

Gabor Madl

San Jose, CA

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- Summary*
- ◇ **Software engineer** with background in model-based design, formal verification, safety-critical systems, and cloud system analytics. Experience in Java, C++, Python, MATLAB Simulink/Stateflow, symbolic source code representation and analysis. Continuous integration, Jenkins, JUnit, Checkstyle, Ant.
 - ◇ **Permanent resident (green card).**
- Education*
- ◇ **University of California, Irvine.**
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.**
M.Sc. in Computer Science, 2003/01 - 2005/05. GPA: 3.87.
 - ◇ **Budapest University of Technology and Economics, Hungary.**
M.Sc. in Computer Engineering (Technical Informatics), 1997/09 - 2002/06.
- Experience*
- ◇ **IBM Almaden Research Center, Cloud System Analytics, San Jose CA.**
Senior Software Engineer, 2014/11 - present.
 - R&D in cloud system analytics, Internet of Things (IoT), storage systems.
 - Storage reclamation in VMware virtualization platforms using vSphere SDK.
 - Legacy volume import into OpenStack-based software-defined storage.
 - ◇ **Honeywell Aerospace Advanced Technology, Platform Systems, Golden Valley MN.**
R&D Scientist, 2009/08 - 2014/11.
 - Tech lead and key developer of Honeywell's DO-178C source code certification tool.
 - Prepared proposals, reports, and presentations for NASA, DARPA.
 - Developed tools and methods for the modeling and analysis of fault propagation.
 - Applied formal methods to requirements analysis and compositional design.
 - ◇ **Google, Santa Monica CA.**
Intern, summer of 2008.
Refactored AdSense for Domains (AFD) for mixed search and content ads.
 - ◇ **Fujitsu Laboratories of America, Sunnyvale CA.**
Intern, summer of 2007.
Worked on the real-time analysis of an internal 802.16 (WiMAX) HW/SW IP.
 - ◇ **ARM, Irvine CA.**
Intern, summer of 2005.
Integrated the Spirit IP-reuse standard in ARM SoC Designer tool (currently owned by Carbon Design Systems).
- Projects*
- ◇ **IBM Open Platform for Storage:** Software-defined storage. Analysis and reclamation.
 - ◇ **NASA NNA13AC55C:** Methodologies for Compositional Design with the Evidential Tool Bus.
 - ◇ **NASA NNA10DE73C VVFCS-1.4:** Evidential Tool Bus for Flight Critical Systems.
 - ◇ **NASA NNH09ZEA001N VVFCS-1.2:** Validation and Verification of Safety Critical Integrated Distributed Systems.
 - ◇ **DARPA META II, BAA-10-59:** Probabilistic, Compositional, Multi-Dimension Model-Based Verification.

Patents

- ◇ **US 20140019943 A1:** Arvind Easwaran, Gabor Madl, David Oglesby, Devesh Bhatt: Systems and methods for verifying expression folding. Issued.
- ◇ **US 20130019224 A1:** Gabor Madl, David Oglesby, Kuntal Chakraborty, Devesh Bhatt, Stephen Hickman: Systems and methods for verifying model equivalence. Issued.
- ◇ **US 20120210173 A1:** Kirk Schloegel, Devesh Bhatt, David V. Oglesby, Gabor Madl: Error propagation in a system model. Issued.
- ◇ **US 20110258607 A1:** Devesh Bhatt, Gabor Madl, David Oglesby, Kirk Schloegel: Method for automated error detection and verification of software. Issued.

Journal

Publications

- ◇ **David Oglesby, Gabor Madl, Rachana Labh, Ted Schlossmacher, Paria Moazzemi:** Automated Verification of Model-Based Design and Code Synthesis, *The Exponent - Honeywell Technology Journal*, Volume 5, Issue 1, May 2013.
- ◇ **Gabor Madl, Sudeep Pasricha, Nikil Dutt, Sherif Abdelwahed:** Cross-abstraction Functional Verification and Performance Analysis of Chip Multiprocessor Designs, *IEEE Transactions on Industrial Informatics*, Volume 5, Issue 3, Pages 241–256, August 2009.
- ◇ **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.
- ◇ **Gabor Madl, Sherif Abdelwahed, Douglas C. Schmidt:** Verifying Distributed Real-time Properties of Embedded Systems via Graph Transformations and Model Checking, *Real-Time Systems*, Volume 33, Numbers 1–3, Pages 77–100, July 2006.

Conference

Publications

- ◇ **Devesh Bhatt, Kirk Schloegel, Gabor Madl, David Oglesby:** Quantifying Error Propagation in Data Flow Models, Proceedings of ECBS, 2013.
- ◇ **Devesh Bhatt, Gabor Madl, David Oglesby, Kirk Schloegel:** Towards Scalable Verification of Commercial Avionics Software, Proceedings of the AIAA Infotech@ Aerospace Conference, April 2010.
- ◇ **Gabor Madl, Nikil Dutt, Sherif Abdelwahed:** A Conservative Approximation Method for the Verification of Preemptive Scheduling using Timed Automata, In *Proceedings of 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, *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.

- ◇ **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*.
 - ◇ **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 RTSS*, Pages 231–240, 2004.
 - ◇ **Linda Briesemeister, Grit Denker, Daniel Elenius, Ian Mason, Srivatsan Varadarajan, Devesh Bhatt, Brendan Hall, Gabor Madl, Wilfried Steiner:** Quantitative Fault Propagation Analysis for Networked Cyber-Physical Systems, In *Proceedings of AVICPS*, 2011.
 - ◇ **Gabor Madl, Nikil Dutt:** Domain-specific Modeling of Power Aware Distributed Real-time Embedded Systems, *Proceedings of SAMOS*, Pages 59–68, 2006.
- Workshop Publications*
- ◇ **Brendan Hall, Kevin R. Driscoll, Gabor Madl:** Investigating System Dependability Modeling Using AADL, NASA Technical Report NASA/CR-2013-217961, 2013.
 - ◇ **Kevin R. Driscoll, Gabor Madl, Brendan Hall:** Modeling and Analysis of Mixed Synchronous/Asynchronous Systems, NASA Technical Report NASA/CR-2012-217765, 2012.
 - ◇ **Gabor Madl, Brendan Hall, Kevin R. Driscoll:** System-level Modeling and Analysis of Byzantine Fault-tolerance, Honeywell Technical Report, 2013.
 - ◇ **Sam Owre, Natarajan Shankar, Devesh Bhatt, Gabor Madl, David Oglesby:** An Evidential Tool Bus for Flight-Critical Software: Draft Option Year 1 Report, SRI Technical Report, October 2012.
 - ◇ **Grit Denker, Linda Briesemeister, Daniel Elenius, Shalini Ghosh, Ian Mason, Ashish Tiwari, Devesh Bhatt, Haftay Hailu, Gabor Madl, Siamak Nikbin, Srivatsan Varadarajan, Guenther Bauer, Wilfried Steiner, Xenofon Koutsoukos, Tihamer Levendovszky:** META II: Probabilistic, Compositional, Multidimension Model-Based Verification (PROMISE), DARPA Final Report, October 2011.
- Technical Reports*