

Federico Mazzoni

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EXPERIENCE

AI Engineer

May 2024 – Present

Domotz

Pisa, Italy

- Helped establish the company's AI team and identified opportunities for automation and AI-driven insights.
- Built a FastAPI RAG-based chatbot for customers and the internal support and marketing teams. It became a daily resource for customers, significantly improving response accuracy and reducing support overhead.
- Designed a webapp IDE to internally test the chatbot with new prompts, different models, and knowledge bases.
- Created automation tools to streamline data retrieval by integrating third-party APIs, visualization tools, and AI-driven queries, enhancing communication and decision-making efficiency within the sales and security teams.
- Developed a Python library to analyze customer inquiries, leading to identify common issues in the product.
- Combined machine learning and AI for anomaly detection in time series data for risk assessment.
- Coordinated with multiple stakeholders and used platforms such as AWS, BitBucket, JIRA, Zendesk.

PhD Research Fellow in Artificial Intelligence

Nov. 2022 – May 2024

University of Pisa / National Research Council of Italy

Pisa, Italy

- Designed a hybrid decision-making system to learn human behaviour patterns and assist in decision-making.
- Analyzed and quantified conversational trust between speakers, employing several NLP techniques.
- Researched algorithmic fairness and developed novel methods to enhance it, both in networks and tabular data.
- Published 7 peer-reviewed articles ([Google Scholar](#)), and gained expertise in analyzing complex data, independently managing multiple projects, and designing novel approaches based on state-of-the-art literature.
- Transitioned to industry halfway through the PhD program to focus on applied AI roles.

Freelance Data Analyst

2022

Self-Employed

Pisa, Italy

- Developed a recommendation system using both content-based and collaborative filtering techniques.
- Compiled a new dataset by scraping Wikipedia and independent websites with Selenium and Beautiful Soup.
- Researched *R* bioinformatics algorithms to analyze Rett syndrome.

PERSONAL PROJECTS

HINTT: An interactive tool for real-time text translation leveraging LLMs' visual capabilities.

Simple Palette Maker: A Streamlit web app to colorize and customize black-and-white GameBoy palettes (1k+ users).

SKILLS

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

Programming Languages: Python, JavaScript, SQL, R, HTML/CSS

Machine Learning: Supervised Learning, Unsupervised Learning, Continual Learning, Large Language Models

Data Science: Data Mining, Social Network Analysis, Textual Analysis, Predictive Analytics

Tools & Platforms: Git, JIRA, BitBucket, Docker, PostgreSQL, OpenAI API, AWS, Flask, FastAPI, Streamlit

Soft Skills: Problem Solving, Communication, Team Management, Creativity, Analytical Thinking, Adaptability

EDUCATION

University of Southern Denmark

2023

Summer School on Deep Learning

Odense, Denmark

University of Pisa

2020 – 2022

Master's Degree in Digital Humanities — 110/110 with honors

Pisa, Italy

- Specialized in Data Science and Language Technologies (NLP).
- Relevant Exams: 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 honors

Pisa, Italy