Alberto Archetti, Ph.D.

POSTDOCTORAL RESEARCHER IN ARTIFICIAL INTELLIGENCE

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Biography

I am fascinated by emerging phenomena — how simple rules give rise to complex behavior, whether in vitro or in silico — and I find the field of artificial intelligence the ideal playground to study them.

As a postdoctoral researcher at AIRLab, Politecnico di Milano, I work on **tabular foundation models**, **federated learning**, and **survival analysis**, building models that learn from sensitive, multimodal data — turning scattered information into reliable, trustworthy predictions. I also love teaching and mentoring, and I take part in educational initiatives to promote AI literacy at all levels.

Research Interests

- **Tabular Foundation Models** — Building general-purpose deep learning models for in-context learning on tabular data.
- **Survival Analysis** — Predicting time-to-event outcomes for clinical data and financial applications.
- **Federated Learning** — Training models across distributed, siloed datasets while preserving privacy.
- **Machine Learning for Healthcare** — Applying AI to multimodal healthcare data, with a focus on privacy, interpretability, and reliability.

Publications

169 citations · h-index 7 · Google Scholar

Journal Articles

[1] **Archetti, Alberto**, Giusti, G., Gorla, K. R., Caputo, S., Magarini, M., Matteucci, M., Mucchi, L., Pierobon, M. (2025). Emergent Molecular Communication: Preliminary Results With Graph Neural Networks and Diffusion Channels. IEEE Transactions on Molecular, Biological, and Multi-Scale Communications.

[2] **Archetti, Alberto**, Stranieri, F., Matteucci, M. (2024). Bridging the gap: improve neural survival models with interpolation techniques. Progress in Artificial Intelligence, pp. 1–16.

[3] **Archetti, Alberto**, Ieva, F., Matteucci, M. (2023). Scaling survival analysis in healthcare with federated survival forests: A comparative study on heart failure and breast cancer genomics. Future Generation Computer Systems, 149, pp. 343–358. 10.1016/j.future.2023.07.036

Conference Papers

[1] Erbil, P., **Archetti, Alberto**, Lomurno, E., Matteucci, M. (2026). Deep Variational Contrastive Learning for Joint Risk Stratification and Time-to-Event Estimation. 2026 International Joint Conference on Neural Networks (IJCNN).

[2] Mastroleo, M., **Archetti, Alberto**, Mastroleo, F., Matteucci, M. (2026). SurvKAN: A Fully Parametric Survival Model Based on Kolmogorov-Arnold Networks. 2026 International Joint Conference on Neural Networks (IJCNN).

[3] **Archetti, Alberto**, Lomurno, E., Piccinotti, D., Matteucci, M. (2025). FPBoost: Fully Parametric Gradient Boosting for Survival Analysis. European Conference on Artificial Intelligence (ECAI).

[4] **Alberto Archetti** (2025). Federated Survival Analysis: Ensemble and Neural Methods for Distributed Time-to-Event Data.

[5] Menta, A., **Archetti, Alberto**, Matteucci, M. (2024). Latent neural cellular automata for resource-efficient image restoration. Artificial Life Conference Proceedings 36, 2024.

[6] **Archetti, Alberto**, Matteucci, M. (2023). Federated Survival Forests. 2023 International Joint Conference on Neural Networks (IJCNN), pp. 1–9. 10.1109/IJCNN54540.2023.10190999

[7] Lomurno, E., **Archetti, Alberto**, Ausonio, F., Matteucci, M. (2023). Discriminative adversarial privacy: balancing accuracy and membership privacy in neural networks. The 34th British Machine Vision Conference Proceedings (BMVC).

[8] Lomurno, E., **Archetti, Alberto**, Cazzella, L., Samele, S., Di Perna, L., Matteucci, M. (2023). SGDE: Secure Generative Data Exchange for Cross-Silo Federated Learning. Proceedings of the 2022 5th International Conference on Artificial Intelligence and Pattern Recognition, pp. 205–214. 10.1145/3573942.3573974

[9] **Archetti, Alberto**, Cannici, M., Matteucci, M. (2022). Neural Weighted A*: Learning Graph Costs and Heuristics with Differentiable Anytime A*. Machine Learning, Optimization, and Data Science (LOD 2021), pp. 596–610. 10.1007/978-3-030-95467-3_43

Workshop Papers

[1] **Archetti, Alberto**, Lomurno, E., Lattari, F., Martin, A., Matteucci, M. (2023). Heterogeneous Datasets for Federated Survival Analysis Simulation. Companion of the 2023 ACM/SPEC International Conference on Performance Engineering, pp. 173–180. 10.1145/3578245.3584935

[2] **Archetti, Alberto**, Stranieri, F., Matteucci, M. (2023). Deep Survival Analysis for Healthcare: An Empirical Study on Post-Processing Techniques. CEUR Workshop Proceedings, 3578, pp. 99–121.

[3] Stranieri, F., **Archetti, Alberto**, Robbiano, E., Kouki, C., Stella, F. (2023). Drug Inventory Control: Human Decisions versus Deep Reinforcement Learning. CEUR Workshop Proceedings.

Preprints

[1] Sabella, M., **Archetti, Alberto**, Pinoli, P., Matteucci, M., Cappiello, C. (2026). QuAIL: Quality-Aware Inertial Learning for Robust Training under Data Corruption. arXiv:2602.03686

[2] Rizzi, N. M., Lomurno, E., **Archetti, Alberto**, Matteucci, M. (2026). A Filtered Mixture-of-Generators for Fully Synthetic Survival Training. arXiv:2607.00127

Experience

2025–present — **Research Fellow**
AIRLab, Politecnico di Milano · Milan, Italy
RESEARCH TOPIC — Tabular foundation models for healthcare.

2021–2025 — **National Ph.D. in Artificial Intelligence for Industry 4.0**
Politecnico di Torino · Turin, Italy
RESEARCH TOPIC — Federated Learning for Survival Analysis.
COLLABORATIONS — Research visitor at the Human Technopole, Milan, Italy.

2021 — **Research Internship**
Politecnico di Milano · Milan, Italy
ACTIVITIES — Data analysis for anomaly detection; automated knowledge graph extraction.

Projects

2021–2023 — **AI-SPRINT — Artificial Intelligence in Secure PRIvacy-preserving computing coNTinuum**
European Commission · Horizon 2020 (GA 101016577) · Politecnico di Milano, Milan, Italy
ROLE — Federated Learning advisor

Education

2021–2025 **National Ph.D. in Artificial Intelligence for Industry 4.0**
Politecnico di Torino · Italy
THESIS — Federated Survival Analysis: Ensemble and Neural Methods for Distributed Time-to-Event Data

2018–2021 **Master of Science in Computer Science and Engineering**
Politecnico di Milano · Italy · 110/110 cum Laude
THESIS — Neural Weighted A*: Learning Graph Costs and Heuristics with Differentiable Anytime A*

2015–2018 **Bachelor's Degree in Computer Science and Engineering**
Politecnico di Milano · Italy · 110/110 cum Laude

2010–2015 **Diploma di Liceo Scientifico**
Madonna della Neve · Italy · 100/100

Skills

- **Programming** — Python, C/C++, Java, SQL, LaTeX, Bash
- **Machine Learning** — PyTorch, TensorFlow, scikit-learn, Hugging Face, LangChain, n8n
- **Tools** — Git, Docker, Linux, SLURM/HPC
- **Languages** — Italian (native), English (fluent)

Teaching Activities

2026 **AI Bootcamp** (15h)
Teaching Assistant · Politecnico di Milano · TechCamp@PoliMI

2026 **Advanced Deep Learning** (10h)
Teaching Assistant · Politecnico di Milano · MSc

2025 **AI Bootcamp** (15h)
Teaching Assistant · Politecnico di Milano · TechCamp@PoliMI

2025 **AI Product Management Bootcamp** (6h)
Teaching Assistant · CEFRIEL · Corporate Training

2025 **Artificial Neural Networks and Deep Learning** (20h)
Teaching Assistant · Politecnico di Milano · MSc

2024 **Artificial Neural Networks and Deep Learning** (20h)
Teaching Assistant · Politecnico di Milano · MSc

2024 **AI Bootcamp** (15h)
Teaching Assistant · Politecnico di Milano · TechCamp@PoliMI

2024 **Coding Bootcamp** (15h)
Teaching Assistant · Politecnico di Milano · TechCamp@PoliMI

2024 **Software Engineering** (32h)
Lab Tutor · Politecnico di Milano · BSc

2023 **Coding Bootcamp** (15h)
Teaching Assistant · Politecnico di Milano · TechCamp@PoliMI

2023 **Software Engineering** (32h)
Lab Tutor · Politecnico di Milano · BSc

2022 **Coding Bootcamp** (30h)
Teaching Assistant · Politecnico di Milano · TechCamp@PoliMI

2022 **Software Engineering** (32h)
Lab Tutor · Politecnico di Milano · BSc

Supervision

2026 **Pinar Erbil**
MSc thesis · Co-advisor
Deep Variational Contrastive Learning for Risk Stratification and Time-to-Event Estimation

2026 **Marina Mastroleo**
MSc thesis · Co-advisor
SurvKAN: Fully Parametric Survival Modeling with Kolmogorov-Arnold Networks

2026 **Sofia Perini**
MSc thesis · Co-advisor
Exploring multimodality in federated survival analysis

2025 **Emanuele Paesano**
MSc thesis · Co-advisor
A multimodal framework for survival analysis integrating clinical, genomic, histopathological and textual data

2025 **Niccolò Maria Rizzi**
MSc thesis · Co-advisor
A generative pipeline for high-quality synthetic survival datasets

2025 **Gabriele Giusti**
MSc thesis · Co-advisor
Multi-Agent Reinforcement Learning for emergent molecular communication in diffusion-based environments

2023 **Andrea Menta**
MSc thesis · Co-advisor
Image restoration via Latent Neural Cellular Automata

2022 **Simone Cimmino**
MSc thesis · Co-advisor
A pipeline for company industrial sector classification from unstructured website content

2022 **Sara Sacco**
MSc thesis · Co-advisor
Analisi spettrale per il rilevamento di anomalie: studio sulla sopravvivenza degli estensimetri a corda per Snam S.p.A.

Talks

2026 **SurvKAN: A Fully Parametric Survival Model Based on Kolmogorov-Arnold Networks**
European Conference on Artificial Intelligence (ECAI) · Maastricht, Netherlands · Conference talk

2026 **Deep Variational Contrastive Learning for Joint Risk Stratification and Time-to-Event Estimation**
European Conference on Artificial Intelligence (ECAI) · Maastricht, Netherlands · Conference talk

2025 **FPBoost: Fully Parametric Gradient Boosting for Survival Analysis**
European Conference on Artificial Intelligence (ECAI) · Bologna, Italy · Conference talk

2024 **Discriminative adversarial privacy: balancing accuracy and membership privacy in neural networks**
British Machine Vision Conference (BMVC) · Aberdeen, Scotland · Conference talk

2023 **Federated Survival Forests**
International Joint Conference on Neural Networks (IJCNN) · Broadbeach, Australia · Conference talk

2023 **Deep Survival Analysis for Healthcare: An Empirical Study on Post-Processing Techniques**
AIxIA Workshop on Artificial Intelligence For Healthcare · Rome, Italy · Conference talk

2022 **Federated Survival Analysis**
AIxIA Workshop on Machine Learning and Data Mining · Udine, Italy · Conference talk

2022 **Federated and Privacy-Preserving Learning**
PhD Lecture, Politecnico di Milano · Milan, Italy · Seminar

2021 **Neural Weighted A*: Learning Graph Costs and Heuristics with Differentiable Anytime A***
Conference on Machine Learning, Optimization, and Data Science (LOD) · Grasmere, England · Conference talk

Awards and Achievements

2021 **Special Mention for Best Paper**
LOD 2021 — 7th International Conference on Machine Learning, Optimization, and Data Science

2021 **Honours Programme: Scientific Research in Information Technology**
Politecnico di Milano

Data Authorization

Autorizzo al trattamento dati ai sensi del GDPR 2016/679 del 27 aprile 2016 (Regolamento Europeo relativo alla protezione delle persone fisiche per quanto riguarda il trattamento dei dati personali). Autorizzo la pubblicazione del Curriculum Vitae sul sito istituzionale del Politecnico di Milano (sez. Amministrazione Trasparente) in ottemperanza al D. Lgs n. 33 del 14 marzo 2013 (e s.m.i.).