

Alaaeddine Chaarani

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🔗 Alaashaaarani.github.io in Alaaeddine

Education

Universitat De Girona, Spain *Ph.D. Candidate* Sep 2023 - 2027

- Development of Underwater Long-Term Deployment Systems by the integration of perception, localization, control and planning to perform underwater static and dynamic docking missions.
- Implementation of DRL control system using MDP to perform underwater tasks
- Development of a library that uses Stonefish, stablebaseline and gym to utilize DRL for Underwater application.
- Performed successful autonomous docking using the Girona AUV:
 - RL control to dock in Test tank, Jan 2026 - Submitted to IROS
 - Vilanova OBsea at 4 km offshore - July 2024 - two weeks experimentation.
 - Sant Feliu de Guíxols at the Port - June 2024 - One week experimentation.

UDG, Spain & ELTE, Hungary *Master Program In Robotics* Sep 2021 - May 2023

- Joint Erasmus Mundus Masters in Intelligent Field Robotics Systems - Grade 8,41/10
 - Addressed the automation, perception, localization, and intervention of field robots.
 - Involved in multiple Hands-On projects using Turtle bots, AgileX, and Girona AUV.

Lebanese International University, Lebanon *MS in Mechanical Engineering* Sep 2012 - May 2017

- 3-Years Bachelor of Science, 2-Years Master of Science - Grade 8,19/10
 - Addressed the material science, thermodynamics, hydraulics, and engines.
 - Involved in two internships related to HVAC and renewable energy.

Experience

Mech. and Computer S. Engineer *VicoRob - Research Group, Girona, Spain* 2022-Ongoing

- **Tandem Project:** 🔗 Design the launch and recovery system for the Girona Autonomous vehicle, 2025-2026.
- **AI4AUV Project:** 🔗 Deploy a sim-to-reality adaptation for the AUV docking using DRL.
- **Mini Girona AUV:** 🔗 Design and build an underwater autonomous vehicle, 2024-2025.
- **Plome Project:** 🔗 Design and build an underwater alignment mechanical system with 3 DoF, March 2025.
- **OptihROV Project:** 🔗 Design and build the Girona 300 autonomous vehicle's flotations, May 2024.
- Internship: Design the Docking Stations of the Girona Autonomous Underwater Vehicle, June 2021

Robot Club Manager/coach *AlBayan High School, Lebanon* 2013 -2021

- Gained advanced technical knowledge in educational robotics (e.g.: LEGO-VEX-REV-Arduino...).
- Created three years of classroom activities and teacher guides.
- Managed more than twenty-four national and six international competitions.

Co-founder and Trainer *North Robotics Club, Lebanon* 2018 - 2021

- Developed curricula for Arduino and First Robotics.
- Prepared trainers to teach classes of 7 to 12 students.

Physics Teacher Tripoli, LB

- Al Bayan High School - October 2019 to 2021.
- David Karam Educational Center - September 2017 to 2018.
- Taught physics subjects to classes of ages 13-14-16-17.

Publications

To check the recent publications please visit my [Google Scholar Account](#) .

- **Journal Paper:** Chaarani Alaaeddine, Narcis Palomeras Ridao Pere. "Sim-to-reality adaptation for Deep Reinforcement Learning applied to an underwater docking application". DOI:2603.12020  Under-Review
- **Journal Paper:** Chaarani Alaaeddine, Cieslak Patryk, Esteba Joan, Ivan Eichhardt Ridao Pere. "Three-Dimensional Binary Tag: A novel underwater marker used in long-term deployment scenarios". Journal of Marine Science and Engineering, 28 July 2025. DOI: 10.3390/jmse13081442  Published
- **Conference Paper:** Chaarani Alaaeddine, Cieslak Patryk, Esteba Joan, Ridao Pere. "A Docking Station for the Girona I-AUV: Validation by Simulation", Oceans 2025, Brest, France, June 16th to 19th, 2025. DOI: 10.1109/OCEANS58557.2025.11104652  Published

Achievements, and Accomplishments

- Achieved sixteen different titles during the eight years of robot coaching, the top three are:
 - Coached the Lebanon representative team at the First Global Challenge in Mexico City, Mexico (2018)
 - Received 3rd-Place Strategy and Innovation Award-First Lego League in Bath, UK (2016).
 - Achieved 1st-Place Research Award-First Lego League in Tenerife, Spain (2015).
- 1st-place Master Thesis Project in the yearly competition for the Tripoli Syndicate of Engineering and Architecture - Lebanon (2017).

Awards

- Received seven different awards, three of them are:
 - Appreciation Award-From: Al Bayan High School (2019).
 - Appreciation Certificate-From: David Karam Educational Center (2018).
 - Award of Excellency-From: Lebanese International University (2017).

Projects

Arduino Curriculum Development - 2018

Pedagogy 

- Developed a 30 lectures with teacher guide for Robotic application using Arduino Microchip.

Technologies

Programming Languages: Matlab 3 years, C++ and ROS 4 years, Latex and Python 5 years.

Technologies: git for 3 years, Linux for 5 years, Microsoft Office and Google tools for +10 years.

Hard Skills: Blender design and editing for robotics applications, Solidworks modeling for 5 years, 3D-printing for R&D and prototyping, CNC, hands-on manufacturing as Underwater DS, Mini Girona AUV.

Soft Skills: Coach and mentor for +8 years, Presenting weekly, Teamworking with different skill based colleges, Problem-solving of challenges for projects especially in mechanical field.