Nicolò Faggioni

Marine Engineer and Naval Architect

Date of Birth: xxx.xx.xxxx

xxx

xxx

xxx

Scopus: 57205353851

ORCID: 0000-0001-5762-4752

Interests

- Autonomous Navigation
- Ship Propulsion Plants
- Marine Technologies
- Shipping Decarbonization
- Machine Learning
- Additive Manufacturing
- Plastic Marine Pollution

Languages

- Italian (Native Speaker) ●●●●●
- English (B2 lvl.) ●●●○○

Skills

Programming:

- MATLAB, Simulink ●●●●●
- IDE Arduino, Python ●●○○○

CAD Tools:

- Rhinoceros ●●●●●
- Microstation, AutoCAD ●●○○○

3D Printer Slicer:

- Simplify 3D, Cura ●●●●●

Structural Analysis Software:

- Adina, Nastran Patran ●○○○○

Current Position

Nov, 2018 – ongoing

Ph.D. Candidate in Marine Engineering — **University of Genoa, IT**

Project Title: Enabling technologies and decision support systems towards autonomous navigation of ships.
Supervisors: Prof. Michele Martelli.
Research Topic: The aim is to study and implement automatic control logic towards at autonomous navigation of surface vehicles. The main task carried out were: developed and implemented several command modes on a testing model fully actuated, developed by using a 3DOF ship dynamic simulator, tailored on the testing model, two different force allocations for a dynamic positioning system, and developed a multi-object tracking for the marine environment based on machine learning unsupervised learning approach by using a LiDAR point clouds.

Working Experience

Sep, 2017 – ongoing

Teaching Assistant — **University of Genoa, IT**

Worked as teaching assistant for the Master's degree Course - "Ship Propulsion Plants" and Bachelor's degree Course - "Ship Plants A" at Polo Marconi of La Spezia. The main tasks were carried out lessons in which exercises were explained and providing teaching assistance to students.

Dec, 2020 – Mar, 2021

Intern at SEASTEMA SpA — **Lucca, IT**

The undersigned has worked on autonomous navigation topics concerning obstacle detection. Machine learning algorithms related to the detection of fixed and moving obstacles, acquired by LiDAR sensor, were studied. Furthermore, a comparison between the several clustering approaches focusing on the marine environment has been conducted. Eventually, several experimental LiDAR acquisitions have been carried in marine scenarios.

Sep, 2017 – Oct, 2018

Research Fellow — **University of Genoa, IT**

The main research topic was carried out through MATLAB / Simulink. The work carried out has focused on the ship propulsion devices and the implementation of a virtual command console, which can allow users to control the ship behaviour in real-time. Eventually, again in the MATLAB / Simulink environment, a virtual scenario was developed. The ship can be tested during simulations with a view to the future development of augmented reality.

Apr, 2016 – May, 2016

Intern at SIMAN SRL — **La Spezia, IT**

During the internship, the main tasks carried out were: the design of the main deck layout, the verification of the equipment, the preliminary ship weighing, the determination of the trimming ship and the positioning study of the pendulum for the RINA tests.

Education

Nov, 2018 – Feb, 2018

Industrial Engineer Registration Exam — **University of Genoa, IT**

Sep, 2014 – Mar, 2017

M.Sc. in Yacht Design | LM-34 — **University of Genoa, IT**

Project Title: Design and analysis of Continuously Variable Transmission for marine applications.
Supervisors: Prof. Michele Martelli and Prof. Giovanni Berselli.
Grade: 110/110 cum laude

Sep, 2010 – Oct, 2014

B.Sc. in Nautical Engineering | L-9 — **University of Genoa, IT**

Project Title: Design of a 53-foot trawler motor boat.
Supervisors: Prof. Carlo Podenzana Bonvino.
Grade: 100/110

Sep, 2005 – Jul, 2010

Scientific high school diploma — **G.Capellini N. Sauro, IT**

Grade: 92/100

Short Bio

He achieved his Bachelor's degree in Nautical Engineering in 2014 and Master's degree in Yacht Design in 2017, both from Genoa University. Currently, he is a PhD candidate in Naval Architecture and Marine Engineering, started in November 2018, at Dept. of Naval Architecture, Electric, Electronic and Telecommunication Engineering (DITEN) of Genoa University. During the university research interval, he has been involved in several research projects, working alone and in a team, demonstrating an excellent aptitude for teamwork. Moreover, he has demonstrated editing skills by writing project reports and papers and good public speaking skills by teaching in the classroom and presenting at international conferences. His main research interests concern autonomous navigation, innovative ship propulsion plants, focusing on decarbonization techs, numerical simulation, and laboratory activities.

Profiles

Academic Supervision

A.Y. 2019/20	Master's thesis co-supervisor - Francesca Lavagnini and Deborah Marzocchi - Title: "Study of yacht operational profiles based on MTU engine data analysis"
A.Y. 2020/21	Master's thesis co-supervisor - Filippo Ponzini - TItle: "Experimental multi-object tracking based on LiDAR point cloud"

Publications

Journals

- Martelli M., Faggioni N. & Berselli G., (2018): "Fuel saving in a marine propulsion plant by using a continuously variable transmission", Proceedings of the Institution of Mechanical Engineers, Part M: Journal of Engineering for the Maritime Environment, Volume 233, Issue 4, November 2018, Pages 1007-1021.
  (Scimago Journal Rank; subject: Ocean Engineering; Quartile: Q2; SJR:0.528)
- Martelli, M., Faggioni, N. & Donnarumma, S. (2021). "A time-domain methodology to assess the dynamic positioning performances", Ocean Engineering. UNDER REVIEW

Indexed Conferences

- Martelli M., Faggioni N. & Zaccone R. (2019): "Development of a navigation support system by means of a synthetic scenario", Proceeding of Maritime Transportation and Exploitation of Sea Resources - Proceedings of IMAM 2019 18th International Congress of the International Maritime Association of the Mediterranean, Volume 3, 2020, Pages 481-487, Varna, Bulgaria, September 9-11, 2019.
- Martelli M., Faggioni N. & Donnarumma S. (2020): "Novel dynamic approach to design a dynamic positioning system", INEC/iSCSS 2020: 15th International Naval Engineering Conference and Exhibition & International Ship Control Systems Symposium. Institute of Marine Engineering, Science and Technology, 2020. Delft, Netherlands, October 6-8.
- Haseltalab A., Garofano V., Afzal M.R., Faggioni N., Li S., Liu J., Ma F., Martelli M., Peeters G., Singh Y., Slaets P., You X., Negenborn R.R. (2020). "The Collaborative Autonomous Shipping Experiment (CASE): Motivations, Theory, Infrastructure, and Experimental Challenges", INEC/iSCSS 2020: 15th International Naval Engineering Conference and Exhibition & International Ship Control Systems Symposium. Institute of Marine Engineering, Science and Technology, 2020. Delft, Netherlands, October 6-8.
- Faggioni, N., Leonardi, N., Ponzini F. & Martelli, M. (2021) "Obstacles detection in Experimental and Synthetic Harbour Scenario", International Conference on Modelling and Simulation for Autonomous Systems, MESAS 2021. UNDER REVIEW

Conferences

- Enoizi L., Piaggio B., Martinelli L., Figari M. & Faggioni N. (2019): "Rosmanditen: a Theoretical and Experimental Insight into ASD Tug Manoeuvrability", Tugnology '19, pp.1-14. Liverpool, UK, May 14-15, 2019.

Conference Speaker

- 18th International Congress of the International Maritime Association of the Mediterranean, IMAM 2019, Varna, Bulgaria, September 9-11.
- 15th International Naval Engineering Conference and Exhibition & International Ship Control Systems Symposium. Institute of Marine Engineering, Science and Technology, 2020. Delft, Netherlands, October 6-8