



Samuele Burattini

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Employment History

- May 2026 – Present  **External Collaborator** Alma Human AI Research Center – Alma Mater Studiorum – Università di Bologna
Project: “Development of fairness-aware models and tools (including AI techniques) for the socio-demographic extension of the Urban Digital Twin of the city of Bologna.”
- Feb 2026 – Present  **Adjunct Professor** Alma Mater Studiorum – Università di Bologna
Teaching “Industry 4.0” in the Master’s Degree Program in Digital Transformation Management.
- Nov 2025 – Jul 2026  **Research Fellow** Alma Mater Studiorum – Università di Bologna
Project: “Digital Twins Ecosystems in the Edge-Cloud Continuum”
- Nov 2022 – Oct 2025  **Ph.D. Student** Alma Mater Studiorum – Università di Bologna
Funded by the European Union through the National Recovery and Resilience Plan (NRRP), M4C2, in collaboration with Azienda Unica Sanitaria Locale della Romagna.
- 2023 – 2026  **Module Teacher (Yearly Contract)** FORMart
Industry 4.0 module for the course “Tecnico del Disegno e Progettazione Industriale specializzato in Smart Manufacturing”.
- Sep 2024 – Nov 2024  **Multi-Agent Systems Module Demonstrator** University College Dublin
Assisted practical sessions of COMP41400 Multi-Agent Systems; teaching MAS programming with Astra.
- May 2022 – Nov 2022  **Research Fellow** Alma Mater Studiorum – Università di Bologna
Project: “Tracking for Care”

Education

- 2022 – 2025  **Ph.D., University of Bologna** Computer Science and Engineering
Thesis Title: *Digital Twins Ecosystems for Intelligent Applications in Healthcare*.
Advisor: Prof. Alessandro Ricci;
- 2019 – 2022  **Master Degree, University of Bologna** in Computer Science and Engineering
Thesis title: *Agent Oriented End-User Programming for the Web of Things*.
- 2016 – 2019  **Bachelor Degree, University of Bologna** in Computer Science and Engineering
Thesis title: *Multi-platform Mixed Reality: implementation of an interoperability layer for the augmented worlds framework MiRAgE*.

Other Experiences

Awards and Achievements

- 2025  **Best Paper Award**, XIX Workshop-Escola de Sistemas de Agentes, seus Ambientes e Aplicações (WESAAC 2025)
- 2024  **Best Paper Award**, 12th International Workshop on Engineering Multi-Agent (EMAS 2024)

Other Experiences (continued)

Editorial Roles

- 2025  **Guest Editor**, Elsevier Future Generation Computer Systems Special Issue on “Digital Twin Ecosystems Engineering & Applications”

Organization Roles

- 2027  **Organising Committee**, 3rd International Workshop on Digital Twins Ecosystems and Applications (DIGITA) - colocated with the IEEE International Conference on Pervasive Computing and Communications (PerCom)
- 2026  **Organising Committee**, 2nd International Workshop on Digital Twins Ecosystems and Applications (DIGITA) - colocated with the IEEE International Conference on Pervasive Computing and Communications (PerCom)
- 2025  **Organising Committee**, 1st International Workshop on Digital Twins Ecosystems and Applications (DIGITA) - colocated with the IEEE International Conference on Pervasive Computing and Communications (PerCom)
- 2024  **Organising Committee**, 21st European Conference on Multi-Agent Systems (EUMAS 2024)

PC Member

- 2027  1st International Workshop on Software Engineering for Mission-Critical and Autonomous Systems: from Earth to Outer Space (CASE2Space 2027) - colocated with the International Conference on Software Engineering (ICSE)
-  The 26th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2027)
- 2026  14th International Workshop on Engineering Multi-Agent Systems (EMAS 2026) - colocated with the International Conference on Autonomous Agents and Multiagent Systems (AAMAS)
- 2025  2nd International Workshop on Hypermedia Multi-Agent Systems (HyperAgents) - colocated with European Conference on Artificial Intelligence (ECAI)
-  1st International Workshop on Human-AI Collaborative Systems (HAIC) - colocated with European Conference on Artificial Intelligence (ECAI)
-  International Conference on Agents and Artificial Intelligence (ICAART)
-  International Conference on Practical applications of Agents and Multi-Agent Systems (PAAMS)
- 2024  International Conference on Practical applications of Agents and Multi-Agent Systems (PAAMS)

International Experiences

-  **Research Period Abroad** - (Aug – Nov) University College Dublin, Dublin, Ireland
-  **Research Period Abroad** - (Jan – Apr) Ecole des Mines de Saint-Étienne, Saint-Étienne, France
- 2021  **Master Thesis** - (Sep – Dec) University of St. Gallen, St. Gallen, Switzerland

Skills

- Languages  Italian, English (C1 IELTS Certificate)
- Coding  *Proficient in:* Java, C# , JavaScript – *Knows also:* Python, Kotlin
- Misc.  Academic Research, Teaching, Team-work, Event Planning

Publications

Journal Articles

-  A. Giulianelli, **S. Burattini**, A. Ciortea, and A. Ricci, "Hypermedia-based digital twin ecosystems: A proposal for digital twin interoperability," *Future Gener. Comput. Syst.*, vol. 177, p. 108 219, 2026. [DOI: 10.1016/J.FUTURE.2025.108219](#)
-  **S. Burattini**, S. Mariani, S. Montagna, M. Picone, and A. Ricci, "Distributing intelligent functionalities in the internet of things with agents and digital twins," *Internet Things*, vol. 31, p. 101 560, 2025. [DOI: 10.1016/J.IOT.2025.101560](#)
-  A. Giulianelli, **S. Burattini**, A. Ciortea, and A. Ricci, "Hwodt framework: A toolchain to build interoperable digital twin ecosystems," *SoftwareX*, vol. 31, p. 102 275, 2025, ISSN: 2352-7110. [DOI: 10.1016/j.softx.2025.102275](#)
-  J. F. Hübner, **S. Burattini**, A. Ricci, and S. Mayer, "Reflexive anticipatory reasoning by BDI agents," *Auton. Agents Multi Agent Syst.*, vol. 39, no. 1, p. 7, 2025. [DOI: 10.1007/S10458-025-09687-8](#)
-  E. Yan, **S. Burattini**, J. F. Hübner, and A. Ricci, "A multi-level explainability framework for engineering and understanding BDI agents," *Auton. Agents Multi Agent Syst.*, vol. 39, no. 1, p. 9, 2025. [DOI: 10.1007/S10458-025-09689-6](#)
-  M. Baiardi, **S. Burattini**, G. Ciatto, and D. Pianini, "Blending BDI agents with object-oriented and functional programming with jakta," *SN Comput. Sci.*, vol. 5, no. 8, p. 1003, 2024. [DOI: 10.1007/S42979-024-03244-Y](#)
-  G. Ramanathan et al., "Semantic knowledge for autonomous smart farming," *IFAC-PapersOnLine*, vol. 55, no. 32, pp. 217–222, 2022, 7th IFAC Conference on Sensing, Control and Automation Technologies for Agriculture AGRICONTROL 2022, ISSN: 2405-8963. [DOI: 10.1016/j.ifacol.2022.11.142](#)

Conference Proceedings

-  K. Beaumont, E. Yan, and **S. Burattini**, "Engineering inter-agent explainability in bdi agents," in *Explainable, Trustworthy, and Responsible AI and Multi-Agent Systems: 7th International Workshop, EXTRAAMAS 2025, Detroit, MI, USA, May 19–20, 2025, Revised Selected Papers*, Springer Nature, 2025, p. 147.
-  **S. Burattini**, M. Baiardi, G. Ciatto, D. Pianini, et al., "The gap between bdi agents and semantic hypermedia and what we can do about it," in *CProceedings of the Second International Workshop on Hypermedia Multi-Agent Systems (HyperAgents 2025) co-located with 28th European Conference on Artificial Intelligence (ECAI 2025)*, CEUR-WS, vol. 4084, 2025, pp. 18–27.
-  M. Castellucci et al., "Towards agents' embodiment in hypermedia multi-agent systems," in *Multi-Agent Systems*, R. Collier, A. Ricci, V. Nallur, **S. Burattini**, and A. Omicini, Eds., Cham: Springer Nature Switzerland, 2025, pp. 361–381, ISBN: 978-3-031-93930-3.
-  G. Ciatto, G. Aguzzi, R. Battistini, M. Baiardi, **S. Burattini**, and A. Ricci, "Exploiting genai for plan generation in bdi agents," in *ECAI 2025*, IOS Press, 2025, pp. 3495–3502. [DOI: 10.3233/FAIA251223](#)
-  M. Fogli, G. Mazziotta, **S. Burattini**, M. Picone, C. Giannelli, and C. Stefanelli, "Cyber-physical interaction engineering of industrial digital twin ecosystems," in *2025 21st International Conference on Distributed Computing in Smart Systems and the Internet of Things (DCOSS-IoT)*, 2025, pp. 420–427. [DOI: 10.1109/DCOSS-IoT65416.2025.00073](#)
-  J. Hübner, **S. Burattini**, A. Ricci, and S. Mayer, "Anticipatory thinking in multi-agent contexts," in *Anais do XIX Workshop-Escola de Sistemas de Agentes, seus Ambientes e Aplicações*, Fortaleza/CE: SBC, 2025, pp. 1–12. [DOI: 10.5753/wesaac.2025.37525](#)
-  M. Martinelli, A. Barbone, R. Morandi, M. Picone, **S. Burattini**, and A. Ricci, "Modular engineering of industrial digital twins: The wldt approach," in *2025 21st International Conference on Distributed Computing in Smart Systems and the Internet of Things (DCOSS-IoT)*, 2025, pp. 451–458. [DOI: 10.1109/DCOSS-IoT65416.2025.00077](#)

-  M. Picone, M. Martinelli, **S. Burattini**, A. Giulianelli, and A. Ricci, "The two faces of interoperability: Bridging cyber and physical spaces with digital twins," in *2025 21st International Conference on Distributed Computing in Smart Systems and the Internet of Things (DCOSS-IoT)*, 2025, pp. 1–8.  DOI: 10.1109/DCOSS-IoT65416.2025.00078
-  M. Picone et al., "Harmonizing physical and digital twins lifecycles," in *22nd IEEE International Conference on Software Architecture, ICSA - Companion, Odense, Denmark, March 31 - April 4, 2025*, IEEE, 2025, pp. 197–204.  DOI: 10.1109/ICSA-C65153.2025.00039
-  M. Baiardi, **S. Burattini**, G. Ciatto, D. Pianini, A. Omicini, and A. Ricci, "Concurrency model of BDI programming frameworks: Why should we control it?" In *Proceedings of the 23rd International Conference on Autonomous Agents and Multiagent Systems, AAMAS 2024, Auckland, New Zealand, May 6-10, 2024*, M. Dastani, J. S. Sichman, N. Alechina, and V. Dignum, Eds., International Foundation for Autonomous Agents and Multiagent Systems / ACM, 2024, pp. 2147–2149.  DOI: 10.5555/3635637.3663089
-  M. Baiardi, **S. Burattini**, G. Ciatto, D. Pianini, A. Ricci, and A. Omicini, "On the external concurrency of current BDI frameworks for MAS," in *Engineering Multi-Agent Systems - 12th International Workshop, EMAS 2024, Auckland, New Zealand, May 6-7, 2024, Revised Selected Papers*, D. Briola, R. C. Cardoso, and B. Logan, Eds., ser. Lecture Notes in Computer Science, vol. 15152, Springer, 2024, pp. 42–63.  DOI: 10.1007/978-3-031-71152-7_3
-  A. Barbone, **S. Burattini**, M. Martinelli, M. Picone, A. Ricci, and A. Viridis, "Digital twin continuum: A key enabler for pervasive cyber-physical environments," in *33rd International Conference on Computer Communications and Networks, ICCCN 2024, Kailua-Kona, HI, USA, July 29-31, 2024*, IEEE, 2024, pp. 1–9.  DOI: 10.1109/ICCCN61486.2024.10637565
-  **S. Burattini**, A. Zimmermann, M. Picone, and A. Ricci, "Towards linked data for ecosystems of digital twins," in *Proceedings of the ACM/IEEE 27th International Conference on Model Driven Engineering Languages and Systems, MODELS Companion 2024, Linz, Austria, September 22-27, 2024*, M. Wimmer, A. Egyed, B. Combemale, and M. Chechik, Eds., ACM, 2024, pp. 332–337.  DOI: 10.1145/3652620.3688245
-  **S. Burattini** et al., "A digital twins approach for oncologic pharmaceutical supply chain," in *IEEE International Conference on Pervasive Computing and Communications Workshops and other Affiliated Events, PerCom 2024 - Workshops, Biarritz, France, March 11-15, 2024*, IEEE, 2024, pp. 94–99.  DOI: 10.1109/PERCOMWORKSHOPS59983.2024.10502569
-  A. Giulianelli, **S. Burattini**, A. Ciortea, and A. Ricci, "Engineering interoperable ecosystems of digital twins: A web-based approach," in *Proceedings of the ACM/IEEE 27th International Conference on Model Driven Engineering Languages and Systems, MODELS Companion 2024, Linz, Austria, September 22-27, 2024*, M. Wimmer, A. Egyed, B. Combemale, and M. Chechik, Eds., ACM, 2024, pp. 476–485.  DOI: 10.1145/3652620.3688263
-  D. Pianini, M. Baiardi, **S. Burattini**, and G. Ciatto, "Multi-paradigm integration for the BDI resurgence," in *IEEE International Conference on Autonomic Computing and Self-Organizing Systems, ACSOS 2024 - Companion, Aarhus, Denmark, September 16-20, 2024*, IEEE, 2024, pp. 27–28.  DOI: 10.1109/ACSOS-C63493.2024.00025
-  A. Ricci, **S. Burattini**, A. Ciortea, and M. Castellucci, "Agents for DDD - back and forth," in *Engineering Multi-Agent Systems - 12th International Workshop, EMAS 2024, Auckland, New Zealand, May 6-7, 2024, Revised Selected Papers*, D. Briola, R. C. Cardoso, and B. Logan, Eds., ser. Lecture Notes in Computer Science, vol. 15152, Springer, 2024, pp. 175–188.  DOI: 10.1007/978-3-031-71152-7_11
-  A. Ricci, S. Mariani, F. Zambonelli, **S. Burattini**, and C. Castelfranchi, "The cognitive hourglass: Agent abstractions in the large models era," in *Proceedings of the 23rd International Conference on Autonomous Agents and Multiagent Systems, AAMAS 2024, Auckland, New Zealand, May 6-10, 2024*, M. Dastani,

J. S. Sichman, N. Alechina, and V. Dignum, Eds., *International Foundation for Autonomous Agents and Multiagent Systems* / ACM, 2024, pp. 2706–2711. [DOI: 10.5555/3635637.3663262](#)



M. Baiardi, **S. Burattini**, G. Ciatto, and D. Pianini, “Jakta: BDI agent-oriented programming in pure kotlin,” in *Multi-Agent Systems - 20th European Conference, EUMAS 2023, Naples, Italy, September 14-15, 2023, Proceedings*, V. Malvone and A. Murano, Eds., ser. *Lecture Notes in Computer Science*, vol. 14282, Springer, 2023, pp. 49–65. [DOI: 10.1007/978-3-031-43264-4_4](#)



S. Burattini, “Supporting adaptive multi-agent systems with digital twins environments,” in *Multi-Agent Systems - 20th European Conference, EUMAS 2023, Naples, Italy, September 14-15, 2023, Proceedings*, V. Malvone and A. Murano, Eds., ser. *Lecture Notes in Computer Science*, vol. 14282, Springer, 2023, pp. 445–451. [DOI: 10.1007/978-3-031-43264-4_30](#)



S. Burattini, A. Ciortea, M. Galassi, and A. Ricci, “Towards framing the agents & artifacts conceptual model at the knowledge level: First ideas and experiments,” in *Engineering Multi-Agent Systems - 11th International Workshop, EMAS 2023, London, UK, May 29-30, 2023, Revised Selected Papers*, A. Ciortea, M. Dastani, and J. Luo, Eds., ser. *Lecture Notes in Computer Science*, vol. 14378, Springer, 2023, pp. 208–219. [DOI: 10.1007/978-3-031-48539-8_14](#)



S. Burattini et al., “An ecosystem of digital twins for operating room management,” in *36th IEEE International Symposium on Computer-Based Medical Systems, CBMS 2023, L'Aquila, Italy, June 22-24, 2023*, J. R. Almeida et al., Eds., IEEE, 2023, pp. 770–775. [DOI: 10.1109/CBMS58004.2023.00317](#)



J. Lemée, **S. Burattini**, S. Mayer, and A. Ciortea, “Domain-expert configuration of hypermedia multi-agent systems in industrial use cases,” in *Proceedings of the 2023 International Conference on Autonomous Agents and Multiagent Systems, AAMAS 2023, London, United Kingdom, 29 May 2023 - 2 June 2023*, N. Agmon, B. An, A. Ricci, and W. Yeoh, Eds., ACM, 2023, pp. 2499–2501. [DOI: 10.5555/3545946.3598981](#)



E. Yan, **S. Burattini**, J. F. Hübner, and A. Ricci, “Towards a multi-level explainability framework for engineering and understanding BDI agent systems,” in *Proceedings of the 24th Workshop "From Objects to Agents", Roma, Italy, November 6-8, 2023*, R. Falcone, C. Castelfranchi, A. Sapienza, and F. Cantucci, Eds., ser. *CEUR Workshop Proceedings*, vol. 3579, CEUR-WS.org, 2023, pp. 216–231. [URL: https://ceur-ws.org/Vol-3579/paper17.pdf](#)