Aurora **Felisari**

M.Sc. Student in Computer Science

Parma, Italy

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Education

Master's Student in Computer Science

University of Parma

2024 – PRESENT

Parma, Italy

I'm currently studying for my Master's Degree in Computer Science at the University of Parma, where I'm deepening my knowledge of advanced technologies and sharpening the skills I need to work on complex, real-world problems. The program puts a strong focus on areas like Artificial Intelligence, particularly its applications in industrial settings, Machine Learning, and Software Security. Alongside the core curriculum, I am also attending additional courses in *Autonomous Driving and ADAS Technologies* and *Virtual and Augmented Reality Systems*, which further broaden my expertise in intelligent systems and immersive computing.

Bachelor's Degree in Computer Science

University of Parma

2021 – 2024

Parma, Italy

I earned my Bachelor's Degree in Computer Science at the University of Parma, where I built a strong foundation in both the theory and practice of modern computing. The program gave me hands-on experience with current technologies, especially in the ICT field, and helped me understand how these tools are applied in real-world scenarios. It also taught me how to keep up with the fast pace of technological change — a skill I consider essential in this field.

Italian High School Diploma (Linguistic Track)

Liceo Linguistico Daniele Manin

2015 – 2020

Cremona, Italy

During my five years of high school, I deepened my understanding of grammar and studied the history and literature of the three languages I had chosen: English, German, and Spanish. The curriculum also included weekly conversation classes with native speakers.

Experience

Tutor – Summer Camp "Ragazze Digitali ER"

University of Parma

Jun 2025 – Jul 2025

Parma, Italy

Guided and supported a group of 16-to-18-year-old girls with no prior programming experience during an intensive course introducing the fundamentals of computer science. The program aimed to empower participants through accessible and inclusive digital education. Taught the basics of Python programming and assisted in the development of original video games combining code and graphic design, enabling students to apply newly acquired concepts in practical, creative ways. Acted as a constant point of reference throughout the course, offering technical guidance, motivation, and mentoring in both group and individual settings.

Undergraduate Internship – Cognitive Rehabilitation with SAR

University of Parma

Nov 2023 – Sep 2024

Parma, Italy

Carried out an interdisciplinary internship in collaboration with the Department of Psychobiology and Cognitive Neuroscience. Worked on cognitive rehabilitation for patients with Mild Cognitive Impairment (MCI), focusing on short-term memory disorders. Contributed to the development of software for therapeutic sessions supported by the NAO Socially Assistive Robot (SAR), integrating adaptive interaction and task personalization. The internship laid the groundwork for my Bachelor's thesis project.

Academic Activity

Autonomous Driving and ADAS Technologies

University of Parma

Sep 2025–

Parma, Italy

Perception, Vision and Autonomous Driving Systems: Attending a course dedicated to the study of technologies for self-driving vehicles and Advanced Driver Assistance Systems (ADAS). The program covers perception and artificial vision, sensor technologies, mapping and simulation environments, planning and control algorithms, and system architectures. The course integrates theoretical lectures with mandatory laboratory activities in perception, requiring development skills in C/C++. External seminars complement the training with case studies from research and industry. Building a GitHub Repository to collect lab exercises, notes, and project implementations.

Virtual and Augmented Reality Systems

University of Parma

Sep 2025– *Parma, Italy*

Design and Development of VR/AR Applications: Attending a course dedicated to modern Virtual and Augmented Reality technologies for interactive 3D simulated environments. The program covers interaction paradigms, input devices (haptic, depth cameras, motion tracking), stereoscopic displays, and collision detection algorithms. Includes extensive laboratory work on Unity3D with C# programming, physics-based simulation, and Bullet Physics in C++. Repository available at GitHub Repository.

Development of Reliable, Safe and Secure Software Project

University of Parma

Jan 2025– Jul 2025 *Parma, Italy*

Isolette Thermostat Control System: Designed and implemented a safety-critical thermostat control system for a neonatal incubator (Isolette), within a university project developed in close collaboration with the software verification company BUGSENG. The project served as a concrete case study to explore the full software development lifecycle under industry-grade safety and reliability constraints. Starting from requirements specification and system design, we carried out all development stages: coding in C, producing documentation, conducting verification activities, and constructing structured safety arguments, all in line with the guidelines of functional safety standards for critical embedded systems. The course emphasized real-world industrial practices, focusing on the cost–benefit trade-offs of formal, semi-formal, and informal methods. It also highlighted the importance of traceability, role separation (developers, verifiers, assessors), and rigorous communication. We used Git for version control and Docker to manage a shared development environment throughout the entire process.

Fundamentals of Artificial Intelligence

University of Parma

Feb 2025– Jun 2025 *Parma, Italy*

From zero to continuity: Benchmarking ReLU, Leaky ReLU & GELU: Studied and compared ReLU, Leaky ReLU and GELU activation functions for feedforward neural networks. Implemented both single-hidden-layer and multi-hidden-layer MLP architectures using PyTorch. Benchmarked performance on MNIST and FashionMNIST classification tasks, analyzing accuracy, convergence speed and generalization. Documented the impact of each activation on training dynamics and final model performance.

Quantum Computing Project

University of Parma

Jan 2025– Feb 2025 *Parma, Italy*

Solving Sudoku with Grover's Algorithm: Explored quantum search algorithms using Qiskit. Implemented Grover's Algorithm to identify solutions in an unstructured search space, analyzing its quadratic speed-up compared to classical approaches. Collaborated in the presentation and critical analysis of circuit behavior and performance.

Declarative Programming Project

University of Parma

Jan 2025– Feb 2025 *Parma, Italy*

Answer Set Programming for Gerrymandering: Model, Benchmarks and Evaluation: Designed and implemented an Answer Set Programming model to solve the Gerrymandering problem over voting grids. Generated 100 benchmark instances with varying parameters and evaluated solver performance under time constraints. Produced a structured report with model design, optimization strategies, and experimental results.

Thesis: Modeling a dialogue for cognitive rehabilitation with XAI

University of Parma

Nov 2023– Sep 2024 *Parma, Italy*

This thesis details the development of a cognitive rehabilitation system using Socially Assistive Robotics (SAR) and Explainable AI (XAI). The system employs a NAO humanoid robot for personalized therapeutic sessions for patients with mild memory disorders. It features adaptive cognitive tasks modeled with Answer Set Programming (ASP) and adheres to EU AI Act guidelines for transparency. The project involved collaboration with psychologists and aims to make therapy more engaging and adaptable.

Languages

- Native speaker of **Italian**.
- Strong command of **English** (B2), confidently used in academic and professional settings.
- Intermediate knowledge of **German** and **Spanish** (B1), acquired through high school education and international experiences.

Skills and Additional Information

Technical Skills

- **Programming Languages:** Python, Java, C, C++, C#, MATLAB, ASP (Answer Set Programming)
- **Libraries & Frameworks:** PyTorch, TensorFlow, NumPy, Pandas, Scikit-Learn, Matplotlib, Qiskit, Clingo
- **Technologies & Tools:** Git, Docker, PostgreSQL, Figma, Unity3D
- **Systems & Architecture:** Operating Systems, Network Protocols, Parallel and High-Performance Computing
- **Data Management:** Relational Databases, Information Systems, Database Design and Querying (SQL)

- **Software Engineering:** Agile Development, Version Control with GitHub, Model-Based Design (Isolette Thermostat Project)
- **Office Suite:** Microsoft Word, Excel, PowerPoint (Advanced proficiency)

Domains & Applications

- **Virtual & Augmented Reality:** Unity3D development, C# programming, Physics-based simulation
- **Autonomous Driving & ADAS:** Sensor technologies, Computer Vision, Perception algorithms, Planning & Control

Other Information

- **Driving License:** Category B – Full, valid in the EU