Ernesto Bocini

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Summary

Machine Learning Engineer & Researcher with experience building robust ML pipelines, scaling models, and conducting research in explainability, generalization, and human-aligned AI. Currently working on Vision Language Models at Harvard and contributing to large-scale ML systems. Passionate about fast, applied ML with real-world impact.

Experience

Harvard University - Kreiman Lab , Visiting Researcher — Boston, USA, Mar 2025 - Aug 2025

- Conducting research on explainability and reasoning in Vision-Language Models. Exploring activation interpretation in an unbiased way.
- Working on a **NeurIPS submission**.
- Fully financed by Hasler Foundation Merit Scholarship.

Logitech, ML Research Engineer Intern — Lausanne, CH, Aug 2024 – Feb 2025

- Developed end-to-end DL pipelines to classify mental workload from EEG that solves the problem of generalization to new subjects. **Submitted a paper at CCN 2025.**
- Reference From Supervisors.

MIT & EPFL - NeuroAI Lab, Research Assistant — Lausanne, CH, Jul 2023 – Ongoing

- Designed a multi-loss training framework for brain-inspired CV models with improved out-of-distribution generalization.
- **Published at CCN 2024**, currently extending for *Nature Neuroscience*.
- Built new benchmarks for Brain-Score platform.

Magniflex, Data Scientist — Remote, Jan 2023 – May 2023

- Designed an LSTM-based sleep classification model integrating multisensory data.
- Deployed the model into the company's smart mattress UI — currently in use.
- Built full data pipeline from preprocessing to inference-ready API.

Education

MSc **École Polytechnique Fédérale de Lausanne (EPFL)**, Data Science — Sept 2022 – Aug 2025

- **GPA**: 5.5/6 .
- **Relevant courses**: Deep Learning, Modern NLP, Distributed Information Systems, Network ML.
- **Teaching Assistant**: Deep Learning For Autonomous Vehicles, Internet Analytics, Introduction to ML, Probability and Statistics

BSc **University of Bologna**, Mathematics and Statistics — Sept 2019 – May 2022

- **110/110 cum Laude**, GPA: 29.57/30 (top 5%)
- **Thesis:** *'Outlier Detection in Multivariate Time Series: A study of Brain Scans in Neuroscience'*. **Best thesis in Europe** in the computer science category at the GUA Dublin 2022.
- **Exchange Semester in Statistics** at Lund University, Sweden. Focused on Bayesian Modeling, Signal Processing, and Stochastic Simulation.

Achievements

Hasler Foundation Merit Scholarship 2025
Lead The Future - Mentee 2023
Top 10 Graduate Award in Statistical Sciences 2021/2022 overview. 2022
Best Undergraduate Thesis in Europe (Computer Science) – GUA 2022 overview 2022

Selected Projects

Unbiased Interpretability (in prep. for NeurIPS 2025) 2025

- Developing methods for scalable interpretability in large multimodal models.

Graph-Based Learning for EEG Workload Classification (CCN 2025, under review) 2025

- Built a calibration-free EEG classifier using GNNs; improved generalization across users.

Fact-Checking AI Agent – Hackathon for AI Security and Privacy, Washington DC 2025

- Developed a Chrome extension and web tool for real-time LLM-based fact-checking of social media content.

Brain-inspired CV Model Generalization & Robustness (CCN 2024) 2024

- Studied brain-aligned vision models and their generalization abilities; ongoing journal extension.

AI-Tutor for EPFL Courses 2024

- Built a quantized AI assistant (SFT + DPO + RAG) for EPFL courses; retained 98.4% accuracy with a 75% smaller model.

Human-vs-AI: Wikispeedia Game 2024

- Benchmarked LLM reasoning vs human strategies in graph traversal; top 10 out of 122+ projects. Check out the website.

Languages

Italian – Native
English – Advanced (C1 – TOEFL Score 104/120)
French – Beginner/Intermediate (∼ B1)

Skills

Programming – Python, R, SQL, Bash, IDEs
Data Science – Spark, Hadoop, Docker, AWS, Git, DOEs
ML & DL – NumPy, Pandas, sklearn, PyTorch, TensorFlow.

Recommendation Letters & Contact of Reference

Prof. Martin Schrimpf martin.schrimpf@epfl.ch - Available on request

Prof. Antoine Bosselut antoine.bosselut@epfl.ch - Available on request

Dr. Dorina Thanou dorina.thanou@epfl.ch - link to general letter

Prof. Robert West robert.west@epfl.ch - link to general letter

Prof. Karl Aberer karl.aberer@epfl.ch - link to general letter