



Elena Umili

● WORK EXPERIENCE

15/10/2018 – 15/04/2019

MBZIRC MASTER-INTERNSHIP AT LAAS-CNRS ANTONIO FRANCHI

Motion and Assembly Planning for Mixed Aerial-Ground Robotic Team for the MBZIRC 2020 Link to the MBZIRC robotic challenge: <http://www.mbzirc.com/challenge/2020> ■ Project analysis ■ Multi-agents planning ■ Assembly planning ■ Motion planning ■ Task allocation ■ Simulation framework developing in ROS + Gazebo ■ C++ object oriented programming

Address Toulouse, France | **Website** <https://www.laas.fr/public/>

01/06/2015 – 01/10/2015

ERASMUS+ INTERNSHIP RICCARDO AUCI

Developing of a web-based 3D graphic application, for the Basilica Emilia preservation, in association with cultural heritage ■ Project analysis ■ javascript, PHP programming ■ Creation of a MySQL relational database ■ Use of web technologies: Ajax, JSON, HTML5, CSS ■ Interactive graphic implementation using WebGL and three.js, ■ Company web-site development ■ Company portfolio compilation

Address Barcelona, Spain | **Website** <https://visivalab.com/>

● EDUCATION AND TRAINING

01/11/2019 – 18/05/2023 Rome, Italy

PHD IN ENGINEERING IN COMPUTER SCIENCE Sapienza University of Rome

My research focuses in the field of deep learning, reinforcement learning and neurosymbolic AI. (https://phd.uniroma1.it/web/ELENA-UMILI_nP1491499_EN.aspx)

Supervisor: professor Giuseppe De Giacomo.

Cosupervisor: professor Roberto Capobianco.

Research projects: Whitemech (<https://whitemech.github.io/>)

Department: Department of Computer Control and Management Engineering Antonio Ruberti (DIAG)

Publications:

1. **E. Umili**, M. Tognon, D. Sanalidro, G. Oriolo and A. Franchi, "**Communication-based and Communication-less approaches for Robust Cooperative Planning in Construction with a Team of UAVs**," 2020 International Conference on Unmanned Aircraft Systems (ICUAS), Athens, Greece, 2020.
2. **E Umili**, E Antonioni, F Riccio, R Capobianco, D Nardi and G De Giacomo, "**Learning a Symbolic Planning Domain through the Interaction with Continuous Environments**", Workshop on Bridging the Gap Between AI Planning and Reinforcement Learning (PRL), 2021.
3. **E Umili**, R Capobianco and G De Giacomo, "**Grounding LTLf Specifications in Images**", 16th International Workshop on Neural-Symbolic Learning and Reasoning (NeSy), 2022
4. **E Umili**, F Argenziano, A Barbin and Capobianco, "**Visual Reward Machines**", 17th International Workshop on Neural-Symbolic Learning and Reasoning (NeSy), 2023
5. **E Umili**, R Capobianco and G De Giacomo, "**Grounding LTLf Specification in Image Sequences**", 20th International Conference on Principles of Knowledge Representation and Reasoning (KR), 2023.
6. **E Umili** and R Capobianco, "**DeepDFA: a transparent neural network design for DFA induction**", *submitted for peer review*, 2023.

Research activity:

1. **Paper presentation** at ICUAS 2020
2. **Poster session** at PRL 2021

3. **Spotlight presentation** and **poster session** at **TAILOR 1* conference** - Foundation of Trustworthy AI: Integrating Learning, Optimisation and Reasoning, **2021**
4. **Volunteer** at **KR 2021**
5. **Volunteer** at **NeurIPS 2021**
6. **Paper presentation** and **poster session** at **NeSy 2022**
7. **Paper presentation** and **poster session** at the **AAAI 2023 Spring Symposium Series**

Teaching activity:

1. **Teaching assistant** for the university course "**Tecniche di Programmazione**", professors: Daniele Nardi, Luca Iocchi, AY: 2019/2020, Bachelor in Engineering in Computer Science.
2. **Teaching assistant** for the university course "**Reinforcement Learning**", professor: Roberto Capobianco, AY: 2022/2023, Master of Science in Artificial Intelligence and Robotics.
3. **Guest lecturer** for the PhD course "**Non-Markov Decision Processes and Reinforcement Learning**", professors: Giuseppe De Giacomo, Luca Iocchi, Fabio Patrizi, Alessandro Ronca, AY: 2022/2023, PhD in Engineering in Computer Science, National PhD in Artificial Intelligence.
4. **Guest lecturer** for the university course "**Seminars in AI and Robotics**", professor: Roberto Capobianco, AY: 2022/2023, Master of Science in Artificial Intelligence and Robotics.
5. **Professor** of the course "**Fondamenti di Intelligenza Artificiale**", AY:2022/2023, Bachelor in Engineering in Computer Science.

Address Rome, Italy | **Thesis** Discovering Logical Knowledge in Non-Symbolic Domains

25/07/2017 – 10/08/2017 Sendai, Japan

TOHOKU UNIVERSITY ENGINEERING SUMMER PROGRAM (TESP 2017) Tohoku University

Link to the university program: <http://www.astro.mech.tohoku.ac.jp/TESP/>

Main lectures arguments:

Field and Space Robotics, Rescue Robotics, Human-Robot Interaction, Robot Vision, Medical Robotics, Molecular-size Robotics.

Address Sendai, Japan | **Website** <https://www.tohoku.ac.jp/en/about/index.html>

01/10/2016 – 31/07/2019 Roma, Italy

MASTER OF SCIENCE IN ARTIFICIAL INTELLIGENCE AND ROBOTICS Università degli studi di Roma La Sapienza

Main subjects:

- Artificial intelligence
- Machine Learning
- Computer Vision
- Probabilistic Robotics
- Kinematic and dynamic control for both fixed and mobile robots

Master Thesis: Planning for multiple UAVs in the MBZIRC challenge

Address Roma, Italy | **National classification** 110 cum laude /110

01/10/2011 – 31/07/2016 Roma, Italy

BACHELOR OF SCIENCE IN ENGINEERING IN COMPUTER SCIENCE Università degli studi di Roma La Sapienza

Bachelor Thesis: *Sviluppo di un ambiente grafico 3D, accessibile sul web, per la manipolazione di reperti architettonici*

(in english: Development of a 3D graphic environment, web-based, for the manipulation of architectural finds)

Address Roma, Italy | **National classification** 108/110

● **LANGUAGE SKILLS**

Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	B2	B2	B2	B2	B2
SPANISH	B2	B1	B1	B1	B1

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

● DIGITAL SKILLS

Programming Languages

C | C++ | Python | Java

Web programming

HTML | Javascript | CSS | JSON | MySQL | AJAX | PHP

Robot programming and simulation

Gazebo | V-rep | ROS

Machine Learning

tensorflow | CUDA | opencv | scikit-learn | keras | openai gym | pytorch

Others

Git | Github | Linux | Object-Oriented Programming

● ADDITIONAL INFORMATION

DRIVING LICENCE

Driving Licence: B