Andrea Vaiuso

Contacts

andreavaiuso@hotmail.com

+41 79 238 41 08

AndyWann

Andrea Vaiuso

andrea-vaiuso

OCRID: 0009-0001-0048-8072

www.andreavaiuso.com

Languages

Italian: Mothertongue (C2)

English: Professional (C1)

German: Beginner (A2)

E-Skills

Preferred progr. languages: Python, Java, C, C#, Swift

Back-end developer: Python-Flask, NodeJs express, Java Enterprise, Typescript Hono, MySql, Postgres, Postman, RESTFul API.

Front-end developer: Swift, HTML, CSS, Bootstrap, JQuery, JavaScript, Typescript, Cordova.

Machine Learning: Pytorch, Huggingface, Ollama, Tensorflow/Keras, Pandas, Numpy, Matplotlib, OpenCV, Scikit-learn

Deploy: Docker, Rest, FastAPI

Database: DML and DDL features of SQL language. Database NoSQL

Cloud Technologies: AWS (EC2, RDS, S3, Bedrock) - Cloudflare (Workers, D1, R2, KV, AI)

Hobbies

Videomaking, photography, storywriting, piano, guitar, board games creator, motorcycles and oldtimers, mountain bike.

AI - ML Researcher | Computer Engineer

St. Gallerstrasse, 73
8400, Winterthur, CH

Availability: Immediate
Swiss Residence Permit B (EU - IT)

- 30 years old **Computer engineer** with **4+ years of experience** as developer in **applied research** on **machine learning** and **software engineering.**
- Strong 360° focus on **designing ML pipelines** for **data, AI/ML/LLMs**, and **backend services.**
- Experience in designing, deploying, and maintaining **reliable software**, proficient with **containerized environments** and **distributed systems.**
- Good background in **DevOps, CI/CD** workflows.
- Experience translating **applied research** into **robust production software.**
- Author of peer-reviewed **publications** in **reputable scientific journals.**
- **Led** and **wrote research projects** approved and funded by **Swiss funding agencies.**

Work Experience

dec. 2025 – Today

Autonomous iOS App Full-Stack developer

Winterthur, Switzerland

SwiftUI, CloudKit, Cloudflare: Workers, D1, R2, AI, KV | AWS: EC2, RDS, S3, Bedrock
Backend: Typescript (hono). **MotorHub** and **FlashLingo!** - Available on the AppStore

sept. 2023 – feb. 2026

Fixed-Term Researcher at Zürich University Of Applied Science

ZHAW, Winterthur, Switzerland

- Designed and built **Python-based open-source LLM/RAG systems** for automated document analysis and regulatory compliance (FAISS/HNSW, re-ranking, GraphRAG), in collaboration with Bundesamt für Zivilluftfahrt (BAZL).
- Developed modular **data analysis / ML pipelines** and inference services deployed via Docker / Docker Compose (Backend + Frontend) - AWS EC2 + Bedrock hands-on experience
- Implemented **graph-based models** (GNN/autoencoders) and physics-informed ML for real-time aerodynamic prediction.
- Applied **reinforcement learning** for UAV control and trajectory optimization.
- Integrated **Bayesian uncertainty quantification and multi-fidelity data fusion** for AI-driven digital twins, in collaboration with EASA.

oct. 2025 – dec. 2025

Python lecturer

ZHAW, Winterthur, Switzerland

Lecturer for Python programming and software logic.

sept. 2021 – aug. 2023

Research fellow at University Of Palermo

University Of Palermo (UNIPA), Palermo, Italy

- Developed **computer vision** pipelines in Python (CNNs, YOLO) for detection, tracking, and classification.
- Deployed containerized **ML services for a smart parking** recommendation system.
- Built time-series forecasting models (DNNs, RNNs, LSTM) and probabilistic data-fusion workflows. Contributed to backend logic in distributed systems.
  Implemented **secure video-stream processing** with CTR-AES.

Publications

Elsevier, Journal Of Computational Physics: (2025) Predicting transonic flowfields in non–homogeneous unstructured grids using autoencoder graph convolutional networks.

Elsevier, Aerospace Science And Technology Journal: (2025) Spatio-Temporal Graph Convolutional Autoencoder for Transonic Wing Pressure Distribution Forecasting.

Elsevier, Aerospace Science And Technology Journal: (2025)Multi-fidelity Transonic Aerodynamic Loads Estimation using Bayesian Neural Networks with Transfer Learning.

AIAA, SCITECH 2025 conference: (2025) Graph- Convolutional Autoencoder Frameworks for Aerodynamic Shape Predictions of the Agard Wing.
Arxiv: (2025) Methods for Multi-objective Optimization PID Controller for quadrotor UAVs.

Arxiv: (2024) Drone Acoustic Analysis for Predicting Psychoacoustic Annoyance via Artificial Neural Networks.

Education

M.Sc. in Computer Engineering
Artificial intelligence and Computer Security
University Of Palermo, Italy
2020-2023 | 110L/110
Artificial intelligence, Computer Security, Big data Analysis, Web Developing

B.Sc. in Computer Engineering
Informatics and Telecommunications
University Of Palermo, Italy
2015-2019 | 109/110
Computer theory and languages, Numeric Methods, Algorithms, Data Structures

High School Diploma
Sciences and Informatics
Liceo Scientifico Galileo Galilei, Palermo
2009-2015 | 82/100
Fundamental skills in scientific subjects, humanities, literature, and philosophy.