

Mario Avolio

ARTIFICIAL INTELLIGENCE ENGINEER · SOFTWARE ENGINEER

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Education

University of Milano Bicocca

Milan (MI), Italy

M.S. IN COMPUTER SCIENCE (GRADE: 110/110 CUM LAUDE)

Sept. 2021 - March 2024

- **Thesis title:** *Self-Supervised Learning And Model Adaptation For Facial Attribute Classification*
- **Project:** Developed an advanced framework using Self-Supervised Learning and Model Adaptation to enhance facial attribute classification, achieving high accuracy on diverse datasets.
- **Keywords:** Facial Attribute Classification, MAAD-Face Dataset, CelebA Dataset, Self-Supervised Learning, DINOv2, Low-Rank Adaptation (LoRA), Parameter-efficient Model Adaptation for Vision Transformers (PEViT), Dataset Quantization (DQ)

University of Calabria

Arcavacata (CS), Italy

B.S. IN COMPUTER SCIENCE (GRADE: 108/110)

Sept. 2018 - Sept. 2021

- **Thesis title:** *Dalla visione all'azione: moduli di ragionamento automatico full-stack*
- **Project:** Developed "BrainyBot", a robotic system capable of autonomously solving complex mobile games like Candy Crush Saga and Ball Sort Puzzle through touch screen interaction.
- **Keywords:** Answer Set Programming (DLV2), Object & Image Recognition, Knowledge Representation, Sense-Think-Act paradigm

I.I.S. Silvio Lopianò

Cetraro (CS), Italy

SCIENTIFIC HIGH SCHOOL DIPLOMA

Sept. 2013 - July 2018

Skills

Programming Languages

Python, R, Java, C++, C, MATLAB, JavaScript, Perl, Bash

Frameworks & Libraries

TensorFlow, PyTorch, Keras, Scikit-learn, OpenCV, Matplotlib, Pandas, Numpy, Seaborn, Hugging Face Transformers, Haystack, LangChain, Plotly, EmbASP, Spring

Computer Vision

Adaptive Algorithms, Image Quality Assessment, Object & Image Recognition, Multimedia Indexing & Retrieval, Image Super-Resolution

Robot Localization & Mapping

Bayesian Filtering, Robot Motion & Perception, SLAM (EKF, FAST, Graph-Based)

Natural Language Processing

Text Classification & Sentiment Analysis, Named-Entity Recognition, Topic Extraction, Text Summarization, Text Generation, Question Answering & ChatBot

Answer Set Programming

DLV2

Cloud

AWS

Containers

Docker, Kubernetes

Databases

MariaDB, SQLite, MySQL, PostgreSQL, MongoDB, SQL, Neo4J

Technologies & Tools

Linux, Git, Android Studio, Unity3D, Jupyter Notebooks, RStudio, PyCharm IDE, LINGO, OPL-CPLEX

Languages

English, Italian

Research Publications

From Vision to Execution: Enabling Knowledge Representation and Reasoning in Hybrid Intelligent Robots Playing Mobile Games

KR2023

CO-AUTHOR

Rhodes, Greece | September 2-8, 2023

- The paper explores the automation of interactions with touch surfaces, presenting a delta robot designed to engage in match-3 games and ball-sorting puzzles on mobile phones. This robot employs a vision module to identify objects by color and shape, and utilizes declarative models for decision-making based on game rules and strategies. By integrating AI techniques such as vision processing and answer set programming, the system simplifies motion control through its delta robot configuration. The authors detail the components of their robotic application, demonstrating its capabilities through implementations of various games. They suggest that this approach facilitates innovative combinations of knowledge representation and robotics, offering a controlled environment for experimenting with hybrid reasoning methods without the burden of technical implementation.
- **Keywords:** Applications of KR in robotics, Applications of KR Integrating symbolic and sub-symbolic approaches, KR related tools and systems.

Honors & Awards

DOMESTIC AWARDS

July 2021 **Best Students 2020 Award**, Graduation Day

*University of
Calabria*