Davide Baldelli
PhD in Computer Engineering at Polytechnique Montreal and Mila

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Education

MILA and Polytechnique Montréal *Montréal, Canada*
PhD in Computer Engineering (GPA: 4.0) *Jan 2025 - Current*
- Supervisors: Sarath Chandar, Amal Zouaq.
- Courses: Representation Learning, Reinforcement Learning.

University of Bologna *Bologna, Italy*
MSc in Artificial Intelligence (Grade: 110/110 cum laude.) *Sept 2021 - Oct 2023*
- Courses: Programming for Data Science, Knowledge Representation and Reasoning, Statistical Theory and Methods, Machine Learning, Deep Learning, Computer Vision, Natural Language Processing.

University of Florence *Florence, Italy*
BSc in Mathematics (Grade: 110/110) *Sept 2017 - Mar 2021*
- Courses: Analysis, Linear Algebra, Geometry, Probability and Statistics, Logic and Computability.

Publications

PEER-REVIEWED CONFERENCE PROCEEDINGS

Baldelli, Davide, Junfeng Jiang, Akiko Aizawa, and Paolo Torroni (2024). "TWOLAR: A TWO-Step LLM-Augmented Distillation Method for Passage Reranking". Advances in Information Retrieval. Vol. 14608. Lecture Notes in Computer Science. Springer, pp. 465–481. DOI: 10.1007/978-3-031-56027-9_29. URL: https://doi.org/10.1007/978-3-031-56027-9_29.

PRE-PRINTS AND WORKING PAPERS

Govindarajan, Prashant, **Baldelli, Davide**, Jay Pathak, Quentin Fournier, and Sarath Chandar (2025). CADmium: Fine-Tuning Code Language Models for Text-Driven Sequential CAD Design. Submitted to Transactions on Machine Learning Research (TMLR). arXiv: 2507.09792 [cs.LG]. URL: https://arxiv.org/abs/2507.09792.

Research Experience

National Institute of Informatics *Tokyo, Japan*
MSc Thesis - International Internship Program *Mar 2023 - Aug 2023*
- Supervisors: Akiko Aizawa (National Institute of Informatics), Paolo Torroni (University of Bologna)
- Title: A TWO-step LLM Augmented distillation method for passage Reranking

University of Florence *Florence, Italy*
BSc Thesis *Sept 2020 - Mar 2021*
- Supervisor: Francesca Romana Nardi (University of Florence)
- Title (translated): Big Deviations for Markov Chains

Professional Experience

MILA *Montréal, Canada*
Teaching Assistant - Summer High School Internships *Summer 2025*
- Designed and delivered educational workshops on Machine Learning and Probability for high school students.

Independent Consultant (Upwork Platform) *Remote*
Freelance Machine Learning Engineer *June 2024 - Jan 2025*
- Delivered a variety of machine learning projects for international clients, consistently earning 5-star ratings for quality and speed.

Loop AI Labs Inc. *Remote*
Machine Learning Engineer *Sept 2022 - Dec 2024*
- Co-supervised a master's thesis titled "Self Assessment Tool for Medical Exam Candidates" in collaboration with the University of Padova.
- Conducted project on Musical Deepfake Detection achieving 94% of F1 score on a proprietary dataset.
- Implemented BERT-based email classifier for an italian University's administration, achieving 98% accuracy.

Leadership and Community Involvement

Belle Parole Arci APS *Florence, Italy*
Leadership in Non-Profit Organization *Nov 2023 - Current*
- Involved in founding and leading Belle Parole Arci APS, a non-profit organization.
- Responsible for organizing community events and handling communications, including building the organization's website: **belleparoleaps.it**
- Secured a €10,000 grant from Cassa di Risparmio di Firenze to fund organizational activities.

Other Achievements

AWARDS AND RECOGNITIONS

| *Jun 2025* | **Selected Participant**, Y Combinator AI Startup School | *San Francisco, CA* |
| *Jun 2022* | **4th place**, Loop Q Prize Competition | *Italy* |

CERTIFICATIONS

| *Apr 2025* | **Agents Course**, Hugging Face | *Remote* |

Projects

Full-Stack AI Agent Platform with LangGraph Integration *Montreal, Canada*
Personal Project *Jul 2025*
- Built a comprehensive full-stack platform for creating and deploying custom AI agents (like DeepResearch) using modern web technologies. Frontend developed with Next.js, React, and TypeScript. Backend implemented with FastAPI and LangGraph framework, supporting multiple AI models.

Choosr – Career Orientation Platform *Remote*
Creator and Lead Developer *Sept 2024 – Present*
- Designed and implemented the entire technical stack for a career guidance platform helping Italian high school students navigate university choices.
- Built and integrated comprehensive databases of career paths and Italian university programs.
- Implemented the RIASEC psychometric test to provide personalized career recommendations.

Deepdreaming with newest vision architectures *Tokyo, Japan*
University of Bologna *Aug 2023*
- Updated a github repository to support the newest vision models and pretrained checkpoints. With our implementation, images can be deepdreamed either by maximizing the activation of a specific layer or by maximizing the similarity score with a text embedding, allowing the user to inject a visual concept in the form of a phrase while deepdreaming (only with CLIP models).

Skills

ML & LLM Tooling	PyTorch, Hugging Face (Transformers, TRL), Hydra, vLLM, LangChain/LangGraph
Programming	Python (fluent), TypeScript, Bash, HTML, CSS
Tools & Frameworks	Docker, Linux, LaTeX, Weights & Biases, Blender, Figma

Languages

| **English** | Professional proficiency |
| **Italian** | Native proficiency |

References available upon request.