

Alessandro Sottovia

Industrial PhD Candidate in Advanced-Systems Engineering
Free University of Bozen-Bolzano — Faculty of Engineering

PROFESSIONAL PROFILE

Industrial PhD candidate working at the intersection of computer vision, augmented reality, agentic AI and digital twins, with industrial application in manufacturing. Previous experience as AI Specialist in a manufacturing company, covering the full lifecycle of AI solutions: use-case identification, data preparation, model design and training, cloud deployment, monitoring and internal enablement. Author and presenter of peer-reviewed contributions on multi-agent and vision-language systems, and teaching assistant for AI and machine learning at university level.

EDUCATION

PhD in Advanced-Systems Engineering (EQF 8) | Free University of Bozen-Bolzano, Bolzano (IT)

January 2024 – present · 40th cycle, industrial PhD funded by A. Loacker S.p.A.

Research on computer vision, augmented reality, agentic AI and digital twins applied to manufacturing processes.
Supervisors: Prof. Oswald Lanz and Prof. Patrick Dallasega.

Master's degree in Computational Data Science — Computer Science (EQF 7) | Free University of Bozen-Bolzano, Bolzano (IT)

August 2021 – March 2024 · Final grade: 105

Thesis: “Automated Evaluation and Classification of Fat Bloom on Chocolate Surfaces using Image Processing Algorithms and Machine Learning Techniques”.

Bachelor's degree in Computer Science | University of Trento, Trento (IT)

August 2017 – August 2021

Thesis: “Ricerca e Sviluppo di Soluzioni per l’Access Management”.

Secondary school diploma — Liceo Scientifico, Applied Sciences | IIS Galileo Galilei, Bolzano (IT)

PROFESSIONAL EXPERIENCE

IT Consultant | Dr. Taste

April 2026 – October 2026

Design and development of a multi-agent retrieval-augmented generation (RAG) system for querying parallel document corpora.

AI Specialist (full time) | A. Loacker S.p.A., Auna di Sotto (IT)

January 2024 – January 2025

- Led the identification and prioritisation of high-impact AI use cases, addressing concrete business challenges while reducing complexity and maximising business value.
- Ensured the availability of high-quality, relevant data by overseeing data acquisition, validation and preparation processes.
- Designed, selected and trained AI models together with cross-functional teams, aligning algorithm choices with business and technical requirements.
- Built conversational AI solutions with Microsoft Copilot Studio, developing enterprise-ready bots for internal and business use cases.
- Architected and implemented Retrieval-Augmented Generation (RAG) systems on Microsoft Azure, enabling secure, context-aware answers over enterprise data.
- Deployed and operationalised foundation models on AWS, managing scalable, secure and production-ready AI infrastructure.
- Optimised model performance through structured hyperparameter tuning and continuous evaluation.
- Conducted comprehensive validation and testing on diverse datasets to ensure accuracy, robustness and reliability of AI solutions.

- Designed and delivered AI enablement and training programmes, empowering employees to adopt and use AI tools effectively.
- Managed end-to-end deployment and integration of AI solutions into existing systems and workflows, including monitoring, maintenance and performance optimisation in production.
- Tracked and managed distributed AI and software licences, ensuring compliance, cost efficiency and optimal resource allocation.
- Monitored and reported AI-related costs across multiple cost centres, supporting budgeting, financial transparency and governance.

Data Scientist (internship) | A. Loacker S.p.A. (IT)

August 2023 – January 2024

Developed and implemented a machine-learning-driven image processing system to automatically detect and classify fat bloom on chocolate, improving product quality assurance processes.

Software Developer | Ontopic S.r.l., Bolzano (IT)

April 2020 – June 2020

Research and development of solutions for access management.

Earlier experience

Childcare operator — Coop. Learning Center Onlus, Bolzano (March – April 2016). Specialised worker — Soc. Coop. Sociale “8 Archi” Onlus, Bolzano (June – July 2016).

CONFERENCE CONTRIBUTIONS

IEEE Smart World Congress 2026 | Rende (IT), 7–11 September 2026

Presented “Prescriptive AI Agents for Context-Aware Industrial Assembly in Augmented Reality”.

Ital-IA 2026 | Rome (IT), 18–19 June 2026

Presented “Divide, Deliberate, Decide: A Multi-Agent Framework for Fine-Grained Egocentric Action Recognition”.

AWARDS AND HONOURS

Winner — IEEE Smart World Challenge 2026, International Research Hackathon | Best Project Award

September 2026

Best Project Award | ELIAS — European Lighthouse of AI for Sustainability

January 2025

Investigated how pre-trained Vision-Language Models (VLMs) generalise procedural task understanding in video data, identifying the main limitations of pre-trained VLMs for procedural reasoning and proposing recommendations to improve the alignment between video inputs and procedural annotations. The work showed that results can be improved without fine-tuning, reducing computational cost and supporting sustainable AI, and explored data-generation pipelines to build large-scale training datasets.

Winner — Camp 4 Company, “Malva Ears” project | TIS Techno Innovation Park South Tyrol

November 2014 · Best entrepreneurial idea

Second place — “Mobilità: ieri, oggi e domani” | Collegio Costruttori Edili

November 2015

CERTIFICATIONS

ECDL Standard — AICA, October 2015.

Cambridge English Level 1 Certificate in ESOL International (First) — Cambridge English, November 2015.

TECHNICAL SKILLS

Programming: Python (advanced), Java, C/C++, MATLAB, R, SQL, JavaScript / Node.js, XML, JSON, CSS, Bootstrap

Artificial intelligence: Machine learning and deep learning, computer vision, vision-language models, multi-agent and agentic systems, Retrieval-Augmented Generation, model evaluation and hyperparameter tuning

Cloud and platforms: Microsoft Azure, AWS, Microsoft Copilot Studio

Tools and infrastructure: Docker and Docker Compose, Git and version control systems, virtual machines (VirtualBox), virtual knowledge graphs, real-time big data processing

Process modelling: UML, IDEF, BPMN, BPEL

Backend and web: Consolidated experience in backend programming; JavaScript technologies for rich-client and single-page applications

Operating systems: Windows, Linux

LANGUAGES

Italian: mother tongue

English: C1 (listening, reading, spoken production, spoken interaction, writing)

German: B2 (listening, reading, spoken production, spoken interaction) — B1 writing