Luca Iezzi

EDUCATION AND TRAINING

PhD in Engineering in Computer Science (3rd Year)

Sapienza University of Rome [11/2021 – Current]

∗ Underwater Localization and Navigation Algorithms for Networks of Unmanned Underwater Robots.
∗ Simulation-based approaches for Learning-based Algorithms for Localization.

Selected candidate for the 2022 Marine Robotics Summer School

MIT Portugal [07/2022]

City: Faial | **Country:** Portugal

Robotics in ocean research and monitoring, field operations on the latest autonomous systems technology, sensors and remote operations, ocean data standards and analysis.

M.Sc. in Computer Science

Sapienza University of Rome [09/2019 – 10/2021]

Final grade: 110/110 cum laude | **Thesis:** "Autonomous Underwater Vehicles Localization: Design, Implementation and Experimental Evaluation of a Long Baseline Method"

The thesis is centered around the development and the deployment in field of an Extended Kalman Filters (EKF)-based Long Baseline (LBL) localization system for an ROV using the ROS framework.

B.Sc. in Computer Science

[09/2015 – 05/2019]

Thesis: "GreenRoutes-NORTS: a cross-layer protocol for Green Wireless Sensor Networks"

Design and implementation of a protocol for energy-harvesting Green Wireless Sensor Networks (GWSN) with Wake-up Radio (WUR) technology. Protocol validation using the simulation framework Green Castalia in C++ language.

WORK EXPERIENCE

Contract Collaborator

WSense Srl [05/2024 – Current]

City: Rome | **Country:** Italy

Realistic Gazebo-ROS-based underwater robot networks simulation for validation of communication-aware navigation algorithms and adaptive estimation.

Contract teaching Position

Sapienza University of Rome - Computer Science Dept. [02/2022 – 03/2023]

Lab instructor for the course Computer Networks.

Contract Collaborator

WSense Srl [10/2022 – 10/2023]

City: Rome | **Country:** Italy

Development of localization protocols for Unmanned Underwater Vehicles and human divers.

Research Intern

WSense Srl [07/2021 – 10/2021]

City: Rome | **Country:** Italy

Design and development of navigation and cooperation support localization techniques for submarine robot networks in submarine archaeology.

Research Assistant

Sapienza University of Rome - Computer Science Dept. [12/2020 – 07/2021]

Design and development of protocols for networks of Underwater Autonomous Vehicles.

PUBLICATIONS

[2] I. Tallini, L. Iezzi, P. Gjanci, C. Petrioli, and S. Basagni, "Localizing autonomous underwater vehicles: Experimental evaluation of a long baseline method", in IEEE 2021 17th DCOSS, 2021, pp. 443–450.

Link: 10.1109/DCOSS52077.2021.00075

[1] L. Iezzi, C. Petrioli, and S. Basagni, "An adaptive extended Kalman filter for state and parameter estimation in AUV localization", in Proceedings of IEEE ICC 2023, Rome, Italy, May 2023, pp. 1–7.

Link: 10.1109/ICC45041.2023.10279557

CONTRIBUTION TO ITALIAN/EUROPEAN/INTERNATIONAL PROJECTS

PNRM DAMPS

Funded by the Italian Ministry of Defense on the development of a multi-robot system for the position tracking of noise sources in underwater environment.

PNRM FRONTCOM

Funded by the Italian Ministry of Defense on next generation wireless underwater acoustic communication technologies.

PNRM MEDUSA

Funded by the Italian Ministry of Defense on next-generation underwater wireless communication and networks of underwater robots.

POR TEAM

Funded by Lazio Innova, on Internet of Underwater Things systems for underwater archaeological sites discovery, monitoring, surveillance and valorization.

HONOURS AND AWARDS

IEEE
Best Paper award runner-up at the IEEE WCNEE 2021 conference for paper [2].

[10/2022] Sapienza University of Rome
Sapienza Starting Research Grant (Avvio alla Ricerca) 2022 winner for project "Learning-assisted Distributed Cooperative AUV Localization."

[07/2022] MIT Portugal
Sponsorship winner for the MIT Portugal's 2022 Marine Robotics Summer School.

[07/2023] University of the Aegean
Sponsorship winner for the University of the Aegean's 2023 Marine Informatics and Robotics Summer School.

[10/2021] Sapienza University of Rome
Sapienza PhD Scholarship

[12/2020] Sapienza University of Rome
Research scholarship at Computer Science Dept. for ROV Localization algorithms implementation in field applications.

CERTIFICATIONS

EF Standard English Test (EFSET) - C2-Proficient

SKILLS

Programming Languages

• C, C++, Python, Bash.

• Data analysis/Machine Learning Tools

PyTorch, Numpy, Pandas, Matplotlib, ScikitLearn, OpenCV.

Frameworks/Simulation

Green Castalia, Gazebo, Robot Operating System (ROS), Bellhop.

Miscellanea

Git, LaTex, Linux, Arduino, Raspberry Pi.