

# Francesco Sammarco

Computer Science Engineer, AI Engineer & Researcher

✉ On request | ✉ [ing.sammarco.francesco@gmail.com](mailto:ing.sammarco.francesco@gmail.com) | [in](#) [Linkedin](#) | [G](#) [Github](#)

## EXPERIENCE

---

### University of Tübingen

Sep. 2024 – Present

*Researcher in Applied Artificial Intelligence*

*Tübingen, DE*

- Collaborating within the [Mental Health Mapping](#) investigating 2D and 3D computer vision models through explainable AI (XAI) and generative model-based algorithms.
- Designing an end-to-end `pytorch`-based machine learning workflow for large neuroimaging datasets to validate XAI explanations and probe model reasoning for mental disorders classification (*CNNs*) with *Diffusion Models*, using tools for brain imaging data processing (`freesurfer`, `cat`, `monai`, `batchgenerators`), training (`lightning`, `accelerator`), evaluation and visualisation (`wandb`, `mlflow`); using a set of tools applied large language models (*LLMs*) to psychiatric and clinical datasets; collaborated to a research project for enhancing foundational model for medical image segmentations (*SAM*). Code: [MedSAMix](#), [HDPS](#) (to be published).
- Handling of a considerable large scale imaging (DICOM/NIFTI) and tabular dataset (~70k images and ~300k records) for downstream task training and analysis, with intensive process of data validation, processing and quality assurance.
- Managing a `slurm`-based HPC cluster for distributed and parallel training of deep learning models.

### DevOps Engineer, Telco Consultant

Oct. 2022 – Aug. 2024

*Hewlett Packard Enterprise (HPE)*

*Milan, IT*

- Led a development team for a major Telco client, managing the continuous integration of feature requests and collaborating closely with customer stakeholders.
- Designed and implemented a `jenkins` CI/CD pipeline (including automated `SQL` deployments), communicating with a `spring`-based automation tool via API, reducing deployment time by 90% and significantly cutting manual errors.
- Implemented new business logic and integration features in `java` and `SQL` for backend services.
- Coordinated version control via `git` across multiple internal and client repositories and managed the `dockerization` of parts of the backend platform.
- Collaborated with client stakeholders to clarify requirements and translate business needs into technical designs and implementation plans.

### IT Consultant

Sep. 2020 – Jul. 2021

*Concept Solution SRL*

*Pompei, IT*

- Authored solution design and development plans for systems using technologies such as user profiling, robotic process automation (RPA), blockchain-based traceability, and recommendation systems for e-commerce, in close collaboration with business stakeholders.

### Instructor, "Summer School on Artificial Intelligence in Health and Life Sciences"

Sep. 2025

*Università Campus Bio-Medico di Roma*

*Rome, Italy*

- Delivered theoretical and practical sessions on brain age prediction from neuroimaging features using statistical, machine learning, and deep learning methods, using `python` and related machine learning libraries (`sklearn`, `statsmodel`, ...).
- Released a [custom Kaggle dataset](#) and code: [Github Repo](#).

## EDUCATION

---

### Politecnico di Milano

Sep. 2020 – Oct. 2022

*Master of Computer Science and Engineering (ENG) | 110 cum laude/110, GPA: 29.43/30*

*Milan, IT*

- Artificial Intelligence focused path, thesis on Reinforcement Learning.

### Università degli Studi di Napoli Federico II

Sep. 2017 – Jul. 2020

*Bachelor of Computer Science and Engineering (IT) | 110 cum laude/110, GPA: 29.70/30*

*Naples, IT*

- Background in computer science, mathematics, and physics (including databases, software engineering, and cybersecurity).

## PROJECTS

---

### Thesis: Non-Stationary Reinforcement Learning for Trading

Sep. 2021 – Oct. 2022

*Title: Non-Stationary RL for Forex Trading with Automatic Market Regime Clustering*

- Developed a machine learning-based automatic trading system compatible with Forex assets, exploiting [FQI](#) reinforcement learning algorithm (with `gym`) and a mixture of clustering and gradient-boost based classification (`xgboost`) techniques.

### Recommender System Challenges (RecSys, H&M, Internal)

Mar. 2022 – Jul 2022

- Developed a TV-Series Recommender System (RS) based on basic RS paradigms, such as *EaseR*, *Factorisation methods* and *SLIM*.
- Developed two fashion-oriented RS based on deep learning methods, such as *GRU4Rec*, *latent factorisation*, and similar architectures; trained via IAAS platform (`aws`).
- Participated to H&M, Dressipi organised challenges (the latter for [RecSys Conference 2022](#)), with a related publication.
- Challenges and position link: [Kaggle profile](#), RecSys code: [Github Repo](#).

### Artificial Neural Network Challenges

Oct 2020 – Jan 2021

- Developed deep learning based architectures for supervised/unsupervised tasks, such as image segmentation/detection (usage of architectures like *YOLO*), text classification, and sequence modeling (*RNNs*) as part of competitive course challenges.
- Challenges and position: [Kaggle profile](#).

### Website with Java supported back-end

Oct. 2019 – Jan. 2020

- Developed a java-based web application for quizzes with score tracking and user management.
- Code available at: [external Github repo](#).

### Thesis on Genetic Algorithms

Apr. 2020 – Jul. 2020

*Title: Application of Genetic Algorithms on Flexible Job Shop Scheduling problem*

- Developed a python-based genetic algorithm system for the resolution of the [Job-Shop Scheduling](#) problem.
- Code available at: [Github repo](#).

## CERTIFICATIONS & TRAINING

---

### Apple Academy

Sep. 2019 – Aug. 2020

*Università degli Studi di Napoli Federico II*

*Naples, Italy*

- Closed number course (100 applicants) focused on app development and project management fundamentals;
- Development of various applications based on Swift and SwiftUI;

### Cyber Challenge

May 2018 – Jul. 2018

*Università di Napoli Parthenope*

*Naples, Italy*

- Closed number course focused on cybersecurity fundamentals;
- Administration of challenges on networking, reverse engineering, pwning and cryptography;

## PUBLICATIONS

---

**Yang Y.\***, **Su G.\***, **Hu J.\***, **Sammarco F.**, **Geiping J.**, **Wolfers T.**, *Medsamix: A training-free model merging approach for medical image segmentation.*, arXiv preprint arXiv:2508.11032 (AAAI), (2025) - [DOI](#)

**Della Volpe N.\***, **Mainetti L.\***, **Martignetti A.\***, **Menta A.\***, **Pala R.\***, **Polvanesi G.\***, **Sammarco F.\***, **Maurera F. B. P.**, **Bernardis C.**, and **Dacrema M. F.**, *Lightweight Model for Session-Based Recommender Systems with Seasonality Information in the Fashion Domain.*, In Proceedings of the Recommender Systems Challenge, (2022) - [DOI](#)

## TECHNICAL SKILLS

---

**Programming Languages:** Python, Java, SQL, C/C++, Swift, C#, JavaScript, MATLAB, HTML/CSS

**ML/Data Libraries:** PyTorch, TensorFlow, scikit-learn, pandas, NumPy, OpenCV, nilearn, matplotlib, gym

**Frameworks & Tools:** Spring, JPA/Hibernate, Docker, Kubernetes, Jenkins, Git, GitHub/GitLab, AWS, Ansible, Vagrant, Wandb, MLFlow

**Languages:** *Italian:* C2 (native), *English:* C1, *German:* A2