



# Dylan Savoia

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## WORK EXPERIENCE

13/09/2021 – CURRENT Rome, Italy

### EMBEDDED SOFTWARE ENGINEER CAPGEMINI ENGINEERING

Successfully conducted projects on **embedded devices** involving complex **User Interfaces** and **AI models**:

- Developed a UI Framework for a ground-vehicle in collaboration with a major Defense company using **Qt/QML 5.15** and **modern C++**. Activities included the design of a clean API, project structure and CMake configuration along with a Proof Of Concept application to showcase the library.
- Optimized memory usage in a **Computer Vision** pipeline on a low-specs embedded device. Successfully **reduced memory requirements by 50%** enhancing the pipeline's performance and efficiency.
- Implemented a new feature for a medical device directly interfacing with the client for feedback, ensuring alignment with their needs and preferences.
- Participated in writing formal **economical offers** and actively contributed to the development of internal **assets**.
- Explored the use of Yolo-V5 and synthetic data in the context of an **Augmented Reality** R&D project.

## EDUCATION AND TRAINING

23/09/2019 – 26/05/2021 Rome, Italy

### MASTER DEGREE IN ARTIFICIAL INTELLIGENCE AND ROBOTICS Università La Sapienza

Successfully completed the "**Excellence Path**" program at La Sapienza University, a prestigious academic trajectory dedicated to high-achieving students.

Extensively engaged with diverse fields and projects during my Master's studies, enhancing expertise in cutting-edge technologies and applications.

- Applied **Graph Neural Networks** to develop Quantitative Structure-Activity Relationship (QSAR) models in Computational Chemistry, for advanced predictive modeling.
- Delved into **Natural Language Processing** (NLP), applying Long Short-Term Memory (LSTM) networks and Transformers for tasks like Named Entity Recognition and Semantic Role Labeling.
- Implemented trajectory planning algorithms for **Robotics** within simulated environments using MATLAB.
- Proficiently navigated **Reinforcement Learning** techniques and implemented from scratch the Proximal Policy Optimization algorithm (PPO).
- Explored **Human-Robot Interaction**, understanding the design challenges of effective human-centered robotic systems.

### Master Thesis: Molecule Generation from Input-Attributions over Graph Convolutional Networks

Develop a new "molecule generation" algorithm using Explainable AI methods (XAI) over QSAR models based on Graph Convolutional Networks (GCNs). The algorithm is capable of generating new molecules that optimize a property/activity of interest. Moreover some of the limitations of the system have been explored including over-optimization and usage outside the Applicability domain.

**Final grade** 110 with Honors

Completed the "**Excellence Path**" program of La Sapienza for the Bachelor Degree.

- Acquired a solid foundation of Computer Science principles and proficiency with foundational **Algorithms and Data Structures**.
- Explored **low-level programming** using Assembly language (AT&T syntax), gaining insights into hardware interactions and system-level programming.
- Engaged in Computer Vision projects using **Deep Learning** models.

**Bachelor Degree Thesis: Reinforcement Learning for autonomous driving in TORCS (The Open Race Car Simulator)**

Train a Reinforcement Learning agent to complete a speed-race track on TORCS (The Open Race Car Simulator) using the DDPG algorithm (Deep Deterministic Policy Gradient) on a continuous action-space environment.

**Final grade** 110 with Honors

● **LANGUAGE SKILLS**

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Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
<b>ENGLISH</b>	C1	C1	B2	B2	C1

*Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user*

● **ADDITIONAL INFORMATION**

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**JOB-RELATED SKILLS**

**Machine Learning and Robotics**

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- Experience with Python's Deep Learning and ML libraries: **PyTorch**, Tensorflow / TF-Lite, Scikit-Learn.
- Numerical & Visualization Tools: **Numpy**, Pandas, Matplotlib.
- Completed Andrew Ng's **Machine Learning** and **Deep Learning Specializations** (Coursera)

**Programming Languages**

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Python, C++, Javascript, PHP, Bash, Lua

**INTERESTS**

**Interests**

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I enjoy problem-solving as a hobby as well: I like developing coding projects to explore intriguing concepts and keep refining my knowledge and skills.

I also keep myself up-to-date with trends in Artificial Intelligence through newsletters and personal research.

**INFORMATION PRIVACY**

**Information Privacy**

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In compliance with the GDPR and the Italian Legislative Decree no. 196 dated 30/06/2003, I hereby authorize the recipient of this document to use and process my personal details.