



Elena Umili

WORK EXPERIENCE

MBZIRC master-internship at LAAS-CNRS

Antonio Franchi [15/10/2018 – 15/04/2019]

Address: Toulouse (France)

Website: <https://www.laas.fr/public/>

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

Erasmus+ internship

Riccardo Auci [01/06/2015 – 01/10/2015]

Address: Barcelona (Spain)

Website: <https://visivalab.com/>

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

EDUCATION AND TRAINING

PhD Fellow in Engineering in Computer Science

Sapienza University of Rome [01/11/2019 – Current]

Address: Rome (Italy)

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:

- **Elena Umili**, Marco Tognon, Dario Sanalidro, Giuseoee Oriolo and Antonio 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.
- **Elena Umili**, Emanuele Antonioni, Francesco Riccio, Roberto Capobianco, Daniele Nardi and Giuseppe 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.
- **Elena Umili**, Roberto Capobianco and Giuseppe De Giacomo, "**Grounding LTLf Specifications in Images**", 16th International Workshop on Neural-Symbolic Learning and Reasoning (NeSy), 2022
- **Elena Umili** and Roberto Capobianco, "**DeepDFA: a transparent neural network design for DFA induction**", *submitted for peer review* to the 27th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD)

Research activity:

- **Paper presentation** at the **2020** International Conference on Unmanned Aircraft Systems (**ICUAS**)
- **Paper presentation** and **poster session** at **NeSy 2022**, 16th International Workshop on Neural-Symbolic Learning and Reasoning, Cumberland Lodge, Windsor, UK
- **Poster session** at the Workshop on Bridging the Gap Between AI Planning and Reinforcement Learning (**PRL**), **2021**
- **Spotlight presentation** and **poster session** at **TAILOR 1* conference** - Foundation of Trustworthy AI: Integrating Learning, Optimisation and Reasoning, **2021**
- **Volunteer** at **KR 2021** - 18th International Conference on Principles of Knowledge Representation and Reasoning
- **Volunteer** at **NeurIPS 2021** - Thirty-fifth Conference on Neural Information Processing Systems

Teaching activity:

- **Teaching assistant** for the university course "**Tecniche di Programmazione**", professors: Daniele Nardi, Luca Iocchi, AY: 2019/2020, Bachelor in Engineering in Computer Science.
- **Teaching assistant** for the university course "**Reinforcement Learning**", professor: Roberto Capobianco, AY: 2022/2023, Master of Science in Artificial Intelligence and Robotics.
- **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.

Tohoku University Engineering Summer Program (TESP 2017)

Tohoku University [25/07/2017 – 10/08/2017]

Address: Sendai (Japan)

Website: <https://www.tohoku.ac.jp/en/about/index.html>

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.

Master of Science in Artificial Intelligence and Robotics

Università degli studi di Roma La Sapienza [01/10/2016 – 31/07/2019]

Address: Roma (Italy)

National classification: 110 cum laude /110

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

Bachelor of Science in Engineering in Computer Science

Università degli studi di Roma La Sapienza [01/10/2011 – 31/07/2016]

Address: Roma (Italy)

National classification: 108/110

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)

LANGUAGE SKILLS

Mother tongue(s): **Italian**

Other language(s):

English

LISTENING B2 READING B2 WRITING B2

SPOKEN PRODUCTION B2 SPOKEN INTERACTION B2

Spanish

LISTENING B2 READING B1 WRITING B1

SPOKEN PRODUCTION B1 SPOKEN INTERACTION B1

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

DRIVING LICENCE

Driving Licence: B