

DAVIDE DOMINI

PhD Student

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EDUCATION

Ph.D. in Computer Science and Engineering

📅 2023–ongoing

📍 Cesena, Italy

[University of Bologna](#)

Supervisor: **Mirko Viroli**

Co-Supervisor: **Danilo Pianini**

Topic: Engineering Cooperative Self-Adaptive Learning in Collective Intelligent Systems

M.Sc. in Computer Science and Engineering

📅 2021–2023

📍 Cesena, Italy

[University of Bologna](#)

110/110 cum Laude

Thesis: Aggregate Computing and Many-Agent Reinforcement Learning: Towards a Hybrid Toolchain

Supervisor: **Mirko Viroli**

Co-Supervisor: **Gianluca Aguzzi**

B.Sc. in Computer Science and Engineering

📅 2018–2021

📍 Cesena, Italy

[University of Bologna](#)

109/110

Thesis: Classification of chest x-ray for Covid-19 diagnosis with Convolutional Neural Networks and Vision Transformer

High School Diploma in Computer Science

📅 2018

📍 Ravenna, Italy

[ITIS "N. Baldini"](#)

88/100

TEACHING EXPERIENCE

Teaching Tutor

📅 2021–ongoing

📍 Cesena, Italy

[University of Bologna](#)

Teaching tutor for more than 10 courses on Computer Principles, Programming, Software Engineering, Machine Learning and Data Mining.

Professor

📅 2022–ongoing

📍 Cesena, Italy

[FITSTIC ITS Academy](#)

Course: Relational Database Systems

Professor

📅 2025–ongoing

📍 Cesena, Italy

[Formart](#)

Course: Artificial Intelligence

PROFESSIONAL SKILLS

Programming Languages

Scala, Java, Kotlin, C, Python, Prolog, SQL, PHP, JavaScript, Matlab, Typescript, Bash

Technologies

Git, L^AT_EX, MEAN Stack, Gradle, Docker, Tensorflow, PyTorch, Colab, Jupyter Notebook, Angular, Android

Programming Paradigms

Object Oriented Programming, Functional Programming, Concurrent & Distributed Programming, Machine Learning & Deep Learning Patterns, Aggregate Programming, Logic Programming, Event Driven Programming

OPEN SOURCE PROJECTS

Non-IID Federated Learning: A collection of Federated Learning trained under different non-IID settings (*Python*)

ScaRLib: A Scala Framework for Cooperative Many Agents Deep Reinforcement Learning (*Scala, Python*)

Racing Simulator: Simple F1 Race Simulator (*Scala, Prolog*)

FOOL: A compiler for FOOL, a functional object-oriented programming language (*Java, ANTRL*)

Covid-19 Classifier: My bachelor thesis. A deep neural network, with vision transformer, trained to discriminate covid-19 from viral pneumonia (*Python*)

Cubic World Simulator: A Multi-threaded 3D game (*Java*)

CERTIFICATIONS

EFSET English Certificate 75/100 (C2 Proficient), EF SET Certificate ID: ZnxRoS

Technologies and platforms for Artificial Intelligence, Politecnico di Milano
ID: 6418ba658b7440bb95ed097e2ee27c83

Introduction to Complexity, Santa Fe Institute ID: 2523594754

Understand Research Methods, University of London - Coursera ID: RTAMXFKQAGWA

JOURNAL PUBLICATIONS

References

- [1] Davide Domini, Gianluca Aguzzi, and Mirko Viroli. “ProFed: a Benchmark for Proximity-based non-IID Federated Learning”. In: *Journal of Open Research Software* 14 (2026). DOI: 10.5334/jors.624. URL: <https://openresearchsoftware.metajnl.com/articles/10.5334/jors.624>.
- [2] Davide Domini et al. “Decentralized proximity-aware clustering for collective self-federated learning”. In: *Internet Things* 35 (2026), p. 101841. DOI: 10.1016/J.IOT.2025.101841. URL: <https://doi.org/10.1016/j.iot.2025.101841>.
- [3] Davide Domini et al. “FBFL: A Field-Based Coordination Approach for Data Heterogeneity in Federated Learning”. In: *Logical Methods in Computer Science* 22 (2026), p. 30. DOI: 10.46298/lmcs-22(1:19)2026. URL: <https://lmcs.episciences.org/17663>.
- [4] Gianluca Aguzzi et al. “Scaling Swarm Coordination with GNNs—How Far Can We Go?” In: *AI* 6 (2025). DOI: 10.3390/ai6110282. URL: <https://www.mdpi.com/2673-2688/6/11/282>.
- [5] Davide Domini et al. “ScaRLib: Towards a hybrid toolchain for aggregate computing and many-agent reinforcement learning”. In: *Sci. Comput. Program.* 238 (2024), p. 103176. DOI: 10.1016/J.SCICO.2024.103176. URL: <https://doi.org/10.1016/j.scico.2024.103176>.

CONFERENCE PUBLICATIONS

References

- [1] Manuel Andruccioli et al. “HarmoniKt: a Unifying Middleware for Heterogeneous Robot Fleets”. In: *23rd Consumer Communications & Networking Conference, CCNC 2026, Las Vegas, NV, USA, January 9-12, 2026*. IEEE, 2026, pp. 1–6. DOI: 10.1109/CCNC65079.2026.11366553. URL: <https://doi.org/10.1109/CCNC65079.2026.11366553>.

- [2] Gianluca Aguzzi et al. “A Demonstrator for Self-organizing Robot Teams”. In: *Coordination Models and Languages - 27th IFIP WG 6.1 International Conference, COORDINATION 2025, Held as Part of the 20th International Federated Conference on Distributed Computing Techniques, DisCoTec 2025, Lille, France, June 17-19, 2025, Proceedings*. Ed. by Cinzia Di Giusto and António Ravara. Vol. 15731. Lecture Notes in Computer Science. Springer, 2025, pp. 230–244. DOI: 10.1007/978-3-031-95589-1_12. URL: https://doi.org/10.1007/978-3-031-95589-1_12.
- [3] Davide Domini et al. “Sparse Self-Federated Learning for Energy Efficient Cooperative Intelligence in Society 5.0”. In: *International Joint Conference on Neural Networks, IJCNN 2025, Rome, Italy, June 30 - July 5, 2025*. IEEE, 2025, pp. 1–8. DOI: 10.1109/IJCNN64981.2025.11228400. URL: <https://doi.org/10.1109/IJCNN64981.2025.11228400>.
- [4] Nicolò Malucelli et al. “Neighbor-Based Decentralized Training Strategies for Multi-Agent Reinforcement Learning”. In: *Proceedings of the 40th ACM/SIGAPP Symposium on Applied Computing, SAC 2025, Catania International Airport, Catania, Italy, 31 March 2025 - 4 April 2025*. Ed. by Jiman Hong et al. ACM, 2025, pp. 1250–1257. DOI: 10.1145/3672608.3707923. URL: <https://doi.org/10.1145/3672608.3707923>.
- [5] Davide Domini et al. “A Reusable Simulation Pipeline for Many-Agent Reinforcement Learning”. In: *28th International Symposium on Distributed Simulation and Real Time Applications, DS-RT 2024, Urbino, Italy, October 7-9, 2024*. IEEE, 2024, pp. 83–90. DOI: 10.1109/DS-RT62209.2024.00021. URL: <https://doi.org/10.1109/DS-RT62209.2024.00021>.
- [6] Davide Domini et al. “Field-Based Coordination for Federated Learning”. In: *Coordination Models and Languages - 26th IFIP WG 6.1 International Conference, COORDINATION 2024, Held as Part of the 19th International Federated Conference on Distributed Computing Techniques, DisCoTec 2024, Groningen, The Netherlands, June 17-21, 2024, Proceedings*. Ed. by Ilaria Castellani and Francesco Tiezzi. Vol. 14676. Lecture Notes in Computer Science. Springer, 2024, pp. 56–74. DOI: 10.1007/978-3-031-62697-5_4. URL: https://doi.org/10.1007/978-3-031-62697-5_4.
- [7] Davide Domini et al. “Proximity-based Self-Federated Learning”. In: *IEEE International Conference on Autonomic Computing and Self-Organizing Systems, ACSOS 2024, Aarhus, Denmark, September 16-20, 2024*. IEEE, 2024, pp. 139–144. DOI: 10.1109/ACSOS61780.2024.00033. URL: <https://doi.org/10.1109/ACSOS61780.2024.00033>.
- [8] Davide Domini et al. “ScaRLib: A Framework for Cooperative Many Agent Deep Reinforcement Learning in Scala”. In: *Coordination Models and Languages - 25th IFIP WG 6.1 International Conference, COORDINATION 2023, Held as Part of the 18th International Federated Conference on Distributed Computing Techniques, DisCoTec 2023, Lisbon, Portugal, June 19-23, 2023, Proceedings*. Ed. by Sung-Shik Jongmans and António Lopes. Vol. 13908. Lecture Notes in Computer Science. Springer, 2023, pp. 52–70. DOI: 10.1007/978-3-031-35361-1_3. URL: https://doi.org/10.1007/978-3-031-35361-1_3.

WORKSHOP PUBLICATIONS

References

- [1] Davide Domini. “Towards Self-Adaptive Cooperative Learning in Collective Systems”. In: *IEEE International Conference on Autonomic Computing and Self-Organizing Systems, ACSOS 2024 - Companion, Aarhus, Denmark, September 16-20, 2024*. IEEE, 2024, pp. 158–160. DOI: 10.1109/ACSOS-C63493.2024.00049. URL: <https://doi.org/10.1109/ACSOS-C63493.2024.00049>.
- [2] Davide Domini et al. “Towards Intelligent Pulverized Systems: a Modern Approach for Edge-Cloud Services”. In: *Proceedings of the 25th Workshop "From Objects to Agents", Bard (Aosta), Italy, July 8-10, 2024*. Ed. by Marco Alderighi et al. Vol. 3735. CEUR Workshop Proceedings. CEUR-WS.org, 2024, pp. 233–251. URL: https://ceur-ws.org/Vol-3735/paper%5C_19.pdf.

MEMBERSHIPS OF SCIENTIFIC SOCIETIES

Member

Institute of Electrical and Electronics Engineers (IEEE)

📅 2024–2026

Member

IEEE Young Professionals

📅 2024–2026

Student Member

IEEE Computational Intelligence Society

📅 2024–2026

Member

Association for Computing Machinery (ACM)

📅 2024–2026

ORGANIZATIONS OF SCIENTIFIC MEETINGS

Social Experience Chair

7th IEEE International Conference of Autonomic Computing and Self-Organizing Systems

📅 2026

Program Committee Member

6th IEEE International Conference of Autonomic Computing and Self-Organizing Systems – Poster and Demos Track

📅 2025

Program Committee Member

The Thirty-Ninth AAAI Conference on Artificial Intelligence

📅 2025

Program Committee Member

45th IEEE International Conference on Distributed Computing Systems Workshops

📅 2025

Program Committee Member

The 26th Workshop From Objects to Agents

📅 2025

Program Committee Member

Symposium on Applied Computing

📅 2025

Program Committee Member

ECOOP 2025 – Artifact Evaluation Track

📅 2025

Program Committee Member

14th International Conference on Formal Methods in Software Engineering – Artifact Evaluation Track

📅 2025

REVIEWING ACTIVITIES

Scientific Reports, Springer Nature

📅 2026

28th International Conference on Coordination Models and Languages

📅 2026

The 2026 IEEE World Congress on Computational Intelligence (WCCI)

📅 2026

AMC Transaction on Internet Technology

📅 2025

Pervasive and Mobile Computing

📅 2025

17th International Conference on Agents and Artificial Intelligence (ICAART)

📅 2025

The Thirty-Ninth AAAI Conference on Artificial Intelligence

📅 2025

45th IEEE International Conference on Distributed Computing Systems

📅 2025

Symposium on Applied Computing (SAC)

📅 2025

International Joint Conference on Neural Networks (IJCNN)

📅 2025

**27th International Conference on Coordination
Models and Languages**

📅 2025

**6th IEEE International Conference on Autonomic
Computing and Self-Organizing Systems**

📅 2025

**The 23rd International Conference on Autonomous
Agents and Multi-Agents Systems**

📅 2024

**T28th International Symposium on Distributed
Simulation and Real Time Applications**

📅 2024

Workshop on Objects and Agents

📅 2024

**26th International Conference on Coordination
Models and Languages**

📅 2024

**5th IEEE International Conference on Autonomic
Computing and Self-Organizing Systems**

📅 2024
