Alessandro De Vidi

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Professional Profile

Master's student in Artificial Intelligence Systems with a solid background in computer engineering and software development. Passionate about AI, Computer Vision, and Software development. Fast learner, adaptable, and team-oriented. Strong communication and problem-solving skills, with an interest in combining academic rigor and practical applications.

Research Interests and Knowledge Areas

- Machine and Deep Learning
- Computer Vision
- Embedded Systems and Internet of Things (IoT)
- Software Engineering and DevOps

Education

University of Trento Trento, Italy
MSc in Artificial Intelligence Systems *2024 – Present*

University of Trento Trento, Italy
BSc in Computer, Communication and Electronic Engineering *2021 – 2024*

- Thesis: Mitigating biases in Text-to-Image models through ITI-GEN (Stable Diffusion)
- Final grade: 108/110

Experience

AI Challenge Participant Sep 2025 – Dec 2025
Industrial AI Challenge - Hub Innovazione Trentino *Trento, Italy*

- Developed an energy optimization model for the CONCAST case study, integrating MILP algorithms for load management and the Chronos Bolt Foundation Model for estimating photovoltaic production.
- Designed a decarbonization strategy capable of reducing the carbon footprint by 15%, making the results actionable through the creation of an energy dashboard for monitoring KPIs.

Bias mitigation Research Intern Feb 2025 – Sep 2025
University of Trento *Trento, Italy*

- Conducted research under the supervision of the author of OpenBias (CVPR 2024 Highlight), extending the ITI-GEN framework to mitigate non-standard bias categories in Text-to-Image models (Stable Diffusion).
- Designed an automated de-biasing pipeline integrating LLaMa 3, leveraging its instruction following capabilities to rewrite and neutralize user prompts prior to generation.

Projects

Home Repair Assistant (GitHub) Apr 2025 – Jun 2025
University of Trento *Trento, Italy*

- Designed a multi-agent conversational AI framework, adopting the Google A2A protocol as the standard for communication and interaction state management.
- Managed the orchestration of five autonomous AI agents (Diagnosis, Do-It-Yourself, Technical Matching, Booking, Feedback) to automate the entire service flow.
- Optimized latency between agents by 35% under load conditions (1K+ concurrent users) through the implementation of high-performance asynchronous pipelines.

3D Pose Estimation & MoCap Align (GitHub) Apr 2025 – Jun 2025
University of Trento *Trento, Italy*

- Reconstructed and validated the dynamic 3D pose of athletes (basketball) using multi-view triangulation of 2D keypoints, achieving an accuracy of 18 mm (MPJPE) compared to MoCap data.
- Calibrated an 8-camera setup and developed an automated workflow for lens distortion correction, ensuring precise alignment of the system.

Technical Contributor – Robotic Tap System Sep 2024 – Gen 2025
RICAP @ CIIRC (Czech Institute) *Prague / Expo 2025*

- Co-developed the vision system of a robotic beer dispensing system integrating KUKA arms, neural networks, and real-time sensor feedback
- Focused on optimization, precision, and adaptive performance under real-world Expo constraints

SmartChess – Embedded AI Chess Trainer (GitHub) Feb 2023
University of Trento *Trento, Italy*

- Built a chess-playing IoT system with a Raspberry Pi 4 and YOLOv8 for real-time board recognition
- Integrated adjustable AI difficulty for training via custom chess engine

Pediline – Smart City Web App May 2023
DISI UniTn + Municipality of Trento *Trento, Italy*

- Finalist (3rd place) in the "100 Software Projects for the City" student challenge
- Developed a full-stack web service to improve public utility access and citizen interaction

Technical Skills

Languages: Python, Java, C/C++, JavaScript, SQL, Dart
Frameworks: Node.js, Flask, TensorFlow, OpenCV, Flutter
Systems: Linux, Operating Systems, Embedded Systems, IoT
Tools: Git, Docker, PostgreSQL, VSCode, PyCharm
AI/ML: Machine Learning, Computer Vision, YOLOv8, CNNs, Bias Mitigation
Other: Software Engineering, Cybersecurity Fundamentals, Agile, UML, REST APIs

Languages

Italian: Native

English: B2 (Upper Intermediate)