STEFANO CARAMAGNO

(+39) 348-988-5380 | stefano.caramagno@gmail.com | LinkedIn | Portfolio | GitHub | YouTube

WORK EXPERIENCE

PeRCeiVe Lab (Pattern Recognition and Computer Vision Laboratory) [code | paper | presentation | video] **Catania, Italy**
AI-Robotics Engineer - Python, NumPy, OpenCV, Jupiter Notebook, Unity, Microsoft Office, Markdown, Git *April 2024 - October 2024*

- Improved robot movement control by iteratively testing AI-generated scripts, which ensured smoother and more reliable execution in simulation.
- Tested object interaction by generating prompt-based scripts, which improved the robot's ability to adapt and respond to different scenarios.
- Analyzed script performance through structured experiments, which revealed behavioral patterns and supported motion optimization efforts.

EDUCATION

University of Catania **Catania, Italy**
Master's Degree in Engineering, Computer Science and Engineering *October 2024 – July 2026*

- **Expected Graduation GPA** 4.00/4.00 with Honours (Italian equivalent: **110/110 with Honours**).
- **Current Cumulative GPA** 4.00/4.00 (Italian equivalent: **29.41/30**).
- **GPA 4.00/4.00 with Honours:** Software Engineering, UX, Digital Design & Usability, Control Systems Technology, Architecture and Technology for Telecommunications Systems
- **GPA 4.00/4.00:** Machine Learning, Information Systems Security, Advanced Computer Architectures.
- **Achievements:** Expected to rank in the **top 3%** of students with a flawless record (no failed exams), completing **123/120 ECTS credits**.

University of Catania **Catania, Italy**
Bachelor's Degree in Engineering, Computer Science and Engineering *October 2021 – October 2024*

- **Graduation GPA** 4.00/4.00 (Italian equivalent: **108/110**).
- **Cumulative GPA** 4.00/4.00 (Italian equivalent: **26.74/30**).
- **GPA 4.00/4.00 with Honours:** Object Oriented Programming, IoT Systems and Technologies, Digital Forensics.
- **GPA 4.00/4.00:** Databases and Web Programming, Foundations of Computer Science, Computer Architecture, Engineering Economics, Enterprise Startup and Business Models, Electronics, Digital Communications Signal theory, Linear Algebra and Geometry, Mathematical Analysis I, Physics I, Physics II, Chemistry.
- **Experimental Thesis:** *Artificial Intelligence as an Engine for the Evolution of Anthropomorphic Robots*. [code | paper | presentation | video]
- **Achievements:** Ranked in the **top 5%** of students with a flawless academic record (no failed exams), completing **183/180 ECTS credits**.
- **Awards:** ERSU Scholarship (**2nd place**), University Scholarship for academic excellence (awarded for **3 consecutive years**).

SIDE PROJECTS

Integrated ML Pipeline for Vehicle Pricing **Machine Learning Pipeline**
Python, NumPy, Matplotlib, Seaborn, OpenCV, Pandas, Scikit-learn, Markdown, Git [code]

- Accomplished accurate price predictions by building and tuning a supervised pipeline, which improved the overall precision of the models.
- Enhanced model generalization by applying semi-supervised learning techniques, which enabled solid results in low-supervision scenarios.
- Improved data insights by using clustering techniques, which revealed hidden structures and supported more effective feature analysis.

Hotel Management System **Full Stack Web Application**
HTML, JSON, CSS, Tailwind CSS, JavaScript, Java, Spring Boot, JUnit, Mockito, SQL, MySQL, UML, Git, Waterfall [code | paper]

- Delivered a complete booking workflow by designing a modular architecture, which enabled seamless management of hotel room reservations.
- Structured system flexibility by applying MVC and ORM layers, which simplified logic separation and improved scalability and maintainability.
- Streamlined user experience by adding digital check-in/out and self-service features, which reduced staff workload and wait times for guests.

Airbnb Platform some Improvements **Full Stack Web Application**
HTML, JSON, CSS, JavaScript, PHP, Laravel, SQL, MySQL, Git [code]

- Delivered improved property browsing by adding filters and favorites, which boosted user engagement and simplified content discovery.
- Refined system architecture by applying MVC and ORM layers, which enhanced modularity, code readability, and backend maintainability.
- Secured user access by enforcing authentication and role-based views, which prevented unauthorized data exposure and access issues.

Image Steganography and Steganalysis **Full Stack Web Application**
HTML,CSS, Python, Flask, NumPy, OpenCV, Git [code]

- Built a steganographic system by embedding messages with LSB logic, which enabled secure and invisible data transmission through images.
- Executed image steganalysis by examining statistical pixel deviations, which revealed possible integrity violations and concealed information.
- Deployed a web-based interface by integrating encoding and decoding tools, which simplified usage and testing for non-technical users.

Advanced Video Stabilization and ROI Pixel Analysis **Computer Vision Tool**
HTML, Python, NumPy, OpenCV, Git [code]

- Developed a stabilization pipeline by tracking frame motion with optical flow, which significantly improved smoothness and reduced visual jitter.
- Implemented ROI-based pixel analysis by averaging intensity across frames, which enabled focused and efficient visual pattern evaluation.
- Corrected affine misalignments and border artifacts by applying motion smoothing, which enhanced temporal consistency of the video output.

Gyro Glove Controlled Vehicle with Signal Loss Sound Alert **Embedded System**
C, C++, Arduino, Git [code | video]

- Engineered real-time motion control by mapping glove tilt angles to directional commands, which enabled smooth and intuitive navigation.
- Enabled reactive safety feedback by detecting signal loss and triggering a buzzer melody, which alerted the user of disconnection events.
- Achieved robust RF communication by integrating 433 MHz modules with custom protocol logic, which ensured consistent wireless data flow.

E-Learning Platform **Web Application Design**
Figma, Microsoft Word, Microsoft PowerPoint, Git, Agile [design | paper | presentation | demo]

- Designed a multi-role learning experience by defining personas and user stories, which supported targeted UX decisions across the platform.
- Mapped information structure and user flows by creating wireframes and wireflow, which clarified navigation and ensured design consistency.
- Validated the full experience by developing a high-fidelity prototype, which simulated user journeys and improved pre-development alignment.

SKILLS

Programming: Markdown, HTML, JSON, CSS, JavaScript, TypeScript, C, C++, Java, Python, PHP, SQL, Assembly MIPS, VHDL, MATLAB.
Frameworks: Bootstrap, Tailwind CSS, Laravel, Spring Boot, Node.js, Express.js, Flask, JUnit, Mockito.
Libraries: NumPy, Matplotlib, Seaborn, OpenCV, Pandas, Scikit-learn.
Tools: MySQL, Git, GitHub, Jupyter Notebook, Figma, Microsoft Teams, Microsoft Outlook, Microsoft Office, Microsoft Word, Microsoft PowerPoint, Microsoft Excel, Microsoft OneNote, Simulink, Simscape, LTSpice, GNU Radio, OMNeT++, Arduino, STM32, Unity.
Core: Algorithms, Data Structures, File I/O Operations, Imperative Programming, Concurrent Programming, Object-Oriented Programming (OOP), Full Stack Web Development, Database Design and Development, UML, E-R Model, RESTful APIs, MVC Architecture, ORM Framework, Design Patterns, Software Testing, Debugging, Data Preprocessing, Data Analysis, Data Science, Machine Learning, Waterfall and Agile Methodology.
Languages: Italian (C2, native), English.