



Manfred Nesti

📍 Novara, Italy — ✉ manfred.nesti@gmail.com — ☎ (+39) 334 312 6417
🌐 manfrednesti.com — [in linkedin.com/in/manfred-nesti](https://www.linkedin.com/in/manfred-nesti) — github.com/ManfredNesti

I am a **Mathematical Engineer** with a master's degree in **Computational Science and Engineering** from **Politecnico di Milano**. I specialize in **AI & Data Science**, **Data Engineering**, and **Scientific Computing**, with a strong foundation in designing and deploying **LLM-powered systems** and scalable data-driven solutions. My experience spans building production pipelines for AI agents, document extraction, and semantic search, alongside Big Data, cloud data warehousing, and real-time processing across web and mobile applications.

Since 2018 I have been a **co-founder and technical advisor** at thefaculty, where I help shape data and AI strategy for product teams solving complex, real-world problems.

Professional Experience

Data Engineer — Brix

Jan 2026 – present

Data Engineer — Agile Lab

Sep 2022 – Dec 2025

- Consultant for an international utility working in a **data platform** context on **AWS**.
- Developed **Java (Spring Boot)** microservices and **Scala (Spark)** streaming services within **AWS EMR** for batch and streaming tasks, maintaining code quality with CI/CD.
- Architected data solutions for **electric grid interruptions**, supporting KPI monitoring, data enrichment, and critical business operations via a front-end interface.
- Built high-throughput **Spark and Kafka pipelines (1000+ messages/sec)** for real-time grid status tracking, also leveraging event sourcing.

Head of Data — thefaculty

Apr 2020 – Aug 2022

- Designed and built a scalable **BigQuery data warehouse** with real-time ETL from MongoDB, featuring automated data pre-processing, enrichment, and schema updates.
- Established a **microservices chain on Cloud Run** for reverse ETL and CRM updates, leveraging Google Tasks for efficient workload distribution.
- Implemented a **medallion architecture** in BigQuery using **Airflow** as orchestrator and leveraging on **CI/CD**.
- Developed **interactive BI dashboards on Looker Studio** for real-time KPI tracking with advanced visualizations.
- Launched **AI-powered content generation** for quizzes, integrating GPT-4 with MongoDB for direct analysis and content review workflows.
- Established comprehensive **FinOps monitoring** for cost control, enabling real-time alerts.

Chief Operating Officer (COO) — thefaculty

Jun 2018 – Mar 2020

- Co-designed a quiz app for university students, overseeing **prize competitions** and regulatory compliance.
- Led a team of **100+ students and professors** for content creation and quality control, managing contracting and payments.
- Secured B2B agreements with **25+ companies across Europe** for exclusive in-app rewards, coordinating integration and deployment.
- Supervised **workflow** for discount and prize logistics, ensuring timely availability for users.
- Enhanced **user satisfaction** by managing helpdesk operations and overseeing app store reviews, ensuring feedback-driven improvements.

Education

M. Sc. Computational Science and Data Science — Politecnico di Milano

Cum Laude, Sep 2019 – Oct 2022

- Advanced Programming, Computational Fluid Dynamics, Machine Learning, Deep Learning, Artificial Intelligence.

B. Sc. Mathematical Engineering — Politecnico di Milano

Sep 2016 – Mar 2020

- Mathematical Modeling, Numerical Analysis, Functional Analysis, Statistics, Operations Research.

Skills

Programming & Scripting Languages Java, Scala, Python, SQL, JavaScript

Back-End Frameworks Spring Boot, FastAPI, FLask

Data Engineering & Processing BigQuery, Spark, Kafka, Airflow, Delta Lake, MongoDB, Databricks

ML & AI Scikit-Learn, TensorFlow, Keras, Pandas, Numpy, OpenAI

DevOps & CI/CD Docker, Kubernetes, Cloud Build, Bamboo, Helm

Cloud Platforms Google Cloud Platform (BigQuery, Cloud Run, Looker Studio, Pub/Sub, Cloud Functions), AWS (EMR, S3, Lambda)

Productivity & Collaboration Jupyter, Postman, Git, Linux/Bash

Languages Italian (Native), English (B2)

Courses & Certifications

Databricks — Databricks Academy

Apr 2023 – Aug 2023

- **Certified Data Engineer Associate**
- **Certified Machine Learning Associate**
- **Certified Data Analyst Associate**
- Lakehouse Fundamentals, Generative AI Fundamentals

Reactive Architecture — Lightbend Academy

Jul 2023

- **Certified Reactive Architect:** Reactive Systems, Microservices, Scalability, DDD, Messaging, Event Sourcing

Google Cloud Platform — Google Cloud Skill Boost

Nov 2022

- Google Cloud Essentials
- Big Data and Machine Learning Fundamentals, BigQuery for Data Warehousing, Exploring Data with Looker, Engineer Data in Google Cloud

Academical Projects

Mathematical Model for Oxygen Exchange in Cardiac Muscle      **M. Sc. Thesis, Sep 2019 – Oct 2022**

- Developed a **mathematical model** simulating oxygen exchange in cardiac muscle, based on **patient-specific geometries** of coronaries and myocardium, yielding partial pressure and concentration of oxygen in the muscle.
- Coupled the model with **fluid dynamics** laws, including blood flow (Navier-Stokes equations) and perfusion in capillaries (Darcy's law).
- Implemented the model using the `lifex` Finite Element library in C++ for **high-performance** cardiac simulation performed on a **HPC cluster**.

Survival Cluster Analysis for Myelodysplastic Syndrome  

Sep 2020 – Jun 2021

- Collaborated with **Humanitas Research Hospital** analyzed a dataset of patients suffering from Myelodysplastic Syndrome.
- Applied Survival Analysis and Neural Networks to perform Survival Cluster Analysis.
- Achieved **top 5 out of 33** groups in the final poster project session.

CNN-based Face Mask Classifier  

Nov 2020

- Applied **transfer learning** to fine-tune several CNN models, achieving high accuracy by combining them with **ensemble methods**.
- Reached **95% accuracy** on the test set, ranking in the top 20% of the competition.