



















## REFERENCES

- [1] N. Alechina, M. Dastani, F. Khan, B. Logan, and J. J. Ch. Meyer. 2010. Using Theorem Proving to Verify Properties of Agent Programs. In *Specification and Verification of Multi-agent Systems*. Springer, 1–33.
- [2] B. Bagheri, D. Calvanese, M. Montali, G. Giacomo, and A. Deutsch. 2013. Verification of Relational Data-centric Dynamic Systems with External Services. In *Proceedings of the 32nd Symposium on Principles of Database Systems (PODS13)*. ACM, 163–174.
- [3] F. Belardinelli, D. Grossi, and A. Lomuscio. 2015. Finite Abstractions for the Verification of Epistemic Properties in Open Multi-Agent Systems. In *Proceedings of the 24th International Joint Conference on Artificial Intelligence (IJCAI15)*. AAAI Press, 854–860.
- [4] F. Belardinelli, P. Kouvaros, and A. Lomuscio. 2017. Parameterised Verification of Data-aware Multi-agent Systems. In *Proceedings of the 24th International Joint Conference on Artificial Intelligence (IJCAI17)*. AAAI Press, 98–104.
- [5] F. Belardinelli and A. Lomuscio. 2009. Quantified epistemic logic for reasoning about knowledge in multi-agent systems. *Artificial Intelligence* 173, 9–10 (2009), 982–1013.
- [6] F. Belardinelli, A. Lomuscio, and F. Patrizi. 2012. An Abstraction Technique for the Verification of Artifact-Centric Systems. In *Proceedings of the 13th International Conference on Principles of Knowledge Representation and Reasoning (KR12)*. AAAI Press, 319–328.
- [7] F. Belardinelli, A. Lomuscio, and F. Patrizi. 2014. Verification of Agent-based Artifact Systems. *Journal of Artificial Intelligence Research* 51 (2014), 333–376.
- [8] R. Bloem, S. Jacobs, A. Khalimov, I. Konnov, S. Rubin, H. Veith, and J. Widder. 2015. *Decidability of Parameterized Verification*. Morgan and Claypool Publishers.
- [9] R. H. Bordini, M. Fisher, W. Visser, and M. Wooldridge. 2006. Verifying Multi-agent Programs by Model Checking. *Autonomous Agents and Multi-Agent Systems* 12, 2 (2006), 239–256.
- [10] M. Brambilla, E. Ferrante, M. Birattari, and M. Dorigo. 2013. Swarm robotics: a review from the swarm engineering perspective. *Swarm Intelligence* 7, 1 (2013), 1–41.
- [11] D. Calvanese, M. Montali, and G. Delzanno. 2015. Verification of Relational Multiagent Systems with Data Types. In *Proceedings of the 19th AAAI Conference on Artificial Intelligence (AAAI15)*. AAAI Press, 2031–2037.
- [12] K. Chatterjee, T. Henzinger, and N. Piterman. 2007. Strategy Logic. In *Proceedings of the 18th International Conference on Concurrency Theory (CONCUR07)*, Vol. 4703. 59–73.
- [13] M. de Oca, E. Ferrante, A. Scheidler, Carlo C. Pinciroli, M. Birattari, and M. Dorigo. 2011. Majority-rule opinion dynamics with differential latency: a mechanism for self-organized collective decision-making. *Swarm Intelligence* 5, 3–4 (2011), 305–327.
- [14] J. Ezekiel, A. Lomuscio, L. Molnar, and S. Veres. 2011. Verifying fault tolerance and self-diagnosability of an autonomous underwater vehicle. In *Proceedings of the 22nd International Joint Conference on Artificial Intelligence (IJCAI11)*. AAAI Press, 1659–1664.
- [15] R. Fagin, J. Y. Halpern, Y. Moses, and M. Y. Vardi. 1995. *Reasoning about Knowledge*. MIT Press, Cambridge.
- [16] P. Gammie and R. van der Meyden. 2004. MCK: Model Checking the Logic of Knowledge. In *Proceedings of 16th International Conference on Computer Aided Verification (CAV04) (Lecture Notes in Computer Science)*, Vol. 3114. Springer, 479–483.
- [17] W. van der Hoek and M. Wooldridge. 2002. Tractable multiagent planning for epistemic goals. In *Proceedings of the First International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS02)*. ACM Press, 1167–1174.
- [18] M. Kacprzak, W. Nabialek, A. Niewiadomski, W. Penczek, A. Pólrola, M. Szreter, B. Woźna, and A. Zbrzezny. 2008. VerICS 2007 - a Model Checker for Knowledge and Real-Time. *Fundamenta Informaticae* 85, 1 (2008), 313–328.
- [19] P. Kouvaros and A. Lomuscio. 2013. A Cutoff Technique for the Verification of Parameterised Interpreted Systems with Parameterised Environments. In *Proceedings of the 23rd International Joint Conference on Artificial Intelligence (IJCAI13)*. AAAI Press, 2013–2019.
- [20] P. Kouvaros and A. Lomuscio. 2015. Verifying Emergent Properties of Swarms. In *Proceedings of the 24th International Joint Conference on Artificial Intelligence (IJCAI15)*. AAAI Press, 1083–1089.
- [21] P. Kouvaros and A. Lomuscio. 2016. Parameterised Verification for Multi-Agent Systems. *Artificial Intelligence* 234 (2016), 152–189.
- [22] P. Kouvaros and A. Lomuscio. 2017. Verifying Fault-tolerance in Parameterised Multi-Agent Systems. In *Proceedings of the 24th International Joint Conference on Artificial Intelligence (IJCAI17)*. AAAI Press, 288–294.
- [23] P. Kouvaros, A. Lomuscio, and E. Pirovano. 2018. Symbolic Synthesis of Fault-Tolerance Ratios in Parameterised Multi-Agent Systems. In *Proceedings of the 27th International Joint Conference on Artificial Intelligence and 23rd European Conference on Artificial Intelligence (IJCAI-ECAI18)*. IJCAI, 324–330.
- [24] A. Lomuscio, W. Penczek, and H. Qu. 2010. Partial order reduction for model checking interleaved multi-agent systems. *Fundamenta Informaticae* 101, 1–2 (2010), 71–90.
- [25] A. Lomuscio, H. Qu, and F. Raimondi. 2017. MCMAS: A Model Checker for the Verification of Multi-Agent Systems. *Software Tools for Technology Transfer* 19, 1 (2017), 9–30.
- [26] A. Lomuscio, H. Qu, and M. Solanki. 2008. Towards verifying compliance in agent-based web service compositions. In *Proceedings of the 7th International Conference on Autonomous Agents and Multi-Agent systems (AAMAS08)*. IFAAMAS Press, 265–272.
- [27] R. Mayr. 2003. Undecidable problems in unreliable computations. *Theoretical Computer Science* 297, 1 (2003), 337–354.
- [28] MCMAS-OP. 2019. Model Checking Multi-Agent Systems (OPen), <http://vas.doc.ic.ac.uk/software/extensions>. (2019).
- [29] F. Mogavero, A. Murano, and M. Vardi. 2010. Reasoning About Strategies. In *Proceedings of the 30th IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS10)*, Vol. 8. Schloss Dagstuhl, 133–144.
- [30] K. Namjoshi and R. Trefler. 2015. Analysis of dynamic process networks. In *International Conference on Tools and Algorithms for the Construction and Analysis of Systems*. Springer, 164–178.
- [31] A. S. Rao. 1996. AgentSpeak(L): BDI Agents Speak Out in a Logical Computable Language. In *Proceedings of the 7th European Workshop on Modelling Autonomous Agents in a Multi-Agent World (MAAMAW96) (LNCS)*, Vol. 1038. Springer-Verlag, 42–55.
- [32] E. Sahin, T. H. Labella, V. Trianni, J. L. Deneubourg, P. Rasse, D. Floreano, L. Gambardella, F. Mondada, S. Nolfi, and M. Dorigo. 2002. SWARM-BOT: pattern formation in a swarm of self-assembling mobile robots. In *IEEE International Conference on Systems, Man and Cybernetics*, Vol. 4. IEEE Press.
- [33] P. Schnoebelen. 2010. Lossy Counter Machines Decidability Cheat Sheet. In *Proceedings of the 4th International Conference on Reachability Problems (RP10) (Lecture Notes in Computer Science)*, Vol. 6227. Springer, 51–75.
- [34] P. Sewell. 2001. Pi Calculus. In *Formal Methods for Distributed Processing, A Survey of Object Oriented Approaches*, H. Bowman and J. Derrick (Eds.). Cambridge University Press, Chapter 9, 177–197.
- [35] V. Trianni, R. Grob T. H. Labella, E. Şahin, M. Dorigo, and J. L. Deneubourg. 2012. *Modeling pattern formation in a swarm of self-assembling robots*. Technical Report TR/IRIDIA/2002-12. Université Libre de Bruxelles.
- [36] M. Venkatraman and M. P. Singh. 1999. Verifying Compliance with Commitment Protocols. *Autonomous Agents and Multi-Agent Systems* 2, 3 (1999), 217–236.