Luca Mattiazzi

Machine Learning Engineer with Full Stack Development & Security Research Background

Biotech graduate who transitioned to software engineering, specialized in machine learning and MLOps, while pursuing cybersecurity research and ethical hacking as personal projects.

I love learning new stuff so that I can build strange things.

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Professional Experience

ML Engineer & Modeling Expert | Cybersecurity Analyst

Illimity | September 2022 - Present

Led MLOps and Data Science initiatives for the Risk Department, bridging technical solutions with business requirements.

- Built and deployed authentication and authorization around all existing services.
- Conducted independent penetration testing of the bank's homebanking platform, identifying multiple security vulnerabilities including a critical stored XSS vulnerability in chatbot configuration. Successfully demonstrated session hijacking through controlled testing, confirming potential for customer account compromise.
- Architected and deployed a complete MLOps pipeline using MLFlow and FastAPI on Kubernetes, enabling model versioning and automated deployment.
- Built a secure feature store and model registry system to speed up data retrieval organise model serving.
- Implemented RAG services using local and cloud LLMs, Qdrant, and Langchain
- Developed model explainability using Alibi and LLMs, and JavaScript/TypeScript to generate dashboards that enhanced stakeholder understanding and adoption of ML solutions.

Technologies: Python, Scikit-Learn, MLFlow, FastAPI, Kubernetes, JavaScript/TypeScript, Qdrant, Langchain, LLMs, Keras, Tensorflow, Optuna, Pandas, Ray.

Senior Software Engineer

Klarna | May 2021 - September 2022

Contributed to New Markets Expansion team, building tools for Klarna's entry into emerging markets:

- Built customer-facing products using JavaScript/TypeScript for both backend and frontend.
- Performed data analysis to identify expansion opportunities using Python.
- Created and delivered an internal Python training course.

Technologies: JavaScript, TypeScript, Node.js, React, Pytho

Senior Full-Stack Developer

Accurat | May 2017 - May 2021

Implemented diverse technical solutions across multiple client projects:

- Built custom dataviz with data retrieval servers installed on premises adapting to the customer existing architecture.
- Designed and implemented microservices architecture using Docker/Kubernetes for enhanced speed and minimal costs.
- Implemented ML models for text classification for a new design language.
- Created and delivered a certified course on Data Science and Machine Learning through Feltrinelli.

Technologies:

- **Infrastructure:** Docker, Kubernetes, AWS, Google Cloud, IBM Watson, Azure
- **Backend:** Node.js (Express), Python (Flask, Aiohttp), PostgreSQL, SQLite, Redis, Neo4J, MongoDB
- **Frontend:** TypeScript, React, Vue, Svelte
- **Data Science:** Python (pandas, sklearn, spacy, scipy)

Junior Backend Developer

Cayenne | January 2016 - May 2017

- Built and maintained web applications using Ruby on Rails and Django frameworks.
- Designed database schemas and optimized queries for PostgreSQL databases.
- Developed client-side JavaScript components for improved user interactions.
- Participated in code reviews and contributed to establishing development best practices.

Technologies: Ruby, Ruby on Rails, Python, Django, PostgreSQL, JavaScript

Research Intern

ITB CNR | January 2014 - February 2015

Conducted research while working at Decathlon

This was a one year apprenticeship for my Master's Degree Thesis in Bioinformatics.

- Led a molecular dynamics research project from conception to publication.
- Developed Python and R scripts for data analysis.
- Published research paper: "A novel molecular dynamics approach to evaluate the effect of phosphorylation on multimeric protein interface: the αB-Crystallin case study" in BMC Bioinformatics (2016).

Technologies: R, Python, Data Analysis, Molecular Dynamics

Sales Assistant & Technical Developer

Decathlon | November 2010 - January 2016

- Initially worked as a sales assistant while self-teaching programming.
- Identified business inefficiencies and developed Python tools to address them:
  - Developed sales analysis tools that helped increase revenue in the stores where it had been used.
  - Built inventory prediction algorithms to avoid stockouts.

Technologies: Python, Data Analysis, Basic Web Development

Education

Bachelor's Degree in Biotechnology
University of Milano-Bicocca | 2009-2012

Technical Skills

Languages: Python, JavaScript, TypeScript, Ruby, R, SQL
Machine Learning: scikit-learn, pandas, spaCy, SciPy, LLMs, RAG, Tensorflow, Keras, Optuna.
MLOps: MLFlow, Feature Stores, Kubernetes, Docker, Airflow, DVC, Ray, Kubeflow.
Databases: PostgreSQL, MongoDB, Redis, Neo4j, SQLite. **Cloud:** AWS, Google Cloud, Azure, IBM Watson. **Web Development:** React, Vue, Svelte, Node.js, Express, Flask, Aiohttp, Django, Ruby on Rails. **Tools:** Git, CI/CD, Kubernetes, Docker.