DAVIDE DOMINI

PhD Student

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Cesena, Italy

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"

WORK EXPERIENCE

Teaching Tutor
2021–ongoing — Cesena, Italy

University of Bologna
Courses: Software Engineering & Software Engineering for Intelligent Distributed Systems, Machine Learning Systems for Data Science, Industry 4.0, Laboratory of Big Data, Data Mining and Data Analytics, Computer Science, Digital Design Principles and Computer Architecture

Teacher
2022–ongoing — Cesena, Italy

FITSTIC ITS Academy
Course: Relational Database Systems

Deep Learning Internship
2021 — Cesena, Italy

University of Bologna
Goal: Research for the development of a solution for the recognition of abnormal walking with Deep Convolutional Neural Networks

PROFESSIONAL SKILLS

Programming Languages	Scala, Java, Kotlin, C, Python, Prolog, SQL, PHP, JavaScript, Matlab, Typescript, Bash
Technologies	Git, LaTeX, 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

PUBLICATIONS

[1] Davide Domini, Filippo Cavallari, Gianluca Aguzzi, and Mirko Viroli. Scarlib: A framework for cooperative many agent deep reinforcement learning in scala. In Sung-Shik Jongmans and Antónia Lopes, editors, *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*, volume 13908 of *Lecture Notes in Computer Science*, pages 52–70. Springer, 2023. doi: 10.1007/978-3-031-35361-1_3. URL `https://doi.org/10.1007/978-3-031-35361-1_3`.

[2] Davide Domini, Gianluca Aguzzi, Lukas Esterle, and Mirko Viroli. Field-based coordination for federated learning. In Ilaria Castellani and Francesco Tiezzi, editors, *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*, volume 14676 of *Lecture Notes in Computer Science*, pages 56–74. Springer, 2024. doi: 10.1007/978-3-031-62697-5_4. URL `https://doi.org/10.1007/978-3-031-62697-5_4`.

[3] Davide Domini, Nicolas Farabegoli, Gianluca Aguzzi, Mirko Viroli, and Lukas Esterle. 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. doi: toappear. URL `toappear`.

[4] Davide Domini, Nicolas Farabegoli, Gianluca Aguzzi, and Mirko Viroli. Towards intelligent pulverized systems: a modern approach for edge-cloud services. In *Proceedings of the 25th Workshop "From Objects to Agents", Forte Di Bard, Italy, July 8-10, 2024*, CEUR Workshop Proceedings. CEUR-WS.org, 2024. doi: toappear. URL `toappear`.

[5] Davide Domini, Gianluca Aguzzi, Danilo Pianini, and Mirko Viroli. A reusable simulation pipeline for many-agent reinforcement learning. 28th IEEE/ACM International Symposium on Distributed Simulation and Real Time Applications, DS-RT 2024, Urbino, Italia, Octboer 7-9, 2024. IEEE, 2024. doi: toappear. URL `toappear`.

[6] Davide Domini, Filippo Cavallari, Gianluca Aguzzi, and Mirko Viroli. Scarlib: Towards a hybrid toolchain for aggregate computing and many-agent reinforcement learning. IEEE, 2024. doi: toappear. URL `toappear`.

[7] 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*, pages 158–160. IEEE, 2024. doi: 10.1109/ACSOS-C63493.2024.00049. URL `https://doi.org/10.1109/ACSOS-C63493.2024.00049`.