

RADU I. SIMINICEANU

List of Publications

1 Conference Papers

- [1] G. Ciardo, G. Lüttgen, and R. Siminiceanu, “Efficient symbolic state-space construction for asynchronous systems,” in *Proc. 21th Int. Conf. on Applications and Theory of Petri Nets (ICATPN)* (M. Nielsen and D. Simpson, eds.), vol. 1825 of *Lecture Notes in Computer Science*, (Aarhus, Denmark), pp. 103–122, Springer, June 2000.
- [2] G. Ciardo, G. Lüttgen, and R. Siminiceanu, “Saturation: An efficient iteration strategy for symbolic state-space generation,” in *Tools and Algorithms for the Construction and Analysis of Systems (TACAS), 7th International Conference* (T. Margaria and W. Yi, eds.), vol. 2031 of *Lecture Notes in Computer Science*, (Genova, Italy), pp. 328–342, Springer, April 2001.
- [3] G. Ciardo, R. L. Jones, A. S. Miner, and R. I. Siminiceanu, “SMART: Stochastic Model Analyzer for Reliability and Timing,” in *Tools of Int. Multiconf. Measurement, Modelling and Evaluation of Computer-Communication Systems* (P. Kemper, ed.), (Aachen, Germany), pp. 29–34, September 2001.
- [4] G. Ciardo, R. L. Jones, R. M. Marmorstein, A. S. Miner, and R. I. Siminiceanu, “SMART: Stochastic Model-checking Analyzer for Reliability and Timing,” in *Proc. Int. Conf. on Dependable Systems & Networks (DSN)*, (Washington, D.C., USA), p. 545, IEEE Press, June 2002.
- [5] G. Ciardo and R. I. Siminiceanu, “Using edge-valued decision diagrams for symbolic generation of shortest paths,” in *Proc. Fourth International Conference on Formal Methods in Computer-Aided Design (FMCAD)* (M. D. Aagaard and J. W. O’Leary, eds.), vol. 2517 of *Lecture Notes in Computer Science*, (Portland, OR, USA), pp. 256–273, Springer, November 2002.
- [6] G. Ciardo, R. Marmorstein, and R. I. Siminiceanu, “Saturation unbound,” in *Proc. Tools and Algorithms for the Construction and Analysis of Systems (TACAS)* (H. Garavel and J. Hatcliff, eds.), vol. 2619 of *Lecture Notes in Computer Science*, (Warsaw, Poland), pp. 379–393, Springer, April 2003.
- [7] G. Ciardo and R. I. Siminiceanu, “Structural symbolic CTL model checking of asynchronous systems,” in *Computer Aided Verification (CAV)* (W. Hunt, Jr. and F. Somenzi, eds.), vol. 2725 of *Lecture Notes in Computer Science*, (Boulder, CO, USA), pp. 40–53, Springer, July 2003.
- [8] G. Ciardo, R. L. Jones, A. S. Miner, and R. I. Siminiceanu, “Logical and stochastic modeling with SMART,” in *Proc. Modelling Techniques and Tools for Computer Per-*

- formance Evaluation* (P. Kemper and W. H. Sanders, eds.), vol. 2794 of *Lecture Notes in Computer Science*, (Urbana, IL, USA), pp. 78–97, Springer, Sept. 2003.
- [9] R. I. Siminiceanu and G. Ciardo, “Formal verification of the NASA Runway Safety Monitor,” in *Proc. International Workshop on Automated Verification of Critical Systems (AVoCS)* (M. Huth, ed.), vol. 128(6) of *ENTCS*, (London, UK), pp. 179–194, Elsevier, Sept. 2004.
- [10] R. I. Siminiceanu and G. Ciardo, “New metrics for static variable ordering in decision diagrams,” in *Proc. Tools and Algorithms for the Construction and Analysis of Systems (TACAS)* (H. Hermanns and J. Palsberg, eds.), vol. 3920 of *Lecture Notes in Computer Science*, (Vienna, Austria), pp. 90–104, Springer, Mar 2006.
- [11] J. Ezekiel, G. Lüttgen, and R. Siminiceanu, “Can saturation be parallelised?,” in *5th International Workshop PDMC* (L. Brim, B. R. Haverkort, M. Leucker, and J. van de Pol, eds.), vol. 4346 of *Lecture Notes in Computer Science*, pp. 331–346, Springer, 2006.
- [12] M.-Y. Chung, G. Ciardo, and R. I. Siminiceanu, “Caching, Hashing, and Garbage Collection for Distributed State Space Construction,” in *Workshop on Parallel and Distributed Model Checking (PDMC)* (I. Černá and B. Haverkort, eds.), *ENTCS*, (Berlin, Germany), pp. 121–136, Elsevier, July 2007.
- [13] B. Dutertre, J. Rushby, A. Tiwari, C. A. Muñoz, and R. I. Siminiceanu, “Formal Verification and Automated Testing for Diagnostic and Monitoring Systems,” in *AIAA Guidance, Navigation and Control Conference (GNC)*, (Honolulu, HI), August 2008.
- [14] R. Siminiceanu, R. W. Butler, and C. A. Muñoz, “Experimental evaluation of a planning language suitable for formal verification,” in *Model Checking and Artificial Intelligence (MoChArt)* (D. Peled and M. Wooldridge, eds.), vol. 5348 of *Lecture Notes in Computer Science*, pp. 132–146, Springer, 2009.
- [15] M. L. Bolton, E. J. Bass, and R. I. Siminiceanu, “Using formal methods to predict human error and system failures,” in *2nd Int’l Conference, Applied Human Factors and Ergonomics (AHFEI)*, (Las Vegas, NV), July 2008.
- [16] A. Galloway, G. Lüttgen, J. T. Mühlberg, and R. Siminiceanu, “Model-checking the linux virtual file system,” in *10th International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI)* (N. D. Jones and M. Müller-Olm, eds.), vol. 5403 of *Lecture Notes in Computer Science*, (Savannah, Georgia), pp. 74–88, Springer, January 2009.
- [17] E. M. Connors, C. A. Muñoz, C. Schnur, and R. Siminiceanu, “Static verification of spacecraft procedures,” in *AIAA Infotech@Aerospace*, (Seattle, WA), p. 2033, American Institute of Aeronautics and Astronautics, April 2009.
- [18] N. Cataño and R. Siminiceanu, “A machine-checked proof of a state space construction algorithm,” in *NASA Formal Methods Symposium (NFM)*, vol. NASA/CP-2010-216215, (Washington, DC), pp. 57–66, April 2010.

- [19] P. Roux and R. Siminiceanu, “Model checking with edge-valued decision diagrams,” in *NASA Formal Methods Symposium (NFM)*, vol. NASA/CP-2010-216215, (Washington, DC), pp. 222–226, April 2010.

2 Journal Papers

- [20] G. Ciardo, R. Marmorstein, and R. I. Siminiceanu, “The saturation algorithm for symbolic state space exploration,” *Software Tools for Technology Transfer*, vol. 8, pp. 4–25, Feb. 2006.
- [21] G. Ciardo, R. L. Jones, A. S. Miner, and R. I. Siminiceanu, “Logical and stochastic modeling with SMART,” *J. Performance Evaluation*, vol. 63, pp. 578–608, 2006.
- [22] R. I. Siminiceanu and G. Ciardo, “Formal verification of the NASA Runway Safety Monitor,” *Software Tools for Technology Transfer*, vol. 9, pp. 63–76, Feb. 2007.
- [23] M. L. Bolton, E. J. Bass, and R. I. Siminiceanu, “A systematic approach to model checking human-automation interaction using task analytic models,” *IEEE Transactions on Systems, Man, and Cybernetics–Part A: Systems and Humans*, vol. 41, no. 5, pp. 961–976, 2011.
- [24] J. Ezekiel, G. Lüttgen, and R. Siminiceanu, “To parallelize or to optimize?,” *Journal of Logic and Computation*, vol. 21, no. 1, pp. 85–120, 2011.
- [25] M. L. Bolton, E. J. Bass, and R. I. Siminiceanu, “Generating phenotypical erroneous human behavior to evaluate human-automation interaction using model checking,” *International Journal of Human-Computer Studies*, 2012 (to appear).
- [26] M. L. Bolton, E. J. Bass, and R. I. Siminiceanu, “Applications of Formal Verification to Human-automation Interaction: Current Practices and Future Developments,” *IEEE Transactions on Systems, Man, and Cybernetics–Part A: Systems and Humans*, 2012 (to appear).

3 Book Chapters

- [27] R. I. Siminiceanu and G. Ciardo, “Model Checking for Avionics,” in *FMICS Handbook for Industrial Critical Systems* (S. Gnesi and T. Margaria, eds.), IEEE Computer Society Press, 2012 (to appear).

4 Technical Reports

- [28] G. Ciardo, G. Lüttgen, and R. I. Siminiceanu, “Efficient symbolic state-space construction for asynchronous systems,” ICASE Report 99-50, Institute for Computer Applications in Science and Engineering, Hampton, VA, USA, Dec. 1999.

- [29] G. Ciardo, G. Lüttgen, and R. Siminiceanu, “Saturation: An efficient iteration strategy for symbolic state-space generation,” ICASE Report 2001-5, NASA/CR-2001-210663, Institute for Computer Applications in Science and Engineering, 2001.
- [30] C. A. Muñoz, R. I. Siminiceanu, V. A. Carreño, and G. Dowek, “KB3D reference manual,” Tech. Rep. NASA/TM 2005-213769, NASA Langley Research Center, NASA LaRC, Hampton VA 23681, 2005.
- [31] M. R. Malekpur and R. I. Siminiceanu, “Comments on the Byzantine Self-Stabilizing Pulse Synchronization Protocol: Counterexamples,” Tech. Rep. NASA/TM 2006-213951, NASA Langley Research Center, NASA LaRC, Hampton VA 23681, 2006.
- [32] R. I. Siminiceanu and G. Ciardo, “Formal Verification of the Runway Safety Monitor,” Tech. Rep. NASA/CR-2006-21492, NIA-2005-03, NASA Langley Research Center, NASA LaRC, Hampton VA 23681, 2006.
- [33] R. I. Siminiceanu, “Model checking abstract PLEXIL programs with SMART,” Tech. Rep. NASA/CR-2007-214542, NIA-Report-No-2007-02, NASA Langley Research Center, Hampton, VA 23681, 2007.
- [34] C. A. Muñoz and R. I. Siminiceanu, “In-Trail Procedure (ITP) Algorithm Design,” Tech. Rep. NASA/CR-2007-214863, NIA Report No. 2007-06, NASA Langley Research Center, NASA LaRC, Hampton VA 23681, August 2007.
- [35] J. Ezekiel, G. Lüttgen, and R. I. Siminiceanu, “An anticipated firing saturation algorithm for shared-memory architectures,” Tech. Rep. TR 2007-422, University of York, UK, 2007.
- [36] R. W. Butler, C. A. Muñoz, and R. I. Siminiceanu, “The ANMLite language and logic for specifying planning problems,” Tech. Rep. NASA/TM-2007-215088, NASA Langley Research Center, NASA LaRC, Hampton VA 23681, 2007.
- [37] R. W. Butler, C. A. Muñoz, and R. I. Siminiceanu, “Solving the AI Planning + Scheduling Problem Using Model Checking via Automatic Translation from the Abstract Plan Preparation Language APPL to the Symbolic Analysis Laboratory (SAL),” Tech. Rep. NASA/TM-2007-215089, NASA Langley Research Center, NASA LaRC, Hampton VA 23681, 2007.
- [38] J. Ezekiel, G. Lüttgen, and R. I. Siminiceanu, “A parallel saturation algorithm on shared memory architectures,” Tech. Rep. NASA/CR-2007-214543, NIA Report No. 2007-01, NASA Langley Research Center, NASA LaRC, Hampton VA 23681, 2007.
- [39] M.-Y. Chung, G. Ciardo, and R. I. Siminiceanu, “Distributed Saturation,” Tech. Rep. NASA/CR-2007-214862, NIA Report 2007-05, NASA Langley Research Center, NASA LaRC, Hampton VA 23681, 2007.
- [40] R. W. Butler, C. A. Muñoz, and R. I. Siminiceanu, “Experimental Evaluation of a Planning Language Suitable for Formal Verification,” Tech. Rep. 20080031116, NASA Langley Research Center, NASA LaRC, Hampton VA 23681, 2008.

- [41] P. Roux and R. Siminiceanu, “Model checking with edge-valued decision diagrams,” Tech. Rep. CR-2010-216710, NASA Langley Research Center, July 2010.
- [42] R. I. Siminiceanu and N. Cataño, “Automated verification of specifications with type-states and access permissions,” Tech. Rep. NASA/CR-2011-217170, NASA Langley Research Center, NASA LaRC, Hampton VA 23681, 2011.
- [43] R. I. Siminiceanu, P. S. Miner, and S. Person, “A methodology for evaluating artifacts produced by a formal verification process,” Tech. Rep. NASA/CR-2011-217193, NASA Langley Research Center, NASA LaRC, Hampton VA 23681, November 2011.

5 Theses

- [44] R. I. Siminiceanu, “A new approach to deadlock-free wormhole routing,” Master’s thesis, University of Iași, Romania, 1998.
- [45] R. I. Siminiceanu, *Structural Model Checking*. PhD thesis, The College of William and Mary, 2003.

6 Miscellanea

- [46] R. I. Siminiceanu, “Genetic Algorithms for TSP (Traveling Salesman Problems),” in *Romanian Symposium on Computer Science (RoSyCS '96) – Student section*, (Iași, Romania), June 1996.
- [47] G. Ciardo, A. S. Miner, R. L. Jones, R. Marmorstein, and R. I. Siminiceanu, “The SMART User Manual,” 1999-2003.