

BREAKING THE SURFACE 2016

ILIRIJA RESORT, BIOGRAD NA MORU, CROATIA 2nd Oct. - 9th Oct.

8th INTERNATIONAL INTERDISCIPLINARY FIELD WORKSHOP OF MARINE ROBOTICS AND APPLICATIONS

Organized by

University of Zagreb

Faculty of Electrical Engineering and Computing

Laboratory for Underwater Systems and Technologies



Financed in the scope of project EXCELLABUST which has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 691980.



EXCELLABUST

Supported by Croatian Academy of Science and Art (HAZU)



In partnership with AMOS-NTNU, Trondheim, Norway



The BtS serves since 2009 as a meeting place of experts and students of marine control engineering and signal processing and the marine robotics application areas in various types of ocean science (marine biology, marine archaeology, marine security, oceanography, marine geology and oceanology). BtS is the world's first successful, multi-year field training program that combines academic topics in marine robotics and robotics application areas and hands-on working experience in the sea, doing remote sensing and sampling for various ocean sciences. BtS is also unique in putting a strong emphasis on the participation of principal investigators and established research group leaders from across the globe, catering not only to the EU or USA research communities.

The program is organized along four program tracks of the event: **marine robotics** (MAROB); **marine biology and marine nature protection** (MARBIO); **maritime security, naval and coast guard operations** (MARSEC); **maritime, nautical and ship archaeology** (MARCH). This year, in addition to our four program tracks, we will introduce new speakers from areas such as marine geology (MARGEO), oceanology (OCEAN), oceanography (GRAPH) and others.

The program consists of:

LECTURES

Held by world-class experts, focusing on recent interesting robotic, control, signal processing or ocean science (MAROB, MARBIO, MARCH, MARSEC) results, dove-tailing with one of the program tracks.

In previous years we had an honour to host lecturers from:

MAROB

- Norwegian University of Science and Technology - NTNU, Norway: **Asgeir J. Sørensen, Thor Fossen, Martin Ludvigsen, Kristin Y. Pettersen** and many more
- The Institute of Intelligent Systems for Automation - ISSIA, National Research Council of Italy - CNR, Italy: **Massimo Caccia, Marco Bibuli, Enrica Zereik**
- Jacobs University Bremen, Germany: **Andreas Birk**
- University of Cassino and Southern Lazio, Italy: **Gianluca Antonelli**
- Imperial College London, UK: **Mirko Kovač**
- Illmenau Technical University, Germany: **Thomas Glotzbach**

- University of Lisbon, Portugal: **Antonio Pascoal, Francisco Curado Teixeira**
- Tallin University of Technology, Estonia: **Maarja Kruusmaa**
- University of Limerick, Ireland: **Daniel Toal, Edin Omerdić**
- MARBIO**
- Norwegian University of Science and Technology - NTNU, Norway: **Geir Johnsen, Ingunn Nilssen**
- University of the Azores (Portugal): **Marina Carreiro Silva**
- The Scientific Centre of Monaco, Monaco: **Andrea Gori**
- MARCH**
- University of Rhode Island, USA: **Bridget Buxton, John Odin Jensen**
- University of St Andrews, Scotland: **Martin Dean**
- Underwater Archaeology Unit of the IAA, Israel: **Jacob Sharvit**
- University of Patras, Greece: **George Papatheodorou**
- OceanGate, USA: **Stockton Rush**
- MARSEC**
- NATO Centre for Maritime Research and Experimentation - CMRE, Italy: **Stefano Fioravanti**
- University of Hawaii at Manoa, USA: **Margo Edwards**
- Institute for Adaptive Systems, Arlington, USA: **Thomas B. Curtin**
- Space and Naval Warfare Systems Command - SPAWAR, USA: **Vladimir Djapic**
- Stevens Institute of Technology, USA: **John Dzielski**
- Naval Research Laboratory, USA: **Gregory Scott**

And many more!

TUTORIALS

Hand on tutorial sessions concentrating on the use of tools and applications for robotic ocean science mission preparation, post-processing and statistical analysis. Participants are guided and encouraged to draw their own conclusions based on analysis of the ocean science data sets - videos, images, side scan or imaging sonar feeds etc., collected by underwater robots. The tutorials provide an opportunity for all participants to receive hands-on training in marine robotics operations.

DEMONSTRATIONS

Demonstrations of equipment: autonomous robotic units, vehicles, systems (ROVs, AUVs, USVs, UAVs); or remote sensing equipment, stereo-camera systems, sonars, radars, hydroacoustic modems etc. by research teams or industrial partners who exhibit and present their products.

In previous years demonstrations were held by:

Companies: Evologics (Germany), Kongsberg-Hydrodroid (USA/Norway), VideoRay LLC (USA), OceanServer Technologies Inc. (USA), OcanScan Ltd. (Portugal), Maritime Robotics (Norway), etc.

EU projects: FP7 CADDY project, FP7 MORPH, e-UroPe, etc.

PROGRAMME NOVELTY

TUTORIAL ON STARTUPS ORGANIZED BY NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY - NTNU

BTS 2016 WILL ORGANIZE INNOVATION MANAGEMENT TRAINING AND HOST EXPERTS FROM THIS FIELD.

REGISTERING AND PARTICIPATING

Register through BtS official web-page

bts.fer.hr

The registration and accommodation fees are combined.

The Registration package includes:

- **accreditation** which allows you participation in all technical and social programs
- **accommodation** with three meals per day in single rooms (for Standard registrations) or shared double rooms (for Student registrations) in a 4* hotel for 7 nights (from 2nd until 9th October)

REGISTRATION FEES

Type of Registration	Early-bird (by 2 nd July)	Regular (by 2 nd September)
STUDENT	€500	€600
STANDARD	€600	€750
ACCOMPANYING PERSON	€250	€250

CORPORATE PARTICIPATION PROGRAM FOR COMMERCIAL ENTITIES

The Corporate Participation Program includes:

- **2 full Standard Registrations** that consists of accreditations (which allows you participation in all technical and social programs) and **accommodation** (with three meals per day in single rooms in a 4* hotel for 7 nights, from 2nd until 9th October)
- a **30 min time-slot for the presentation** of the product gamut
- logistical / infrastructural local support and organization collaboration for an expo / hands-on demonstration activity at the prescribed site

REGISTRATION FEES

Type of Registration	Early-bird (by 2 nd July)	Regular (by 2 nd September)
CORPORATE	€3000	€3500

For past commercial participants' experience, you can contact Evologics (Germany), Kongsberg-Hydroid (USA/Norway), VideoRay LLC (USA), OceanServer Technologies Inc. (USA), OcanScan Ltd. (Portugal).

POINT OF CONTACT

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BtS 2015 participants