Leonardo Ciabattini

in LinkedIn   G Google Scholar   R⁶ ResearchGate   ⍾ GitHub

Research Statement

I specialize in advancing artificial intelligence through deep learning and machine learning, with a focus on deploying intelligent systems across the edge-cloud continuum. My research explores how deep learning models can transform data processing pipelines, enabling real-time decision-making and reducing computational overhead in distributed environments. Currently, I am investigating the use of generative deep learning to create and enhance digital twins, enabling predictive analytics and simulation of complex systems. Additionally, I am working on optimizing the deployment of AI models in edge-cloud systems, addressing challenges such as latency, resource constraints, and data heterogeneity to enable scalable, efficient solutions for real-world problems.

Academic Career

Nov 2023 – Current	**Ph.D. "Engineering and Information Technology for Structural and Environmental Monitoring and Risk Management - EIT4SEMM"** at University of Bologna
Apr 2025 – Oct 2025	**Visiting Scholar** at University of California Irvine Research focus: *DNN allocation on the Cloud-Edge Continuum using Graph Models and Generative Deep Learning* - Supervised by Prof. Marco Levorato.
Sep 2018 – Oct 2021	**Master in Management - Grande École - Digital Business Major** at HEC Paris Thesis title: *When technology disrupts distribution channels: what is ahead for the news industry?* - Supervised by Prof. Nicolas Ariza. Grade Point Average: 3.96/4.0
Sep 2015 – Jul 2018	**Bachelor's degree in Management and Marketing** at University of Bologna Thesis title: *The development of a business idea: the FreeCopia case* - Supervised by Prof. Carlo Boschetti. Final Grade: 110/110

Research Publications

Journal Articles

1. **Ciabattini, L.**, Esposito, A., Sciullo, L., Zyrianoff, I., & Di Felice, M. (2025). Rattle: A framework for train characterization and identification through audio fingerprinting. *IEEE Access, 13*, 211901–211920. ⍾ doi:10.1109/ACCESS.2025.3641380

2. Trotta, A., Montori, F., **Ciabattini, L.**, Billi, G., Bononi, L., & Di Felice, M. (2024). Edge human activity recognition using federated learning on constrained devices. *Pervasive and Mobile Computing, 104*, 101972. ⍾ doi:https://doi.org/10.1016/j.pmcj.2024.101972

Conference Proceedings

1. **Ciabattini, L.**, Esposito, A., Moghbelan, Y., Forlesi, M., Bruno, J., Zyrianoff, I., … Bononi, L. (2025). Crosstime: A mobile application for smarter pedestrian navigation and traffic light awareness. In *2025 26th ieee international conference on mobile data management (mdm)* (pp. 1–6). IEEE.

2 **Ciabattini, L.**, Sciullo, L., de Marchi, A., Gigli, L., Bononi, L., & Di Felice, M. (2025). Generative digital twin for predictive modeling in dynamic iot scenarios. In *2025 ieee international conference on smart computing (smartcomp)* (pp. 98–105). IEEE.

3 Forlesi, M., Esposito, A., **Ciabattini, L.**, Sciullo, L., Di Felice, M., Kamali, S., … Marzani, A. (2024, July). An iot-ai toolchain for structural health monitoring. In *2024 ieee international symposium on measurements & networking (m&n)* (pp. 1–6). 🔗 doi:10.1109/MN60932.2024.10615472

4 **Ciabattini, L.**, Sciullo, L., Esposito, A., Zyrianoff, I., & Di Felice, M. (2024, June). Rattle: Train identification through audio fingerprinting. In *2024 ieee international conference on smart computing (smartcomp)* (pp. 47–54). 🔗 doi:10.1109/SMARTCOMP61445.2024.00028

5 Esposito, A., **Ciabattini, L.**, Sciullo, L., Montanari, M., Bononi, L., & Felice, M. D. (2024). Trace analysis of electric micromobility and its application for city sensing. In *2024 28th international symposium on distributed simulation and real time applications (ds-rt)* (pp. 34–41). 🔗 doi:10.1109/DS-RT62209.2024.00015

6 Zyrianoff, I., Gigli, L., Sciullo, L., Forlesi, M., **Ciabattini, L.**, & Di Felice, M. (2024). Leveraging the edge-cloud continuum in structural health monitoring applications. In *2024 cini annual conference on ict for smart cities & communities (i-cities)*.

Book Chapters

1 Esposito, A., Moghbelan, Y., Zyrianoff, I., **Ciabattini, L.**, Montori, F., & Felice, M. (2025, December). Pioneering the hybridization of federated learning in human activity recognition. In *Charting the intelligence frontiers – edge ai systems nexus* (1st, pp. 53–63). 🔗 doi:10.1201/9788743808862-2

Teaching

Institutional Teaching

AY 2025-2026 🔖 **Tutorship** for the Bachelor's Course *Context-Aware Systems (84401)* at University of Bologna, Italy.

🔖 **Tutorship** for the Bachelor's Course *Data Analytics (90733)* at University of Bologna, Italy.

AY 2024-2025 🔖 **Tutorship** for the Bachelor's Course *Data Bases (70155)* at University of Bologna, Italy.

AY 2023-2024 🔖 **Tutorship** for the Bachelor's Course *Data Bases (70155)* at University of Bologna, Italy.

Supervised Students

AY 2025-2026 🔖 **[Co-Supervisor]** Franceschini, G., *Interazione tra Large Language Models e Database Strutturati: un'analisi comparativa in ambito IoT*, University of Bologna, Bachelor in Information Science for Management [L-31]

AY 2024-2025 🔖 **[Co-Supervisor]** Trotta, A., *Analysis and Characterization of Electric Mobility Traces in Selected Italian Cities*, University of Bologna, Bachelor in Information Science for Management [L-31]

Memberships

2023-Current 📇 **IoTPrimsLab**, UNIBO Research laboratory directed by Prof. Marco Di Felice. 🔗 https://iotprismlab.com/

Memberships (continued)

- **IEEE**, Membership number: #100287169

Ph.D Schools

2024 **6th Future-IoT Ph.D. School 2024 – IoT meets Supply Chain**
Paris (France), 30 Sep - 04 Oct 2024. ⬤ https://school.future-iot.org/

Events

- IEEE International Conference on Mobile Data Management (MDM), Irvine, 2 Jun - 5 Jun 2025. *Speaker for a presented paper*.

- IEEE International Conference on Smart Computing (SMARTCOMP), Osaka, 29 Jun - 2 Jul 2024. *Speaker for a presented paper*.

- Vinitaly, Verona, 14 Apr - 17 Apr 2024. *Stand owner and representative*.

- Roma Arte in Nuvola, Rome, 17 Nov - 20 Nov 2022. *Stand owner and representative*.

Non-Academic Employment History

Oct 2023 – Current **Co-founder at Archeion SRL**
Bologna, Italy
Web development, business intelligence.

Sep 2021 – Current **Freelancing**
Software and database migrations; workflow automation; data mining; web development.

Sep 2022 – Sep 2023 **Data Analyst at T.V.G SRLS**
Full remote
Metadata generation for the "Portraits" NFT collection by MIDA; Business planning and financial forecasting; Day to day operations.

Mar 2020 – Sep 2020 **Programme Manager and BI Specialist at Amazon EU SARL**
After Market Services Team
Luxembourg, Luxembourg
Creation of monitoring dashboards tracking delivery and repair KPIs across European warehouses; data engineering and process automation; financial analysis of the whole After Market Services division.

Sep 2019 – Feb 2020 **Customer Journey Expert at ING Bank NV**
Distributed Ledger Technology Team
Amsterdam, Netherlands
Definition of ING's Digital Asset Strategy; created the performance measurement system for the DLT team; launch of a new privacy solution for R3's Corda Blockchain ecosystem based on zero-knowledge set-membership.

Non-Academic Employment History (continued)

May 2019 – Dec 2022   💼   **Co-founder at AnyPrint SRL**
Bologna, Italy
In charge of strategy, business intelligence, business development, customer relationship and marketing.

Feb 2017 – May 2019   💼   **Co-founder at FreeCopia SRL**
Bologna, Italy
In charge of strategy, business intelligence, business development, customer relationship and marketing.

Skills

Languages	🔖	Italian (mother tongue), English (C1 - IELTS) and French (B1 - self assessment)
Technical Skills	🔖	Programming languages (Python) Relational and Non-Relational Databases (SQL and NoSQL), VBA, Docker, Traefik, Git, Software Architecture.
AI Frameworks	🔖	PyTorch, TensorFlow, Keras, Scikit-learn.
Web Dev	🔖	HTML, CSS, JavaScript, Typescript.
Misc.	🔖	Management, public speaking, academic research, teaching and training.

Bologna, February 12, 2026