# Pietro Bonardi

linkedin.com/in/pietrobonardi github.com/pietrobonardi pietrobonardi@icloud.com +39 333 955 2966
https://pietrobonardi.github.io

## Work Experiences

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

- Developed an early warning signal model able to predict breaches across all products within the bank, resulting in the bank's most wide-ranging model, capable of processing over 1 million active products. Currently managing the production transition by implementing automated pipeline for testing & code deployment and creating a scheduler to automatically orchestrate the runs.
- Engineered production-ready ML workflows capable of processing over 100 million transactions monthly to identify new customers eligible for a loan. Established an Airflow scheduler to automate the process, enabling the business to double loan disbursement year over year.
- Improved team development processes by developing a centralized library of blueprints that encompass: spark processor, feature creation and selection step, model training and selection. Achieved 85% test coverage ensuring a reliable code-base.
- 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 an XGBoost classifier designed to drive remuneration processes by predicting salary bands, with 75% of F1-score. Used SHAP 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

## Education

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

*Main Courses: Machine & Deep Learning | Computer Vision | Data Management | Statistical Modelling | Probability & Statistics*

> Organized relevant core lectures with LaTeX. [Notes]

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

*Main Courses: Software Engineering | Calculus 1-2 | Physics 1-2 | Linear Algebra | Operating System*

## Projets

### Introduction to Quantum Machine Learning (QML)

Springer Nature Technology

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

Quantum Machine Learning | Machine Learning | LaTeX | Python

### 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

### How Tube Popular

github.com/pietrobonardi/How-Tube-Popular Visualization

Data analysis on YouTube most popular videos. Collected a high volume of data and implemented an architecture for distributing data across multiple machines via MongoDB.

MongoDB | Azure Platform | Tableau | Python | Git

## Skills

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|---|---|
| **Data Science & Machine Learning** | PySpark \| MLFlow \| Scikit-learn \| Shap \| Optuna \| Feature-Engine |
| **DevOps & Cloud** | GitHub \| Airflow \| Docker \| AWS (S3) \| Azure DevOps \| Bash |
| **Data Visualization & BI** | Streamlit \| Superset |
| **Languages** | Python \| Java \| C \| LaTeX |
| **Databases** | SQL \| NoSQL |