

ALESSANDRO GOBBETTI

✉ ale.gobbetti.work@gmail.com 🌐 alessandro-gobbetti.github.io

🌐 LinkedIn 🐙 GitHub 🆔 ORCID

🇨🇭 Swiss & Italian Citizen

Computer science graduate with a BSc (2023) and MSc (2025) from Università della Svizzera Italiana (USI), early stage research experience in multi-task self-supervised machine learning, federated learning, and human activity recognition, well rounded technical skills across the CS spectrum, experience in leading working groups and in designing, developing, and deploying open-source projects.

🎓 EDUCATION

Master in Informatics

Università della Svizzera italiana (USI)

Sep. 2023 – Sep. 2025

Advanced CS program combining theory and hands-on software engineering; interdisciplinary coursework, team projects, and project management with a focus on emerging technologies.

Bachelor in Informatics

Università della Svizzera italiana (USI)

Sep. 2020 – July 2023

Comprehensive foundation in computer science fundamentals. Extensive hands-on experience through several team-based or individual software projects.

Relevant Coursework

- | | | |
|------------------------------|------------------------------------|-------------------------------|
| • ML / Advanced Topics in ML | • Distributed Systems / Algorithms | • High-Performance Computing |
| • CV & Pattern Recognition | • Edge Computing in the IoT | • Information Security |
| • Image and Video Processing | • Mobile & Wearable Computing | • Software Design & Modeling |
| • Computer Graphics | • Systems Programming / OS | • Adv. Computer Architectures |
| • Computational Fabrication | • Data Analytics / Management | • Quantum Computing |

🔧 TECHNICAL SKILLS

Languages: Python, C/C++, JavaScript, Java, Bash, Julia, MATLAB, HTML/CSS, LaTeX, ...

ML & Frameworks: PyTorch, TensorFlow, Flower, Tensorflow-Federated, FAISS, LangChain, OpenCV, OpenGL, Three.js, Node.js, Vue.js, ...

Tools & Platforms: Git, GitHub Actions, Linux/UNIX, CMake, Docker, OpenMP, Emscripten/WASM, MongoDB, Socket.IO, Blender, ...

📖 PUBLICATIONS

My work resulted in academic theses and peer-reviewed publications on multi-task, self-supervised, federated learning, human activity recognition, and privacy-aware machine learning for mobile and wearable devices.

Multi-Task Self-Supervised Methods for Label-Efficient Learning

Master Thesis, USI

Sep. 2025

Designed and evaluated a novel multi-task self-supervised learning framework combining contrastive and pretext tasks with dynamic loss weighting, and centralized/federated training (HAR/STL-10) to learn compact, robust representations. Modular PyTorch implementation. Supervised by Prof. Marc Langheinrich. Grade: 10/10 🏆

FedMMA-HAR: Federated Learning for Human Activity Recognition With Missing Modalities Using Head-Worn Wearables

A. Gobbetti, M. Gjoreski, H. Gjoreski, N. Lane and M. Langheinrich

IEEE Pervasive Computing

Oct.-Dec. 2024

Follow-up of my Bachelor thesis. Proposes a missing-modality-agnostic federated learning for human activity recognition on head-worn wearables; robust to missing sensors. 🔗

Federated Learning for Privacy-aware Cognitive Workload Estimation

D. Fenoglio, D. Josifovski, A. Gobbetti, M. Formo, H. Gjoreski, M. Gjoreski, and M. Langheinrich

MUM 2023

Dec. 2023

Proposes a federated learning approach for cognitive workload estimation using wearable sensors, achieving performance comparable to centralized models while preserving data privacy. 🔗

Multimodal Federated Learning for Sensor Data

Bachelor Thesis, USI

Jul. 2023

Designed and evaluated federated learning methods for multimodal sensor data, ensuring privacy preservation and proposed a robust technique to handle missing modalities. Supervised by Prof. Marc Langheinrich and Dr. Martin Djorevski. Grade 10/10 🏆

EXPERIENCE

Practical experience in machine learning research, federated learning, IoT systems, and software development gained through internships, contributing to publications and engineering projects.

Creator & Core Developer

io-chess

Jan. 2026 – Present

Developed and deployed io-chess, an open-source and freely available chess engine and web platform, designing a novel incrementally updatable CNN + mixture-of-experts evaluation architecture. Optimized high-throughput inference using custom C++ kernels for incremental updates, and engineered the complete end-to-end pipeline including multithreaded search, training infrastructure, and a WebAssembly port for in-browser gameplay and analysis. 🔗 🔗

Research Internship

People-Centered Computing Lab, USI

Jul. 2023 – Sep. 2023

Researched federated learning for multimodal sensor data under Prof. Marc Langheinrich and Dr. Martin Djorevski, focusing on privacy-preserving robust training techniques and their application to human activity recognition and cognitive load estimation. Two academic publications.

Part-time Internship (40%)

Omnibus Engineering SA

Sep. 2022 – Dec. 2022

Conducted testing and evaluation of IoT home automation systems, focusing on system reliability and user experience optimization.

PROJECTS

My personal and academic projects covered as different subjects as machine learning, web development, mobile apps, visual computing, robotics, and computational fabrication. Projects include individual and collaborative work demonstrating a range of skills and technologies. For most of the collaborative projects, I acted as team leader.

See my personal page for more details at [🌐 alessandro-gobbetti.github.io](https://alessandro-gobbetti.github.io).

★ EXTRACURRICULAR / OTHER

Languages: English (Professional), Italian (Native), French (Beginner).

Hobbies: Competitive chess player (online rating 2100+); geography; electric guitar.