Curriculum Vitae

Stefano Mariani

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1 Contact information

- Name and surname: Stefano Mariani
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2 Abilitazione Scientifica Nazionale

Abilitazione Scientifica Nazionale¹ in ERC panel code 09/H1 starting 14/04/2021, ending 14/04/2030 (earned in ASN 2018-2020, VI term).

3 Positions

- Research grant in the Department of Science and Methods of Engineering of the University of Modena and Reggio Emilia from 16/11/2021 (current position)
- Post-doc researcher in the Department of Science and Methods of Engineering of the University of Modena and Reggio Emilia from 7/11/2016 to 6/11/2019, renewed from 7/11/2019 to 6/11/2021 (maximum renewal allowed)
- Research grant in the Department of Computer Science and Engineering of the University of Bologna from 1/5/2016 to 6/11/2016 (quit due to incompatibility with post-doc research grant)
- PhD grant in the Department of Computer Science and Engineering of the University of Bologna from 1/1/2013 to 31/12/2015
- Research grant in the Department of Computer Science and Engineering of the University of Bologna from 5/4/2012 to 31/12/2012 (quit due to incompatibility with PhD grant)

¹Italian peculiar "license" to take jobs as Associate Professor in Italian Universities, more info (in Italian, though) at: https://www.miur.gov.it/abilitazione-scientifica-nazionale.

4 Education

- PhD in Computer Science ("Doctor Europaeus") achieved on 12/5/2016 at the University of Bologna with thesis "Coordination Issues in Complex Socio-technical Systems: Self-organisation of Knowledge in MoK"
- Master degree in Computer Science Engineering achieved at the University of Bologna with thesis "Molecules of Knowledge: a new approach to knowledge production, management and consumption"

5 Scientific activity

My research activity is rooted in the area of coordination models and languages, multi-agent systems, and self-organising systems. It then evolves in design and application of specific coordination models to pervasive and socio-technical systems, in particular in the broad domain of the Internet of Things vision. Such an interest also leaned towards analysis and exploitation of blockchain as a distributed computing and coordination infrastructure, and towards analysis and exploitation of logic programming as a tool to spread "intelligence" in pervasive systems. In recent times, still within the perspective of coordinating distributed agents in achieving collective goals, my research activity moved towards causal discovery and reasoning, and (multi-agent) reinforcement learning of communication means and coordination protocols. Last but not least, my involvement in "CONNECARE" European H2020 project made me interested in data analysis and machine learning, specifically aimed at designing decision support systems in the healthcare domain.

5.1 Participation in and coordination of competitive projects

5.1.1 Coordination of

International:

- European project "Personalised Connected Care for Complex Chronic Patients" (CONNECARE), EU H2020-RIA (contract number 689802) from 7/11/2016 to 6/11/2019, task leader for:
 - Task 3.4 "Screening and risk stratification DSS", aimed at design of a decision support system for health risk assessment and stratification of complex chronic patients
 - Task 3.5 "Mapping DSS", aimed at design of a decision support system for geolocalisation of complex chronic patients and visualisation on map depending on health risk assessed
 - Task 3.6 "Self-adaptive Clinical Pathways CDSS", aimed at design of a decision support system for automated suggestion of personalised clinical interventions
 - Task 4.6 "Recommender system for self-management", aimed at design of a software for the automated sending of motivational messages to complex chronic patients regarding their adherence to medical prescriptions, with the goal of improving and keeping engagement

and responsible of deliverables:

- D3.2 "First Screening and Risk Stratification DSS"
- D3.4 "Stratification and Mapping DSS"
- D3.5 "Self-Adaptive Clinical Pathways CDSS"
- D4.6 "Recommender System for Self-management"
- European project "Self-aware Pervasive Service Ecosystems" (SAPERE), FP7-ICT-2009.8.5: Self-awareness in Autonomic Systems (contract number 256873) from 5/4/2012 to 31/12/2012

National:

- Italian Project "Fluidware" PRIN 2017 from 7/11/2019 to date, leader of task 3.1 "Methodology" of WP3 "Software engineering"
- Department Project FAR "Sviluppo di un Sistema Personalizzato a Supporto della Mobilità Urbana tramite Smartphone e Droni" (Development of a personalised system) from 1/3/2017 to 30/6/2018

5.1.2 Participation in

International:

- European project "Big Speech data analytics for contact centres" (BI-SON), EU H2020-IA (contract number 645323) from 2/5/2016 to 1/11/2016
- European project "Self-aware Pervasive Service Ecosystems" (SAPERE), FP7-ICT-2009.8.5: Self-awareness in Autonomic Systems (contract number 256873) from 5/4/2012 to 31/12/2012

National:

• Department project FAR "Sviluppo di un Sistema Personalizzato a Supporto della Mobilità Urbana tramite Smartphone e Droni" from 1/3/2017to 30/6/2018

5.2Visiting researcher

Visiting researcher from 1/4/2014 to 30/6/2014 by the Distributed Systems Group of the Technical University of Wien, Austria², to collaborate with Prof. Schahram Dustdar and Prof. Hong-Linh Truong on "Coordination-aware Elasticity". Outcomes of the visiting period has been a joint publication³ and new functionalities for the rSYBL software supporting deployment elasticity in the $cloud^4$.

Collaboration with other national and international 5.3research centres

International:

- Collaboration with the Institut d'Investigacions Biomediques August Pi i Sunyer, Hospital Clinic de Barcelona, and Center for Biomedical Network Research in Respiratory Diseases, Madrid, Spain to develop a machine learning pipeline for clinical risk prediction within decision support systems
- Collaboration with the eHealth Unit of Eurecat research centre, Barcellona (Spagna), to develop micro-services supporting telemedicine

²http://www.infosys.tuwien.ac.at/index.html

³http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=7027526 ⁴http://github.com/tuwiendsg/rSYBL/tree/coordination

• Collaboration with the Distributed Systems Group of the Technical University of Wien, Austria⁵, with Prof. Schahram Dustdar and Prof. Hong-Linh Truong on "Coordination-aware Elasticity"

National:

- Prof. Giuseppe Vizzari, Dipartimento di Informatica, Sistemistica e Comunicazione of the Università degli Studi di Milano-Bicocca, on agentoriented engineering of ambient intelligence systems
- Prof. Giancarlo Fortino, Dipartimento di Informatica, Modellistica, Elettronica e Sistemistica of the Università della Calabria, on software architectures and services for the development of agent-oriented systems in the Internet of Things

5.4 Invited talks

Invited speaker at the international conference "Software Technologies: Applications and Foundations" (STAF 2018), later published on Lecture Notes in Computer Science, vol 11176, Springer ("Coordination of Complex Socio-Technical Systems: Challenges and Opportunities").

Invited seminars:

- Picone Marco, Mariani Stefano: "Edge Digital Twins on MEC Software Architectures." Intel Converged Edge Meetup. Online, 08/09/2021.
- Mariani, Stefano: "The quest towards coordination from distributed to socio-technical systems." *Research seminar "AI: from tutorials to hands on*". Namur, Belgium, 06/12/2019.
- Mariani, Stefano: "Spatial Multi-Agent Systems." 18th European Agent Systems Summer School. Catania, Italy, 28/07/2016.
- Mariani, Stefano: "Advanced Coordination Techniques: Experiments with TuCSoN and ReSpecT." Mobile and Distributed Programming course, Faculty of Computer Science, University of Namur. Namur, Belgium, 28/04/2016.
- Mariani, Stefano: "Molecules of Knowledge: Self-Organisation in Knowledge-Intensive Environments." Distributed Systems Group, TU Wien. Wien, Austria, 29/04/2014.

5.5 Awards

Best paper award:

 Marco Gambelli, Stefano Mariani, Giacomo Cabri, Franco Zambonelli: *Combining Coordination Strategies for Autonomous Vehicles in Intersec- tion Networks*. 14th Internation Symposium on Intelligent Distributed Computing, Online, 16-18/09/2021.

⁵http://www.infosys.tuwien.ac.at/index.html

- Roberta Calegari, Giovanni Ciatto, Stefano Mariani, Enrico Denti, Andrea Omicini: *Micro-Intelligence for the IoT: SE Challenges and Practice in LPaaS*. International Conference on Cloud Engineering, Orlando, FL, USA, 17–20/04/2018.
- Stefano Mariani: On the "Local-to-Global" Issue in Self-Organisation: Chemical Reactions with Custom Kinetic Rates. Fundamentals of Collective Adaptive Systems Workshop, Eighth IEEE International Conference on Self-Adaptive and Self-Organizing Systems, London, UK, 08– 12/09/2014.

Winner of hackaton "DroidCon2020 MEC hackaton" (https://it.droidcon. com/2020/hackathon/).

5.6 Editorial activities

Conference and workshop organisation:

- EDAS co-chair of the international conference "21st International Conference on Pervasive Computing and Communications", Atlanta, USA, 13-17/3/2023 (https://www.percom.org/organizing-committee/)
- co-chair of the international workshop "XIII Workshop on Agents Applied in Healthcare", Online, 4/5/2021 (https://a2hc2021.github.io/committees/)
- co-chair of the international workshop "International Workshop on Healthcare Intelligent Multi-Agent Systems", Online, 8/5/2020 (https://apice. unibo.it/xwiki/bin/view/HIMAS2020/Organizers)

Editorial committee member:

• American Journal of Engineering and Applied Sciences, Science Publications

Guest-editor:

- "Autonomous Agents and Multi-Agent Systems Applied in Healthcare", Electronics, MDPI (2021, ISSN 2079-9292)
- "Advances in Multi-Agent Systems", Applied Sciences, MDPI (2021, ISSN 2076-3417)
- "Multi-Agent Systems 2019", Applied Sciences, MDPI (2019, ISSN 2076-3417)
- "Multi-Agent Systems", Applied Sciences, MDPI (2018, ISSN 2076-3417)

Program committee member:

- 2023 IEEE Consumer Communications & Networking Conference
- Fourth International IEEE Workshop on Social (Media) Sensing
- 23rd Workshop "From Objects to Agents"

- 15th International Symposium on Intelligent Distributing Computing
- Coordination, Organisations, Institutions, and Norms at the 21st International Conference on Autonomous Agents and Multiagent Systems
- 14th International Symposium on Intelligent Distributed Computing
- 20th International Conference on Autonomous Agents and Multiagent Systems
- 22nd Workshop "From Objects to Agents"
- 3rd International Congress on Blockchain and Applications
- Eleventh International Conference on Cloud Computing, GRIDs, and Virtualization
- 2nd International Congress on Blockchain and Applications
- 1st workshop on Architectures, Languages and Paradigms for IoT
- 14th IEEE International Conference on Networking, Sensing and Control
- 19th Workshop "From Objects to Agents"
- 17th Workshop "From Objects to Agents"

Reviewer:

- AAAI Conference on Artificial Intelligence (AAAI)
- Springer Journal of Medical Systems
- Pervasive and Mobile Computing, Elsevier, ISSN: 1574-1192
- ACM Transactions on Autonomous and Adaptive Systems (TAAS)
- International Conference on Autonomous Agents and Multiagent Systems
- International Joint Conferences on Artificial Intelligence (IJCAI)
- IEEE Internet of Things Journal
- Artificial Intelligence in Medicine, Elsevier, ISSN: 0933-3657
- Science of Computer Programming, Elsevier, ISSN: 0167-6423

5.7 Conference presentations

- T24 30th IEEE International Conference on Enabling Technologies: Infrastructure for Collaborative Enterprises (WETICE). Online, 27–29/10/2021. Mariani, Stefano: "An Adaptive Approach for the Coordination of Autonomous Vehicles at Intersections."
- T23 10th International Symposium On Leveraging Applications of Formal Methods, Verification and Validation (ISOLA). Online, 25–29/10/2021. Mariani, Stefano: "Degrees of Autonomy in Coordinating Collectives of Self-Driving Vehicles."

- T22 14th International Symposium on Intelligent Distributed Computing (IDC). Online, 16/9/2021. Mariani, Stefano: "Combining Coordination Strategies for Autonomous Vehicles in Intersection Networks."
- T21 XIII International Workshop on Agents Applied in Healthcare (A2HC). Online, 04/05/2021. Mariani, Stefano: "Augmenting BDI agency with a Cognitive Service: general architecture and validation in healthcare domain."
- T20 XVII International Workshop on Context and Activity Modeling and Recognition (CoMoReA). Online, 22/03/2021. Mariani, Stefano: "Developing a "Sense of Agency" in IoT Systems: Preliminary Experiments in a Smart Home Scenario."
- T19 12th International Conference on Internet and Distributed Computing Systems. Napoli, Italy, 10–12/10/2019. Mariani, Stefano: "Argumentationbased Coordination in IoT: a Speaking Objects Proof-of-Concept."
- **T18** 32nd IEEE International Symposium on Computer-Based Medical Systems. Cordoba, Spain, 05–07/0672019. Mariani, Stefano: "Risk Prediction as a Service: a DSS architecture promoting interoperability and collaboration."
- **T17** 16th International Workshop on Foundations of Coordination Languages and Self-Adaptative Systems. Toulouse, France, 26/06/2018. Mariani, Stefano: "Coordination of Complex Socio-technical Systems: Challenges and Opportunities."
- T16 20th International Conference on Coordination Models and Languages. Madrid, Spain, 18–22/06/2018. Mariani, Stefano: "Twenty Years of Coordination Technologies: State-of-the-Art and Perspectives."
- T15 11th International Symposium on Intelligent Distributed Computing. Belgrade, Serbia, 12/10/2017. Mariani, Stefano: "Programming the Interaction Space Effectively with ReSpecTX."
- T14 2017 IEEE/WIC/ACM International Conference on Web Intelligence. Leipzig, Germany, 23–26/08/2017. Mariani, Stefano: "Nature-inspired Coordination: Current Status and Research Trends."
- **T13** XIV Conference of the Italian Association for Artificial Intelligence. Ferrara, Italy, 23–25/09/2015. Mariani, Stefano: "Anticipatory Coordination in Socio-technical Knowledge-intensive Environments: Behavioural Implicit Communication in MoK."
- T12 17th International Conference on Coordination Models and Languages. Grenoble, France, 02–05/06/2015. Mariani, Stefano: "Blending Event-Based and Multi-Agent Systems around Coordination Abstractions."
- T11 Collective Adaptive Systems: Qualitative and Quantitative Modelling and Analysis. Dagstuhl, Germany, 14–19/12/2014. Mariani, Stefano: "Stochastic Coordination in CAS: Expressiveness & Predictability."

- T10 Fundamentals of Collective Adaptive Systems. London, UK, 08/09/2014. Mariani, Stefano: "On the "Local-to-Global" Issue in Self-Organisation: Chemical Reactions with Custom Kinetic Rates."
 - T9 8th International Symposium on Intelligent Distributed Computing. Madrid, Spain, 03–05/09/2014. Mariani, Stefano: "Models of Autonomy and Coordination: Integrating Subjective & Objective Approaches in Agent Development Frameworks."
 - T8 14th Workshop "From Objects to Agents". Torino, Italy, 02–03/12/2013. Mariani, Stefano: "Parameter Engineering vs. Parameter Tuning: the Case of Biochemical Coordination in MoK."
 - T7 Workshop on Agent Based Computing: From Model to Implementation X. Koblenz, Germany, 16–17/09/2013. Mariani, Stefano: "Event-driven Programming for Situated MAS with ReSpecT Tuple Centres."
- T6 15th International Conference on Coordination Models and Languages. Florence, Italy, 03–06/06/2013. Mariani, Stefano: "Probabilistic Modular Embedding for Stochastic Coordinated Systems."
- **T5** Spatial Computing Workshop. Saint Paul, Minnesota, USA, 06/05/2013. Mariani, Stefano: "Promoting Space-Aware Coordination: ReSpecT as a Spatial-Computing Virtual Machine."
- T4 Social Coordination: Principles, Artifacts and Theories Symposium at the AISB Annual Convention. Exeter, UK, 03–05/04/2013. Mariani, Stefano: "MoK: Stigmergy Meets Chemistry to Exploit Social Actions for Coordination Purposes."
- T3 28th ACM Symposium on Applied Computing. Coimbra, Portugal, 21/03/2013. Mariani, Stefano: "Probabilistic Embedding: Experiments with Tuplebased Probabilistic Languages."
- T2 6th International Symposium on Intelligent Distributed Computing. Calabria, Italy, 25/09/2012. Mariani, Stefano: "Molecules of Knowledge: Self-Organisation in Knowledge-Intensive Environments."
- T1 1st International Workshop on Adaptive Service Ecosystems: Natural and Socially Inspired Solutions. Lyon, France, 10/09/2012. Mariani, Stefano: "Self-Organising News Management: The Molecules of Knowledge Approach."

5.8 Software development

Created / contributed software:

- Client Java for "Open Network Edge Services Software APIs" toolkit developed by Intel to enable access to MEC infrastructure in 5G cellular networks: https://github.com/openness-4-java
- Machine Learning pipeline for clinical risk prediction within a clinical decision support system, and to provide personalised treatment suggestions, WP3 of European project H2020 "CONNECARE": https://gitlab. com/SteMore/umcg-data-exploration

- Decision support system for patient monitoring, WP3 of European project H2020 "CONNECARE": https://github.com/s-mariani/settimo-tentativo-ufficiale
- Decision support system for clinical risk prediction, WP3 of European project H2020 "CONNECARE":
 - "learning mode": https://github.com/AgentGroup/Connecare-Learning
 - "plugin mode": https://bitbucket.org/agentgroup/cdss-scala/
- Recommender System for WP4 of European project H2020 "CONNECARE": https://bitbucket.org/agentgroup/rs-physical-activity/
- MoK coordination middleware: http://apice.unibo.it/xwiki/bin/view/ MoK/WebHome (source repository: https://bitbucket.org/smariani/mok-projects/ src/master/)
- TuCSoN coordination middleware: http://apice.unibo.it/xwiki/bin/ view/TuCSoN/WebHome
- ReSpecT coordination language, distributed (open source) as part of TuC-SoN coordination middleware: http://apice.unibo.it/xwiki/bin/view/ ReSpecT/WebHome

6 Teaching activity

Course responsibility:

- "Emerging IT Technologies: Blockchains and Autonomous Systems" (12 hours), Ph.D course "Industrial innovation engineering", University of Modena and Reggio Emilia, 2020, and 2021 (https://www.iii.unimore.it/site/home/courses/year-2020.html)
- "Fondamenti di Programmazione" (6 CFU), bachelor degree in management engineering (D.M.270/04), University of Modena and Reggio Emilia, academic years 2019/2020, 2020/2021, 2021/2022, 2021, 2023 (current position)
- "Fondamenti di Informatica" (9 CFU), bachelor degree in management engineering (D.M.270/04), University of Modena and Reggio Emilia, academic years 2016/2017, 2017/2018, and 2018/2019
- "Programmazione Concorrente e Distribuita" (3 CFU), master degree in Computer Science Engineering, ALMA MATER STUDIORUM–University of Bologna, academic year 2011/2012
- "Sistemi Distribuiti" (3 CFU), master degree in Computer Science Engineering, ALMA MATER STUDIORUM–University of Bologna, academic year 2012/2013

Other teaching activities:

• Regional "Corsi di Istruzione e Formazione Tecnica Superiore":

- IFTS "Tecnico del disegno e progettazione industriale specializzato in smart manufacturing" (2018/2019): learning modules "Internet of Things" (8 hours) and "Cloud computing" (8 hours)
- IFTS "Tecniche per la progettazione e lo sviluppo di applicazioni informatiche" (2015/2016): learning module "Sistemi Informatici e loro Gestione" (20 hours)
- Supervisor and co-supervisor of several bachelor and master theses (https://smarianimore.github.io/students/)

7 Institutional activity

- Committee member of the Ph.D course "Industrial innovation engineering", University of Modena and Reggio Emilia (https://www.iii.unimore. it/site/home/teaching-board.html)
- TOLC (test to enroll in closed number Universities) committee member, University of Modena and Reggio Emilia, from academic year 2016/2017 to academic year 2020/2021
- Committee member for testing Italian language knowledge of incoming foreign students, University of Modena and Reggio Emilia, from academic year 2016/2017 to academic year 2020/2021

8 Publications

List of publications categorised by venue and sorted most recent first.

8.1 Monographs

M1 Mariani, Stefano. 2016. "Coordination of Complex Sociotechnical Systems: Self-organisation of Knowledge in MoK." Artificial Intelligence: Foundations, Theory, and Algorithms, Springer International Publishing. Hardcover ISBN: 978-3-319-47108-2 (234 pages).

8.2 Peer-reviewed international journals

- R20 Ricci, Alessandro; Croatti, Angelo; Mariani, Stefano; Montagna, Sara; Picone, Marco. 2021. "Web of Digital Twins". ACM Transactions on Internet Technology, just accepted (https://doi.org/10.1145/3507909).
- R19 Pianini, Danilo; Casadei, Roberto; Viroli, Mirko; Mariani, Stefano; Zambonelli, Franco. 2021. "Time-Fluid Field-Based Coordination through Programmable Distributed Schedulers" EPIsciences Logical Methods in Computer Science Volume 17, Issue 4 (pages 1–48).
- R18 Montagna, Sara; Mariani, Stefano; Gamberini, Emiliano. 2021. "Augmenting BDI Agency with a Cognitive Service: Architecture and Validation in Healthcare Domain." Springer *Journal of Medical Systems* 45, 103 (pages 1–10).

- R17 Mariani, Stefano; Metting, Esther; Lahr, Maarten M. H.; Vargiu, Eloisa; Zambonelli, Franco. 2021. "Developing an ML pipeline for asthma and COPD: The case of a Dutch primary care service." Wiley International Journal of Intelligent Systems 36 (pages 6763–6790.
- R16 Mariani, Stefano; Cabri, Giacomo; Zambonelli, Franco. 2021. "Coordination of Autonomous Vehicles: Taxonomy and Survey." ACM Computing Surveys 54, no. 1: 19 (pages 1–33).
- R15 Ciatto, Giovanni; Mariani, Stefano; Omicini, Andrea; Zambonelli, Franco. 2020. "From Agents to Blockchain: Stairway to Integration." MDPI Applied Sciences 10, no. 21: 7460 (pages 1–22).
- R14 Ciatto, Giovanni; Mariani, Stefano; Di Marzo Serugendo, Giovanna; Louvel, Maxime; Omicini, Andrea; Zambonelli, Franco. 2020. "Twenty years of coordination technologies: COORDINATION contribution to the state of art." Elsevier Journal of Logical and Algebraic Methods in Programming 113, no. 100531 (pages 1–25).
- R13 Montagna, Sara; Mariani, Stefano; Gamberini, Emiliano; Ricci, Alessandro; Zambonelli, Franco. 2020. "Complementing Agents with Cognitive Services: A Case Study in Healthcare." Springer *Journal of Medical Systems* 44, no. 188 (pages 1–10).
- R12 Ciatto, Giovanni; Mariani, Stefano; Maffi, Alfredo; Omicini, Andrea. 2020. "Blockchain-Based Coordination: Assessing the Expressive Power of Smart Contracts." MDPI Information 11, no. 1: 52 (pages 1–20).
- R11 Mamei, Marco; Bicocchi, Nicola; Lippi, Marco; Mariani, Stefano; Zambonelli, Franco. 2019. "Evaluating Origin–Destination Matrices Obtained from CDR Data." MDPI Sensors 19, no. 20: 4470 (pages 1–17).
- R10 Mariani, Stefano. 2019. "Coordination in Socio-technical Systems: Where are we now? Where do we go next?" Elsevier Science of Computer Programming 184: 102317 (pages 1–15).
- R9 Calegari, Roberta; Denti, Enrico; Mariani, Stefano; Omicini, Andrea. 2019. "Logic programming as a service in multi-agent systems for the Internet of Things." Inderscience International Journal of Grid and Utility Computing 10, no. 4 (pages 344–360).
- R8 Calegari, Roberta; Ciatto, Giovanni; Mariani, Stefano; Denti, Enrico; Omicini, Andrea. 2018. "LPaaS as Micro-Intelligence: Enhancing IoT with Symbolic Reasoning." MDPI Big Data & Cognitive Computing 2, no. 3: 23 (pages 1–26).
- R7 Ricci, Alessandro; Viroli, Mirko; Omicini, Andrea; Mariani, Stefano; Croatti, Angelo; Pianini, Danilo. 2018. "Spatial Tuples: Augmenting Reality with Tuples." Elsevier *Expert Systems* 35: e12273 (pages 1–31).
- R6 Calegari, Roberta; Denti, Enrico; Mariani, Stefano; Omicini, Andrea. 2018. "Logic Programming as a Service." Cambridge University Press Theory and Practice of Logic Programming 18, no. 5-6 (pages 846–873).

- R5 Ciatto, Giovanni; Mariani, Stefano; Omicini, Andrea. 2018. "ReSpecTX: Programming interaction made easy." ComSIS Consortium Computer Science and Information Systems 15, 3 (pages 655–682).
- R4 Lippi, Marco; Mamei, Marco; Mariani, Stefano; Zambonelli, Franco. 2017. "An Argumentation-Based Perspective Over the Social IoT." IEEE Internet of Things Journal 5, no. 4 (pages 2537–2547).
- R3 Zambonelli, Franco; Omicini, Andrea; Anzengruber, Bernhard; Castelli, Gabriella; De Angelis, Francesco L.; Di Marzo Serugendo, Giovanna; Dobson, Simon; Fernandez-Marquez, Jose Luis; Ferscha, Alois; Mamei, Marco; Mariani, Stefano; Molesini, Ambra; Montagna, Sara; Nieminen, Jussi; Pianini, Danilo; Risoldi, Matteo; Rosi, Alberto; Stevenson, Graeme; Viroli, Mirko; Yee, Juan. 2015. "Developing pervasive multi-agent systems with nature-inspired coordination." Elsevier *Pervasive and Mobile Computing* 17: Part B (pages 236–252).
- R2 Mariani, Stefano; Omicini, Andrea. 2015. "Coordinating activities and change." Elsevier Engineering Application of Artificial Intelligence 41, C (pages 298–309).
- R1 Mariani, Stefano; Omicini, Andrea. 2014. "Coordination Mechanisms for the Modelling and Simulation of Stochastic Systems: The Case of Uniform Primitives." Society for Modeling & Simulation International *Modeling & Simulation Magazine* IV, no. 3 (pages 6–25).

8.3 Peer-reviewed international conference and workshop proceedings

- C42 Casadei, Roberto; Mariani, Stefano; Pianini, Danilo; Viroli, Mirko; Zambonelli, Franco. 2022. "Space-Fluid Adaptive Sampling: A Field-Based, Self-organising Approach." 17th International Federated Conference on Distributed Computing Techniques (DisCoTec), Lucca, Italy, 13–17/06/2022. Springer, Lecture Notes in Computer Science 13271 (pages 99–117).
- C41 Gambelli, Marco; Mariani, Stefano; Cabri, Giacomo; Zambonelli, Franco. 2022. "Combining Coordination Strategies for Autonomous Vehicles in Intersections Networks." 14th International Symposium on Intelligent Distributed Computing (IDC), Online, 16–18/09/2021. Springer Studies in Computational Intelligence 1026 (pages 147–157).
- C40 Glorio, Nicholas; Mariani, Stefano; Cabri, Giacomo; Zambonelli, Franco. 2021. "An Adaptive Approach for the Coordination of Autonomous Vehicles at Intersections." IEEE 30th International Conference on Enabling Technologies: Infrastructure for Collaborative Enterprises (WETICE), Bayonne, France, 27–29/10/2021. IEEE Proceedings (pages 1–6).
- C39 Picone, Marco; Mariani, Stefano; Mamei, Marco; Zambonelli, Franco; Berlier, Mirko. 2021. "WIP: Preliminary Evaluation of Digital Twins on MEC Software Architecture." 22nd IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM), Online, 7–11/06/2021. *IEEE*, Proceedings (pages 256–259).

- C38 Lippi, Marco; Mariani, Stefano; Zambonelli, Franco. 2021. "Developing a "Sense of Agency" in IoT Systems: Preliminary Experiments in a Smart Home Scenario." 17th Workshop on Context and Activity Modeling and Recognition (CoMoReA), Online, 22/03/2021. *IEEE* PerCom Workshops 2021: 44-49 (pages 44–49).
- C37 Mariani, Stefano; Zambonelli, Franco. 2020. "Degrees of Autonomy in Coordinating Collectives of Self-Driving Vehicles." International Symposium on Leveraging Applications of Formal Methods, Rhodes, Greece, 20– 30/10/2020. Leveraging Applications of Formal Methods, Verification and Validation: Engineering Principles, Springer Lecture Notes in Computer Science 12477 (pages 189–204).
- C36 Pianini, Danilo; Mariani, Stefano; Viroli, Mirko; Zambonelli, Franco. 2020. "Time-Fluid Field-Based Coordination." International Conference on Coordination Languages and Models, Valletta, Malta, 15–19/06/2020. Coordination Models and Languages, Springer Lecture Notes in Computer Science 12134 (pages 193–210).
- C35 Ciatto, Giovanni; Maffi, Alfredo; Mariani, Stefano; Omicini, Andrea. 2019. "Smart Contracts are More than Objects: Pro-activeness on the Blockchain." International Congress on Blockchain and Applications, Avila, Spain, 26–28/06/2019. Blockchain and Applications, Springer Advances in Intelligent Systems and Computing 1010 (pages 45–53).
- C34 Mariani, Stefano; Croatti, Angelo; Ricci, Alessandro; Prati, Andrea; Vizzari, Giuseppe. 2019. "ViTALiSE: Virtual to Augmented Loop in Smart Environments." 18th International Conference on Autonomous Agents and MultiAgent Systems, Montreal, Canada, 13–17/05/2019. International Foundation for Autonomous Agents and Multiagent Systems, Proceedings (pages 2114–2116).
- C33 Mariani, Stefano; Casadei, Roberto; Fornari, Fabrizio; Fortino, Giancarlo; Pianini, Danilo; Re, Barbara; Russo, Wilma; Savaglio, Claudio; Viroli, Mirko; Zambonelli, Franco. 2019. "Case studies for a new IoT programming paradigm: Fluidware." 1st Workshop on Artificial Intelligence and Internet of Things, Rende, Italy, 22/11/2019. Sun SITE Central Europe, RWTH Aachen University, CEUR Workshop Proceedings 2502 (pages 82– 96).
- C32 Ciatto, Giovanni; Bosello, Michael; Mariani, Stefano; Omicini, Andrea. 2019. "Comparative Analysis of Blockchain Technologies under a Coordination Perspective." International Conference on Practical Applications of Agents and Multi-Agent Systems, Avila, Spain, 26–28/06/2019. Highlights of Practical Applications of Survivable Agents and Multi-Agent Systems, The PAAMS Collection. Springer Communications in Computer and Information Science 1047 (pages 80–91).
- C31 Ciatto, Giovanni; Rizzato, Lorenzo; Omicini, Andrea; Mariani, Stefano. 2019. "TuSoW: Tuple Spaces for Edge Computing." 28th International Conference on Computer Communication and Networks, Valencia, Spain, 29/97–01/08/2019. *IEEE*, Proceedings (pages 1–6).

- C30 Mariani, Stefano; Zambonelli, Franco; Tenyi, Akos; Cano, Isaac; Roca, Josep. 2019. "Risk Prediction as a Service: a DSS architecture promoting interoperability and collaboration." 32nd International Symposium on Computer-Based Medical Systems, Cordoba, Spain, 05–07/06/2019. *IEEE*, Proceedings (pages 300–305).
- C29 Mariani, Stefano; Bicego, Andrea; Lippi, Marco; Mamei, Marco; Zambonelli, Franco. 2019. "Argumentation-Based Coordination in IoT: A Speaking Objects Proof-of-Concept." International Conference on Internet and Distributed Computing Systems, Napoli, Italy, 10–12/10/2019. Internet and Distributed Computing Systems, Springer Lecture Notes in Computer Science 11874 (pages 169–180).
- C28 Ciatto, Giovanni; Maffi, Alfredo; Mariani, Stefano; Omicini, Andrea. 2019. "Towards Agent-oriented Blockchains: Autonomous Smart Contracts." International Conference on Practical Applications of Agents and Multi-Agent Systems, Avila, Spain, 26–28/06/2019. Advances in Practical Applications of Survivable Agents and Multi-Agent Systems, The PAAMS Collection. Springer Lecture Notes in Computer Science 11523 (pages 29–41).
- C27 Pianini, Danilo; Ciatto, Giovanni; Casadei, Roberto; Mariani, Stefano; Viroli, Mirko; Omicini, Andrea. 2018. "Transparent Protection of Aggregate Computations from Byzantine Behaviours via Blockchain." 4th EAI International Conference on Smart Objects and Technologies for Social Good, Bologna, Italy, 28–30/11/2018. ACM, Proceedings (pages 271–276).
- C26 Ciatto, Giovanni; Mariani, Stefano; Omicini, Andrea. 2018. "Blockchain for Trustworthy Coordination: A First Study with Linda and Ethereum." IEEE/WIC/ACM International Conference on Web Intelligence, Santiago, Cile, 03/12/2018. *IEEE*, Proceedings (pages 696–703).
- C25 Lippi, Marco; Mamei, Marco; Mariani, Stefano; Zambonelli, Franco. 2018. "Distributed Speaking Objects: a Case for Massive Multiagent Systems." International Workshop on Massively Multiagent Systems II, Stockholm, Sweden, 14/07/2018. Massively Multi-Agent Systems II, Springer Lecture Notes in Computer Science 11422 (pages 3–20).
- C24 Ciatto, Giovanni; Mariani, Stefano; Omicini, Andrea; Zambonelli, Franco; Louvel, Maxime. 2018. "Twenty Years of Coordination Technologies: State-of-the-Art and Perspectives." International Conference on Coordination Languages and Models, Madrid, Spain, 18–21/06/2019. Coordination Models and Languages, Springer Lecture Notes in Computer Science 10852 (pages 51–80).
- C23 Mariani, Stefano. 2018. "Coordination of Complex Socio-technical Systems: Challenges and Opportunities." Federation of International Conferences on Software Technologies: Applications and Foundations, Toulouse, France, 25–29/06/2018. Software Technologies: Applications and Foundations, Springer Lecture Notes in Computer Science 11176 (pages 295–310).
- C22 Calegari, Roberta; Ciatto, Giovanni; Mariani, Stefano; Denti, Enrico; Omicini, Andrea. 2018. "Micro-intelligence for the IoT: SE Challenges

and Practice in LPaaS." International Conference on Cloud Engineering, Orlando, FL, USA, 17–20/04/2018. *IEEE*, Proceedings (pages 292–297).

- C21 Fernandez, Juan Manuel; Mamei, Marco; Mariani, Stefano; Miralles, Felip; Steblin, Alexander; Vargiu, Eloisa; Zambonelli, Franco. 2017. "Towards Argumentation-based Recommendations for Personalised Patient Empowerment." 2nd International Workshop on Health Recommender Systems, Como, Italy, 27–31/08/2017. ACM, Proceedings (pages 374-375).
- C20 Calegari, Roberta; Denti, Enrico; Mariani, Stefano; Omicini, Andrea. 2017. "Logic Programming as a Service (LPaaS): Intelligence for the IoT." 14th International Conference on Networking, Sensing and Control, Calabria, Italy, 16–18/05/2017. *IEEE*, Proceedings (pages 72–77).
- C19 Lippi, Marco; Mamei, Marco; Mariani, Stefano; Zambonelli, Franco. 2017. "Coordinating Distributed Speaking Objects." 37th International Conference on Distributed Computing Systems, Atlanta, USA, 05–08/06/2017. *IEEE*, Proceedings (pages 1949–1960).
- C18 Ricci, Alessandro; Viroli, Mirko; Omicini, Andrea; Mariani, Stefano; Croatti, Angelo; Pianini, Danilo. 2017. "Spatial Tuples: Augmenting Physical Reality with Tuple Spaces." 10th International Symposium on Intelligent Distributed Computing, Paris, France, 10–12/10/2016. Intelligent Distributed Computing X, Springer Studies in Computational Intelligence 678 (pages 121–130).
- C17 Ciatto, Giovanni; Mariani, Stefano; Omicini, Andrea. 2017. "Programming the Interaction Space Effectively with ReSpecTX." International Symposium on Intelligent and Distributed Computing, Paris, France, 10– 12/10/2017. Intelligent Distributed Computing XI, Springer Studies in Computational Intelligence 737 (pages 89–101).
- C16 Mariani, Stefano; Omicini, Andrea. 2015. "Anticipatory Coordination in Socio-technical Knowledge-intensive Environments: Behavioural Implicit Communication in MoK." XIVth International Conference of the Italian Association for Artificial Intelligence, Ferrara, Italy, 23–25/09/2015. Advances in Artificial Intelligence, Springer Lecture Notes in Computer Science 9336 (pages 102–115).
- C15 Omicini, Andrea; Fortino, Giancarlo; Mariani, Stefano. 2015. "Blending Event-Based and Multi-Agent Systems around Coordination Abstractions." International Conference on Coordination Languages and Models, Grenoble, France, 02–04/06/2015. Coordination Models and Languages, Springer Lecture Notes in Computer Science 9037 (pages 186–193).
- C14 Omicini, Andrea; Mariani, Stefano. 2015. "Reconciling Event- and Agent-Based Paradigms in the Engineering of Complex Systems: The Role of Environment Abstractions." 4th International Workshop E4MAS, Paris, France, 06/05/2014. Agent Environments for Multi-Agent Systems IV, Springer Lecture Notes in Computer Science 9068 (pages 117–130).

- C13 Mariani, Stefano; Omicini, Andrea; Sangiorgi, Luca. 2015. "Models of Autonomy and Coordination: Integrating Subjective & Objective Approaches in Agent Development Frameworks." 8th International Symposium on Intelligent Distributed Computing, Madrid, Spain, 3–5/09/2014. Intelligent Distributed Computing VIII, Springer Studies in Computational Intelligence 570 (pages 69–79).
- C12 Mariani, Stefano; Truong, Hong-Linh; Copil, Georgiana; Omicini, Andrea; Dustdar, Schahram. 2014. "Coordination-aware Elasticity." IEEE/ACM 7th International Conference on Utility and Cloud Computing, London, UK, 8–11/12/2014. *IEEE*, Proceedings (pages 465–472).
- C11 Mariani, Stefano; Omicini, Andrea. 2014. "Coordination in Situated Systems: Engineering MAS Environment in TuCSoN." 7th International Conference on Internet and Distributed Computing Systems, Calabria, Italy, 22–24/09/2014. Internet and Distributed Computing Systems, Springer Lecture Notes in Computer Science 8729 (pages 99–110).
- C10 Mariani, Stefano. 2014. "On the "Local-to-Global" Issue in Self-Organisation: Chemical Reactions with Custom Kinetic Rates." Eighth IEEE International Conference on Self-Adaptive and Self-Organizing Systems Workshops, London, UK, 08–12/09/2014. *IEEE*, Proceedings (pages 61–67).
- C9 Mariani, Stefano; Omicini, Andrea. 2013. "Probabilistic Embedding: Experiments with Tuple-based Probabilistic Languages." 28th ACM Symposium on Applied Computing, Coimbra, Portugal, 18–22/03/2013. ACM, Proceedings (pages 1380–1382).
- C8 Mariani, Stefano; Omicini, Andrea. 2013. "Coordination for Situated MAS: Towards an Event-driven Architecture." International Workshop on Petri Nets and Software Engineering, Milano, Italy, 24–25/06/2013. Sun SITE Central Europe, RWTH Aachen University, CEUR Workshop Proceedings 989 (pages 17–22).
- C7 Mariani, Stefano; Omicini, Andrea. 2013. "Promoting Space-Aware Coordination: ReSpecT as a Spatial-Computing Virtual Machine." 6th International Spatial Computing Workshop, Saint Paul, Minnesota, USA, 06/05/2013. International Foundation for Autonomous Agents and Multiagent Systems, Proceedings (pages 29–34).
- C6 Mariani, Stefano; Omicini, Andrea. 2013. "Probabilistic Modular Embedding for Stochastic Coordinated Systems." 15th International Conference on Coordination Languages and Models, Florence, Italy, 3–6/06/2013. Coordination Models and Languages, Springer Lecture Notes in Computer Science 7890 (pages 151–165).
- C5 Mariani, Stefano; Omicini, Andrea. 2013. "MoK: Stigmergy Meets Chemistry to Exploit Social Actions for Coordination Purposes." Social Coordination: Principles, Artifacts and Theories Symposium at the AISB Annual Convention, Exeter, UK, 03–05/04/2013. The Society for the Study of Artificial Intelligence and the Simulation of Behaviour, Proceedings (pages 50–57).

- C4 Mariani, Stefano; Omicini, Andrea. 2013. "TuCSoN on Cloud: An Eventdriven Architecture for Embodied / Disembodied Coordination." 13th International Conference on Algorithms and Architectures for Parallel Processing, Vietri sul Mare, Italy, 18–20/12/2013. Algorithms and Architectures for Parallel Processing, Springer Lecture Notes in Computer Science 8286 (pages 285–294).
- C3 Mariani, Stefano; Omicini, Andrea. 2013. "Molecules of Knowledge: Self-Organisation in Knowledge-Intensive Environments." 6th International Symposium on Intelligent Distributed Computing, Calabria, Italy, 24–26/09/2012. Intelligent Distributed Computing VI, Springer Studies in Computational Intelligence 446 (pages 17–22).
- C2 Mariani, Stefano; Omicini, Andrea. 2013. "Event-driven Programming for Situated MAS with ReSpecT Tuple Centres." 11th German Conference on Multi-Agent System Technologies, Koblenz, Germany, 16-20 September 2013. Multiagent System Technologies, Springer Lecture Notes in Computer Science 8076 (pages 306–319).
- C1 Mariani, Stefano; Omicini, Andrea. 2012. "Self-Organising News Management: The Molecules of Knowledge Approach." Sixth International Conference on Self-Adaptive and Self-Organizing Systems Workshops, Lyon, France, 10/09/2012. *IEEE*, Proceedings (pages 11–16).

8.4 Peer-reviewed national conference and workshop proceedings

- CN12 Ciatto, Giovanni; Calegari, Roberta; Mariani, Giovanni; Denti, Enrico; Omicini, Andrea. 2018. "From the Blockchain to Logic Programming and Back: Research Perspectives." 19th Workshop "From Objects to Agents", Palermo, Italy, 28–29/06/2018. Sun SITE Central Europe, RWTH Aachen University, CEUR Workshop Proceedings 2215 (pages 69–74).
- CN11 Calegari, Roberta; Ciatto, Giovanni; Mariani, Giovanni; Denti, Enrico; Omicini, Andrea. 2018. "Logic Programming in Space-Time: The Case of Situatedness in LPaaS." 19th Workshop "From Objects to Agents", Palermo, Italy, 28–29/06/2018. Sun SITE Central Europe, RWTH Aachen University, CEUR Workshop Proceedings 2215 (pages 63–68).
- CN10 Mariani, Stefano; Omicini, Andrea; Ciatto, Giovanni. 2017. "Novel Opportunities for Tuple-based Coordination: XPath, the Blockchain, and Stream Processing." 18th Workshop "From Objects to Agents", Scilla (RC), Italy, 15–17/06/2017. Sun SITE Central Europe, RWTH Aachen University, CEUR Workshop Proceedings 1867 (pages 61–64).
 - CN9 Calegari, Roberta; Denti, Enrico; Mariani, Stefano; Omicini, Andrea. 2016. "Towards Logic Programming as a Service: Experiments in tuProlog." 17th Workshop "From Objects to Agents", Catania, Italy, July 29–30/07/2016. Sun SITE Central Europe, RWTH Aachen University, CEUR Workshop Proceedings 1664 (pages 79–84).

- CN8 Mariani, Stefano; Omicini, Andrea. 2016. "Game Engines to Model MAS: A Research Roadmap." 17th Workshop "From Objects to Agents", Catania, Italy, July 29–30/07/2016. Sun SITE Central Europe, RWTH Aachen University, CEUR Workshop Proceedings 1664 (pages 106–111).
- CN7 Mariani, Stefano; Omicini, Andrea. 2016. "Multi-paradigm Coordination for MAS: Integrating Heterogeneous Coordination Approaches in MAS Technologies." 17th Workshop "From Objects to Agents", Catania, Italy, July 29–30/07/2016. Sun SITE Central Europe, RWTH Aachen University, CEUR Workshop Proceedings 1664 (pages 91–99).
- CN6 Mariani, Stefano; Omicini, Andrea. 2014. "TuCSoN Coordination for MAS Situatedness: Towards a Methodology." XV Workshop "From Objects to Agents", Catania, Italy, 24–26/09/2014. Sun SITE Central Europe, RWTH Aachen University, CEUR Workshop Proceedings 1260 (pages 62–71).
- CN5 Mariani, Stefano; Omicini, Andrea. 2013. "Tuple-based Coordination of Stochastic Systems with Uniform Primitives." 14th Workshop "From Objects to Agents", Torino, Italy, 2–3/12/2013. Sun SITE Central Europe, RWTH Aachen University, CEUR Workshop Proceedings 1099 (pages 8– 15).
- CN3 Mariani, Stefano; Omicini, Andrea. 2013. "Space-aware Coordination in ReSpecT." 14th Workshop "From Objects to Agents", Torino, Italy, 02– 03/12/2013. Sun SITE Central Europe, RWTH Aachen University, CEUR Workshop Proceedings 1099 (pages 1–7).
- CN2 Mariani, Stefano. 2013. "Parameter Engineering vs. Parameter Tuning: the Case of Biochemical Coordination in MoK." 14th Workshop "From Objects to Agents", Torino, Italy, 02–03/12/2013. Sun SITE Central Europe, RWTH Aachen University, CEUR Workshop Proceedings 1099 (pages 16–23).
- CN1 Mariani, Stefano; Omicini, Andrea. 2012. "Molecules of Knowledge: A Novel Perspective over Knowledge Management." Doctoral Consortium of the 12th Symposium of the Italian Association for Artificial Intelligence, Roma, Italy, 15/06/2012. Sun SITE Central Europe, RWTH Aachen University, CEUR Workshop Proceedings 926 (pages 23–27).

8.5 Invited papers and editorials

- A7 Mariani, Stefano; Omicini, Andrea. 2020. "Special Issue "Multi-Agent Systems": Editorial." MDPI Applied Sciences 9(5) (pages 1–6).
- A6 Vaughan, Neil; Vargiu, Eloisa; Mariani, Stefano; Montagna, Sara; Schumacher, Michael I. 2020. "Guest Editorial: Healthcare Intelligent Multi Agent Systems." Journal of Medical Systems 44(138) (pages 1–2).
- A5 Mariani, Stefano; Vargiu, Eloisa; Mamei, Marco; Zambonelli, Franco; Miralles, Felip. 2019. "Deliver intelligence to integrate care: the Connecare way." *International Journal of Integrated Care* 19(4) (pages 176).

- A4 Mariani, Stefano; Omicini, Andrea. 2019. "Special Issue "Multi-Agent Systems": Editorial." MDPI Applied Sciences 9(5) (pages 1–9).
- A3 Garro, Alfredo; Mühlhäuser, Max; Tundis, Andrea; Mariani, Stefano; Omicini, Andrea; Vizzari, Giuseppe. 2019. "Intelligent Agents and Environment." Reference Module in Life Sciences, *Encyclopedia of Bioinformatics and Computational Biology*, Volume 1 (pages 309–314).
- A2 Mariani, Stefano: Omicini, Andrea. 2017. "State-of-the-Art and Trends in Nature-inspired Coordination Models." *IEEE Intelligent Informatics Bulletin* 18(2) (pages 35–40).
- A1 Omicini, Andrea; Mariani, Stefano. 2013. "Agents & multiagent systems: En route towards complex intelligent systems." IOS Press Intelligenza Artificiale 7, no. 2 (pages 153–164).

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