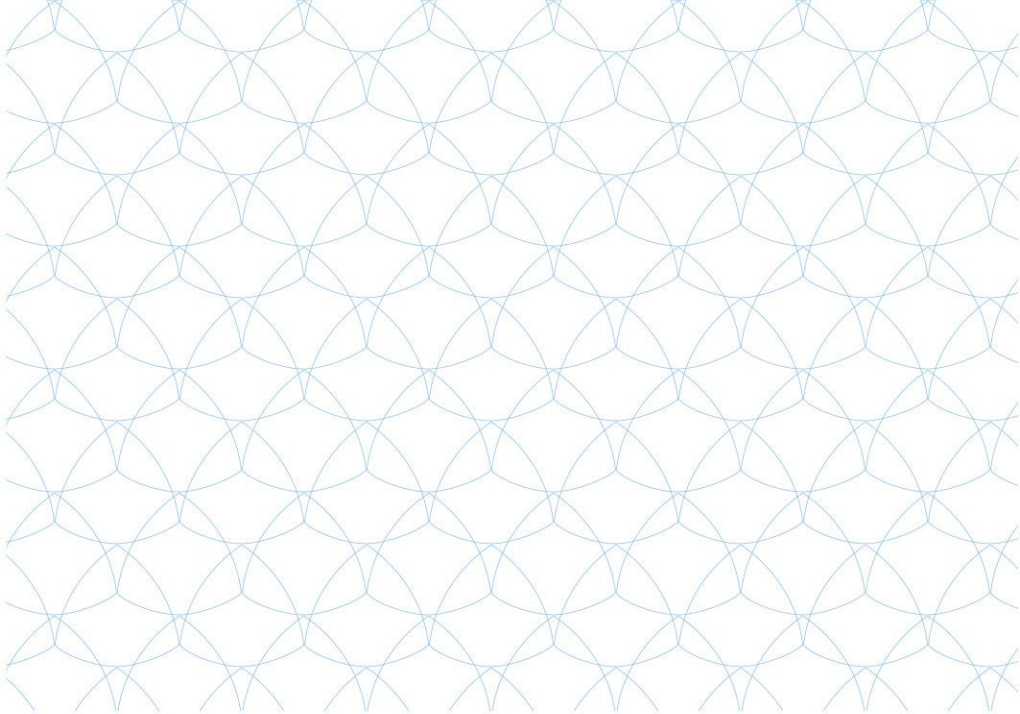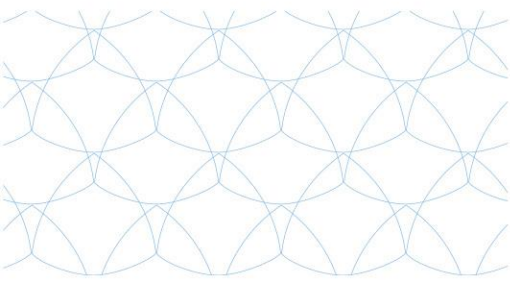EXCELLABUST

EXCELLING LABUST IN MARINE ROBOTICS

INVITED TALK

22nd January 2016

Towards heterogeneous cooperative field robotics: the CNR-ISSIA experience

Dr. Massimo Caccia, Dr. Marco Bibuli
Consiglio Nazionale delle Ricerche (CNR), Istituto di Studi sui Sistemi Intelligenti per l'Automazione (ISSIA)

FER
UNIVERSITY OF ZAGREB
FACULTY OF ELECTRICAL ENGINEERING AND COMPUTING

LABUST
LABORATORY FOR UNDERWATER SYSTEMS AND TECHNOLOGIES

Consiglio Nazionale delle Ricerche

UNIVERSITY of LIMERICK
OLLSCOIL LUIMNIGH

Universitat de Girona
Institut de Recerca en Visió per Computador i Robòtica

GIRONA UNDERWATER VISION AND ROBOTICS

1. INVITED TALK DETAILS

Date: **22nd January 2016**
Time: **09:00 – 10:00**
Location: **Gray Hall, University of Zagreb Faculty of Electrical Engineering (UNIZG-FER)**
                Unska 3, Zagreb, Croatia

Title: **Towards heterogeneous cooperative field robotics: the CNR-ISSIA experience**
Name: **Dr. Massimo Caccia, Dr. Marco Bibuli**
Affiliation: **Consiglio Nazionale delle Ricerche (CNR)**
                Istituto di Studi sui Sistemi Intelligenti per l'Automazione
                Via De Marini 6 - 16149 Genova, Italy

2. ABSTRACT

The talk will discuss challenge and opportunities given by the development of heterogeneous underwater, surface and aerial marine robots. In particular, cooperation can improve their capability in task execution at the price of increasing complexity in logistics, communication, perception, guidance and mission control. Examples in the field of marine and maritime robotics derived by CNR-ISSIA experience will be presented as well as some algorithmic details.

3. BIOGRAPHIES OF LECTURERS

Dr. Marco Bibuli

Website: http://www.issia.cnr.it/wp/?portfolio=bibuli-marco

Email: marco.bibuli@ge.issia.cnr.it

Marco Bibuli (MSc 2005, PhD 2010) is researcher at the CNR-ISSIA, focusing his research activity on the design and development of navigation, guidance and control algorithms for unmanned marine vehicles and software architectures for supervision and mission control. He is Work Package leader and CNR scientific responsible in the EC-funded project CADDY. He was task leader in the EC-funded projects MINOAS (2009-2012) and CART (2011-2013). He is currently Scientific Responsible for CNR and work-package leader within the scope of the EC FP7 CADDY project, Responsible of the action S5-WP6-A2 in the Italian Flagship Project RITMARE. He is collaborating with several national and international universities and research institutions. He is the author of about 60 papers in journals and international conferences, as well as active organizer of conferences, workshops and similar dissemination events.

Dr. Massimo Caccia

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Massimo Caccia (MSc 1991) is the director of CNR-ISSIA since October 2013. He is author of 2 book chapters, and more than 100 international journal and conference papers. Principal investigator of the projects: "SEa Surface Autonomous MOdular unit" funded by the National Program of Research in Antarctica (2002-2004), "Harbour and coastal underwater anti-intrusion system" funded by IARP-FESR (2005-07), "Unmanned Multipurpose Vessel" funded by the Scientific and Technological Park of Liguria (2007-08), MINOAS, CART and MORPH projects (regarding CNR contribution), funded by EC. From 2010 he is member of the IFAC Technical Committee 7.2 Marine Systems, the Board of Directors of the Ligurian District of Marine Technologies.

4. DESCRIPTION OF THE PARTNER INSTITUTION:

Consiglio Nazionale delle Ricerche (CNR)
Istituto di Studi sui Sistemi Intelligenti per l'Automazione (ISSIA)

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The CNR is a public organization with a duty to carry out, promote, transfer and improve research activities. CNR is distributed all over Italy through a network of institutes aiming at promoting its competences and at facilitating contacts and cooperation with local firms and organizations. The Institute of Studies on Intelligent Systems for Automation (CNR-ISSIA) focuses its research on topics as robotics, automation, signal and image processing, measurement and decision support systems based on soft-computing techniques for complex applications. CNR-ISSIA has particular experience in the development of unmanned marine vehicles for observation, sampling, exploration and protection application, as well as in acoustic and imagery data fusion and analysis for environment modeling and multi-dimensional reconstruction.

CNR-ISSIA has almost twenty years of research experience in the field of marine robotics, supported by the development of Remotely Operated Vehicles, Unmanned Surface Vehicles and underwater manipulators.

CNR-ISSIA is currently involved in different National and European funded projects.