Pietro **Bonardi**

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`https://pietrobonardi.github.io`

Work Experiences

Present – Nov. 2022 | Machine Learning Engineer, ING, Milan

- **Architected and deployed** a standardized software library serving as the **foundational framework** for data science projects across ING global. The solution centralizes patterns and includes a feature creation engine which dramatically accelerates model development cycles. Adopted by **20+ developers** across two major projects, accelerating delivery and ensuring high code quality standards.
- Developed and implemented an early warning signal model using PySpark to predict **delinquencies across all ING** products (1M+ active accounts). The solution was fully automated and orchestrated via Airflow DAG, enabling continuous real-time monitoring and alerting of at-risk accounts. This led to a **40% increase in recovery rates**, significantly enhancing the efficiency of collection team actions.
- Engineered a scalable machine learning pipeline processing **100+ million transactions** enabling ING to provide an always on pre-approved loan offer for customers. Built the system with modular, parameterizable architecture to support changing business needs and rapid deployment. This solution delivered a **2X increase in loan disbursement** year-over-year.
- Created a custom interactive dashboard using Streamlit for **model monitoring**, able to generate reports and slideshow. Adopted as the standard, it **automates almost 100%** of the tasks.

PySpark | Airflow | MLFlow | Optuna | Streamlit | AWS | Bash | CI/CD Pipelines

Nov. 2021 – Mar. 2021 | Data Science intern, Fastweb, Milan

- Conducted ad-hoc statistical analyses to overview compensation policies and created a PowerBI dashboard, boosting HR team efficiency in exploring salary data by 50%.
- Trained a machine learning classifier designed to **drive remuneration processes** by predicting salary bands. Performed explainable AI analysis to make the tool interpretable also by non-expert.

Python | SQL | SHAP | PowerBI

Mar. 2019 – Oct. 2018 | Research Engineering intern, Computer Science Department, University of Brescia

- Conducted research on Bluetooth Low Energy protocol. Implemented a sniffer on a semiconductor board able to **debug BLE connection**. Reduced the cost by 60% compared to proprietary alternatives.

C | Bash | Linux | Computer Network

Publication

Introduction to Quantum Machine Learning

Springer Nature/QML

Investigated and redacted an introduction for non practical reader to the growing QML field. The project later became a peerreviewed paper published in late 2021.

Quantum Machine Learning | Machine-Deep Learning

Projects

GALGO Genetic Algorithm

github.com/pietrobonardi/galgo

Developed GALGO, an open-source implementation of the genetic algorithm. Designed to provide a flexible and easily integrable interface for various applications. Continuously enhancing the evolutionary algorithm steps to improve performance and efficiency.

Open-source | Python | Object Oriented Programming

Education

Feb. 2022 | Master of Science, Data Science, University Milan-Bicocca

Main Courses: Machine & Deep Learning | Statistical Modelling | Probability & Statistics

- Final Score: 110/110
- Notes from main courses. [**Notes**]

Oct. 2019 | Bachelor of Science, Computer Science & Engineering, University of Brescia

Main Courses: Software Engineering | Linear Algebra | Calculus| Operating System | Physics