

Federico Mazzone

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AI/ML Engineer. Built my current company's first production-ready AI systems, including a customer-facing LLM chatbot serving 100+ daily users and internal AI automation tools, accelerating workflows from days to hours. Experience in NLP, Machine Learning, and AWS. Strong research foundation (8 published papers). **EU citizen.**

EXPERIENCE

AI Engineer

May 2024 – Present

Domotz

Pisa, Italy

- **Built Domotz AI Stack:** Established AI roadmap and workflows, enabling rapid prototyping and deployment.
- **Chatbot:** Engineered a FastAPI RAG-based chatbot (using Qdrant, LangChain, PostgreSQL) deployed on AWS, boosting customer engagement by 65% and serving 100+ daily users. Built multiple knowledge bases and UIs.
- **AI Systems:** Built LLM-powered automation systems that reduced sales, finance, and marketing workflow times from days to hours, including Slack sales bot, automated invoice processor, and customer insights extractor.
- **Classification:** Developed a zero-shot LLM classifier to identify common customer issues from unstructured text.
- **Anomaly Detection:** Combined traditional ML and LLM reasoning to detect network anomalies in time series.
- Coordinated with multiple stakeholders, and leveraged platforms such as AWS (deployment), BitBucket (codebase, code review), Jira (Agile development), Zendesk (chatbot and classifier integration).

PhD Research Fellow in AI

Nov. 2022 – May 2024

University of Pisa / National Research Council of Italy

Pisa, Italy

- **Human-in-the-Loop:** Built a hybrid AI-human feedback loop system, boosting label accuracy up to 50%.
- **NLP:** Developed a library to quantify trust in social networks using embedding similarity and information density.
- **Algorithmic Fairness:** Designed algorithms to improve fairness in social networks and tabular ML models.
- Published 8 peer-reviewed articles (Google Scholar), managed multiple concurrent projects from concept to experimental validation, gained expertise in analysing complex data, and presented research at conferences.
- Conducted 1.5 years of PhD research, before transitioning to industry for practical applications of AI.

Freelance Data Analyst

2022

Self-Employed

Pisa, Italy

- **Recommendation System:** Developed content-based and collaborative filtering recommendation systems.
- **Data Collection:** Created datasets by scraping Wikipedia and independent sites with Selenium/Beautiful Soup.
- **Bioinformatics:** Explored methods in *R* to identify potential biomarkers in Rett syndrome data.

PERSONAL PROJECTS

StockAgent: Multi-agent AutoGen system for stock market analysis with a custom MCP yfinance server.

HINTT: Real-time OCR+translation tool sending screenshots to OpenAI/Ollama. Employed tkinter and mss.

Simple Palette Maker: An app to colorize black-and-white GameBoy palettes. Deployed on Streamlit. 1k+ users.

SKILLS

AI/ML Stack: LLMs (LangChain, LangGraph, AutoGen), RAG, HuggingFace, Scikit-Learn, PyTorch, RiverML

Backend & Deployment: FastAPI, Streamlit, Docker, AWS (EC2, S3, CloudWatch, Terraform), PostgreSQL, Qdrant

Programming: Python, JavaScript, SQL, R

Platforms: Git, Jira, BitBucket, Snowflake, Zendesk, Salesforce

Languages: Italian (Native), English (C1), German (A2)

EDUCATION

University of Southern Denmark

2023

Summer School on Deep Learning

Odense, Denmark

University of Pisa

2020 – 2022

Master's Degree in Digital Humanities (Data Science and NLP) — 110/110 with honours

Pisa, Italy

- Relevant Courses: Data Mining, Social Network Analysis, Text Analytics, Distributed Data Analysis and Mining, Semantic Web, Laboratory of Data Science, Applied Linguistics, Computational Linguistics.
- Master's Thesis: *GenFair*. A synthetic data generation framework to reduce algorithmic bias.

University of Pisa

2014 – 2017

Bachelor's Degree in Philosophy — 110/110 with honours

Pisa, Italy