
MARINE SCIENCE, TECHNOLOGY, AND INNOVATION

Dive in with us on our journey to develop the technologies needed to unravel the mysteries of the largest habitat on the planet. Attend talks by world renowned experts, followed by demonstrations, hands-on challenges, and tour of our labs.

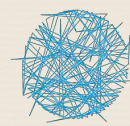


MARINE ROBOTICS SCHOOL

12-17 February 2018



The Marine Robotics School will afford students, researchers, and systems developers a fast paced introduction to the core topics that must be mastered to design, build, and operate single and multiple cooperative vehicles for commercial and scientific missions at sea.



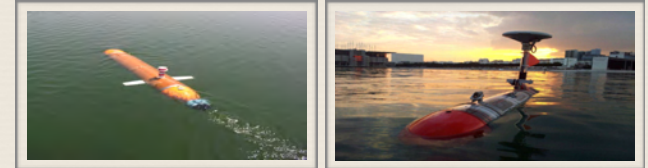
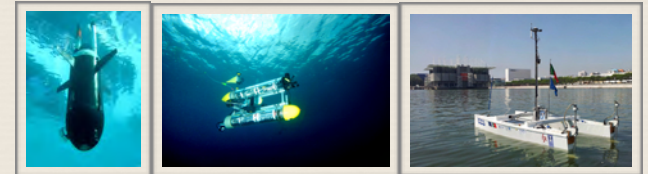
LARSyS
Laboratory of Robotics
and Engineering Systems



CSIR-National Institute of Oceanography
Goa, India
www.nio.org

Distinguishing Features of the Marine Robotics School

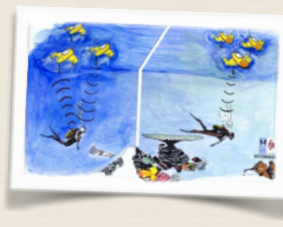
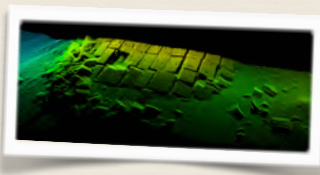
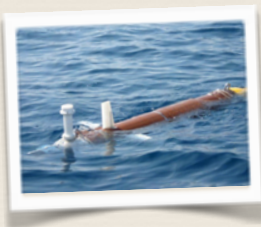
A stimulating combination of theoretical and practical issues, complemented by experiments and field demonstrations with acoustic networks and marine robotic vehicles



Marine Robots from the Participating Institutions

MAYA AUV, Medusa AUV, Delfim ASV,
Autonomous Vertical Profiler (AVP),
Medusa Deep Sea AUV,
GIRONA 2000 AUV with Manipulator





KEY TOPICS

- Marine science, technology and innovation
- Robotic Vehicles: Modelling and Simulation
- Introduction to Linear and Nonlinear Control Theory, Estimation Theory and Observer design
- Navigation, Guidance and Control of Autonomous Marine Vehicles
- Obstacle Detection and Avoidance, boundary mapping/source localisation
- Cooperative Motion Control & Planning
- Vision and Sonar-based Simultaneous Localisation and Mapping (SLAM)
- Non-conventional navigation systems using geophysical features
- Acoustic Networks
- Bio-inspired Marine Vehicles
- Intervention Vehicles: Robots and Manipulators
- Systems implementation using Robot Operating System (ROS) & Hardware-in-the-loop Simulations (HIL)
- Remotely Operated Vehicles (ROV) and Deep Ocean Profilers



REGISTRATION

Students: ₹1000

Researchers/Faculty/Corporate: ₹5000

VENUE

CSIR-National Institute of Oceanography
Dona Paula, Goa, India

CONTACT

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COORDINATORS

Pramod Maurya, Antonio Pascoal,
Sadaf Ansari, Anand Lokapure,
S Afzulpurkar, A Mascarenhas, N.
Dabholkar, S Prabhudesai, G Navelkar



SPEAKERS



Antonio Pascoal

Assoc. Professor, IST, Univ. Lisbon, Portugal. Adjunct Scientist, National Institute of Oceanography, Goa, India

Research area : Cooperative Motion Planning, Navigation, and Control. Dynamical Systems and Marine Robotics



Pere Ridao

Assoc. Professor, CIRS, Univ. of Girona, Spain. IQUA Robotics co-founder.

Research area : Autonomous Intervention, Opto/Acoustic Simultaneous Localization and Mapping Underwater. Motion planning



Konstantin Kebkal

Evologics GmbH, Germany

Research area : Acoustic communications. Acoustic network systems for single and cooperative navigation and control



Pratyush Menon

Lecturer, University of Exeter, UK

Research area : Distributed Control and Estimation, Multi Agent Systems, Formation/Cooperative Control



Tata Sudhakar

Group head, National Institute of Ocean Technology, Chennai, India

Research area : Deep Ocean profilers, Buoyancy devices



Alex Alcocer

Assoc. Professor, Electrical Engineering, Oslo and Akershus University College, Norway

Research area : Underwater Navigation, Hardware in the loop simulations



Ehrlich Desa

Ex-Director NIO, Distinguished Scientist CSIR, India
Worked as Head, Capacity - development at Intergovernmental Oceanographic Commission of UNESCO.

Interests : Dissemination of technological solutions to economically depressed communities by local entrepreneurs as a way of improving their incomes and quality of life.



Jinwhan Kim

Assoc. Professor, Department of Mechanical Engineering, Korea Institute of Science and Technology (KAIST), South Korea

Research area : Vehicle Dynamics & Control, Marine Robotics, Navigation and Mapping.



Lionel Lapiere

Assoc. Professor, University of Montpellier, France.

Research area : Marine Robotics, Overactuated Systems,



Vahid Hassani

Adj. Associate Professor, Department of Marine Technology, Norwegian University of Science and Technology (NTNU).

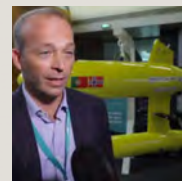
Research area : Marine control systems, Autonomous ships



Santhakumar

Associate Professor, Indian Institute of Technology Indore

Research area : Robot Dynamics and Control, Vehicle-Manipulator Systems, Parallel Manipulators, Service Robots and Assistive Robots



Luis Sebastiao

Research Engineer, IST, Univ. Lisbon, Portugal.

Research area : Systems integration, deep sea systems, hydrographic & geotechnical surveys.



Rudolf Bannasch

Evologics GmbH, Germany

Research area : *Bio-inspired ocean vehicles.*



Veronika Kebkal

Evologics GmbH, Germany

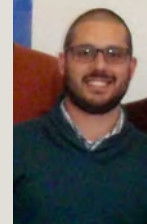
Research area : *Acoustic Network Implementation, communications protocols*



Behzad Bayat

Post Doc. Researcher , Biorobotics Laboratory, EPFL, Ecole Polytechnique Fédérale de Lausanne, Switzerland

Research area : *Nonlinear robust/adaptive estimation, bio-inspired robotics, swimming robot, & efficient swimming*



Jorge Ribeiro

Research Engineer, IST, Univ. Lisbon, Portugal.

Research area : *Mission planning and software development, Robot Operating systems (ROS).*



Pramod Maurya

Scientist, National Institute of Oceanography, Goa, India.

Research area : *Autonomous systems, Navigation and Control.*



Elgar Desa

Former Scientist at National Institute of Oceanography, Goa, India.

Research area : *Autonomous systems, Seabed landing systems, Technology Management.*



CEiIA

CEiIA was created in 1999 with the goal of supporting the competitiveness of the Portuguese automotive industry. CEiIA develops and tests structures and equipment for subsea environments



Planys Technologies

Planys Technologies is an IIT Madras incubated company that provides submersible robotic inspection and survey solutions using Remotely Operated Vehicles (ROVs). Planys has its head office in Chennai where it indigenously designs and manufactures compact ROVs.

The school aims to contribute to building bridges in marine robotics research, fostering cross fertilisation of ideas between marine science and technology and commercial applications, and giving new momentum to outreach activities

Who should attend?

Engineering students (undergraduate, graduate, and doctoral), researchers working in marine science and technology, university lecturers and professors, representatives of governmental institutions, commercial operators, and other marine stakeholders.

