Study, *Software Quality Journal*, Volume 15, Number 1, Pages 99–113, 2007.

CONFERENCE
PUBLICATIONS

- ◇ **Gabor Madl, Nikil Dutt, Sherif Abdelwahed:** A Conservative Approximation Method for the Verification of Preemptive Scheduling using Timed Automata, In *Proceedings of the 15th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS)*, Pages 255-264, 2009.
- ◇ **Gabor Madl, Nikil Dutt:** Real-time Analysis of Resource-Constrained Distributed Systems by Simulation-Guided Model Checking, Ph.D. Forum, *the 28th IEEE International Real-Time Systems Symposium (RTSS)*, 2007.
- ◇ **Gabor Madl, Nikil Dutt, Sherif Abdelwahed:** Performance Estimation of Distributed Real-time Embedded Systems by Discrete Event Simulations, In *Proceedings of EMSOFT*, Pages 183-192, 2007.
- ◇ **Gabor Madl, Sudeep Pasricha, Qiang Zhu, Luis Angel D. Bathen, Nikil Dutt:** Formal Performance Evaluation of AMBA-based System-on-Chip Designs, In *Proceedings of EMSOFT*, Pages 311-320, 2006.
- ◇ **Gabor Madl, Sherif Abdelwahed:** Model-based Analysis of Distributed Real-time Embedded System Composition, In *Proceedings of EMSOFT*, Pages 371-374, 2005.
- ◇ **Gabor Madl, Sherif Abdelwahed, Gabor Karsai:** Automatic Verification of Component-Based Real-Time CORBA Applications, In *Proceedings of the 25th IEEE International Real-Time Systems Symposium (RTSS)*, Pages 231-240, 2004.
- ◇ **Peter Grun, Chulho Shin, Chris Baxter, Christopher Lennard, Mark Noll, Gabor Madl:** Integrating a multi-vendor ESL-to-silicon design flow using SPIRIT, *IP-SoC 2005*.

WORKSHOP
PUBLICATION

- ◇ **Gabor Madl, Nikil Dutt:** Domain-specific Modeling of Power Aware Distributed Real-time Embedded Systems, *Proceedings of the 6th Workshop on Embedded Computer Systems: Architectures, Modeling, and Simulation (SAMOS)*, Pages 59-68, 2006.

MEMBERSHIP

IEEE member, ACM member, ACM Special Interest Group on Embedded Systems (SIGBED) member.