

2013

breaking the surface

5th international interdisciplinary field training of marine robotics and applications

supported by Office of Naval Research – Global, us

under the patronage of the President of the Republic of Croatia, Dr. Ivo Josipović

September 30 – October 5, 2013

Hotel Colentum, Murter, Croatia

<http://bts.fer.hr>

Breaking the Surface 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. We are 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. We are also unique in that we put 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:

MAROB – marine robotics;

MARBIO – marine biology and marine nature protection;

MARSEC – maritime security, naval and coast guard operations;

MARCH – maritime, nautical and ship archaeology.

It consists of 20 plenary talks, a number of tutorials, and 3 days of fieldwork for all participants. The fieldwork provides an opportunity for all participants to receive hands-on training in marine robotics operations.

For Master and Ph.D. program students of all disciplines, credit (ECTS) will be offered by the University of Zagreb.

REGISTERING & PARTICIPATING

Registration is web-based, at <http://bts.fer.hr>. It is **NOT NECESSARY TO BOOK THE LOCAL ACCOMMODATION**, since room & board are inclusive in the fee. The registration fee includes: lodging with three meals per day in single rooms (for non-student participants) or double rooms (for students) in a three-star hotel for 8 nights (29th September through 7th October), the full technical programme (lectures, tutorials and hands-on field trials), and the full social programme.

	STUDENT	NON-STUDENT
EARLY-BIRD (until 1st July 2013)	€350	€450
REGULAR	€450	€600

CORPORATE PARTICIPATION PROGRAM

For commercial entities, we offer the Corporate Participation Program option, payable by 1st July 2013 of €2500 (after that the option is €3000).

The Program includes: 3 full personal registrations (lodging with three meals per day in a 3 star hotel, the full technical programme and the full social programme); a 30 min time-slot for the presentation of the product gamut on Monday, 30th September 2013; logistical / infrastructural local support; and organization collaboration for an expo / hands-on demonstration activity at the prescribed venue on Tuesday – Thursday, 1st – 3rd October 2013.

For past commercial participants' experience, you can contact VideoRay LLC, Phoenixville, PA, USA, OceanServer Technologies Inc., Fall River, MA, USA and OceanScan Ltd., Porto, Portugal.

LECTURES

MARCH

Bridget Buxton, *Uni. of Rhode Island*
George Papatheodorou, *University of Patras*
John Odin Jensen, *Sea Education Association*
Sebastiano Tusa,
University of Naples Suor Orsola Benincasa

MARBIO

Anders Knudby, *Simon Fraser University*
Simonepietro Canese, *Italian National Institute for Environmental Protection and Research*
Anthony Grehan, *National University of Ireland*
Stewart Schultz, *University of Zadar*

MARSEC

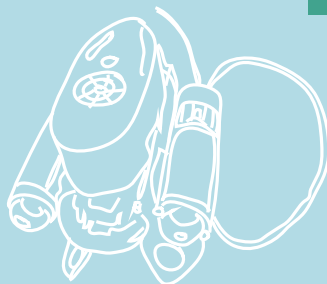
Thomas B. Curtin, *Institute for Adaptive Systems, USA*
Vladimir Djapic, *NATO Centre for Maritime Research and Experimentation*
John Dzielski, *Stevens Institute of Technology, USA*

MAROB

Dan Stilwell, *Virginia Tech*
Vincent Rigaud, *IFREMER*
Maarja Kruusmaa, *Tallinn University of Technology*

This year we additionally have a general session with speakers from different multidisciplinary fields:

Simonetta Frascetti, *University of Salento*
Mirko Orlić, *University of Zagreb*
Craig Howard, *ExploreOcean.org, USA*



TUTORIALS

are concentrating on the use of computer software in preparing, running, processing and analyzing robotic ocean science missions and their results. Special attention is given to drawing conclusions from ocean science data sets – videos, images, side scan or imaging sonar feeds etc., from marine robots.

Current list of tutorials:

T1 Mission planning and simulation for teams of cooperative marine robots
Thomas Glotzbach and Sebastian Eckstein, Ilmenau Technical University, Germany

T2 Approaches to digital feature recognition using R, using images of *Posidonia oceanica*
Stewart Schultz, University of Zadar, Croatia

T3 The use of customized software in estimating fish community descriptors from stereovideo surveys
Claudia Kruschel, University of Zadar, Croatia

T4 Optical measurement of underwater objects

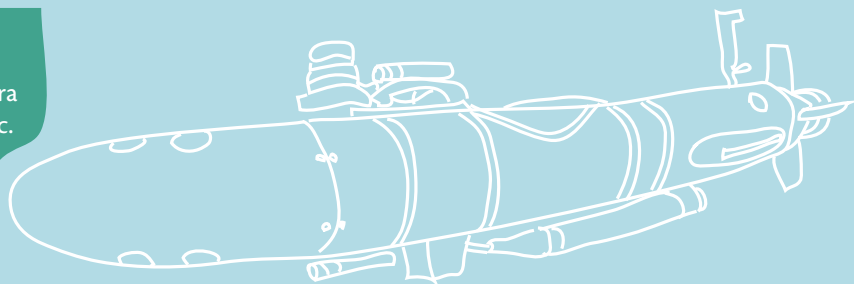
David Scaradozzi, Polytechnic University of Marche, Italy
Pierre Drap, National Center for Scientific Research (CNRS), France

T5 Using Sonar Wizmap to analyze, map and manage submerged heritage

Timmy Gambin, University of Malta, Malta

DEMONSTRATIONS

include hands-on use of equipment: autonomous robotic units, vehicles, systems (ROVs, AUVs, USVs, UAVs); or remote sensing equipment, stereo-camera systems, sonars, radars, hydroacoustic modems etc. (as decided with the program and technical committees of **BTS2013**).



All further information are available at <http://bts.fer.hr>

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Point of contact bts.orgcom@fer.hr