

Davide Baldelli

 Dundalia |  [davide-baldelli-b55618203](#) |  [dundalia.github.io](#) |  davide.baldelli@mila.quebec

SUMMARY

PhD Student at MILA and Polytechnique Montréal.

EDUCATION

Jan 2025 - Current	PhD in Computer Engineering at MILA and Polytechnique Montréal Supervisors: Sarath Chandar, Amal Zouaq	(GPA: 4.0)
Sept 2021 - Oct 2023	MSc in Artificial Intelligence at University of Bologna	(110/110 cum laude)
Sept 2017 - Mar 2021	BSc in Mathematics at University of Florence	(110/110)
Sept 2012 - June 2017	Scientific High School at Liceo Scientifico Guido Castelnuovo	(96/100)

WORK EXPERIENCE

Freelance Machine Learning Engineer, Upwork June 2024 - Jan 2025

- Delivered a variety of machine learning projects for international clients, consistently earning 5-star ratings for quality, speed, and communication.

Machine Learning Engineer, Loop AI Group Sept 2023 - Dec 2024

- Co-supervised a master's thesis titled "[Self Assessment Tool for Medical Exam Candidates](#)" in collaboration with the University of Padova. Guided the candidate in applying machine learning techniques to develop a self-assessment tool. Assisted in research direction, methodology selection, and technical problem-solving.
- Conducted deep learning project for musical Deepfake detection algorithm achieving 94% of F1 score on a proprietary italian deepfake music dataset.
- Conducted deep learning project for automatic translation of audio data for content creation.
- Implemented statistical and deep learning based time series analysis models to solve demand forecasting.
- Implemented BERT-based email classifier tool for an italian University's administrative office, achieving 98% accuracy.

Data Scientist Consultant, Loop AI Group Sept 2022 - Sept 2023

- Implemented closed-domain generative question-answering systems on technical topics, exploiting SoTA Pretrained Seq2Seq Language Models.
- Implemented rule-based and transformers-based text retrievers.

RESEARCH EXPERIENCE

- Research Intern (MSc Thesis), National Institute of Informatics — Tokyo, Japan**

Mar 2023
- Advisors: Akiko Aizawa, Junfeng Jiang, Paolo Torroni
 - Title: A TWO-step LLM Augmented distillation method for passage Reranking ([MSc Thesis](#))
 - Conducted research in Text Information Retrieval, investigating open-source LLMs, text retrievers, rerankers, knowledge distillation, and ranking losses. Adapted a T5 model for reranking using GPT-augmented labels, achieving state-of-the-art results on TREC-DL and BEIR.
- BSc Thesis, University of Florence — Florence, Italy**

Sept 2020 - Mar 2021
- Advisor: Francesca Romana Nardi
 - Title (translated): Big Deviations for Markov Chains ([PDF](#))
 - Presented a theorem on the asymptotic behavior of Markov chains for rare events analysis within large deviations theory.

ACHIEVEMENTS

- 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

PUBLICATIONS

- Baldelli, Davide et al. (2024). “TWOLAR: a TWO-step LLM-Augmented distillation method for passage Reranking”. In: *Proceedings of the European Conference on Information Retrieval (ECIR 2024)*. In Press. URL: https://link.springer.com/chapter/10.1007/978-3-031-56027-9_29.
- Govindarajan, Prashant et al. (2025). “CADmium: Fine-Tuning Code Language Models for Text-Driven Sequential CAD Design”. In: *arXiv preprint arXiv:2507.09792*. URL: <https://arxiv.org/abs/2507.09792>.

SKILLS

Programming	Python (fluent); HTML, CSS, R, MatLab, Minizinc, NetLogo (familiar).
Data Science	Numpy, Pandas, Scikit-learn, Matplotlib, Seaborn, Plotly
Deep Learning	Pytorch, Pytorch-lightning, Tensorflow.
NLP	HuggingFace, Transformers, Prompt Engineer, OpenAI GPT.
Web Development	Flask, Webflow
Miscellaneous	Linux, Shell, L ^A T _E X(Overleaf/R Markdown), Git, Docker, Figma, Blender.
Soft Skills	Time Management, Teamwork, Problem-solving, Documentation, Engaging Presentation.

LEADERSHIP & COMMUNITY INVOLVEMENT

Leadership in Non-Profit Organization, Belle Parole Arci APS – Florence, Italy

Nov 2023 - Present

- Involved in founding and leading Belle Parole Arci APS, a non-profit organization.
- Responsible for organizing community events and managing bar operations as part of the organization's activities.
- Emphasized community engagement, cultural enrichment, and team coordination in a non-profit setting.
- Built the website of the organization: belleparoleaps.it.

LANGUAGES

English Professional proficiency

Italian Native proficiency