

EXCELLABUST
EXCELLING LABUST IN MARINE ROBOTICS

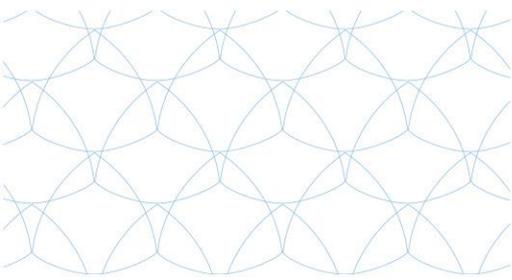
INVITED TALK

22nd January 2016

Towards Reproducible Robotics
Research

Prof. Fabio Bonsignorio

The BioRobotics Institute
Scuola Superiore Sant'Anna



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 691980.



1. INVITED TALK DETAILS

Date: 22nd January 2016
Time: 14:00 – 15:00
Location: Gray Hall, University of Zagreb Faculty of Electrical Engineering (UNIZG-FER)
Unska 3, Zagreb, Croatia

Title: Towards Reproducible Robotics Research
Name: Prof. Fabio Bonsignorio
Affiliation: The BioRobotics Institute. Scuola Superiore Sant’Anna
Viale Rinaldo Piaggio, 34
56025 - Pontedera (PI)
Italy

2. ABSTRACT

The problem of replicability of research results affects many disciplines and is particularly felt in young fields such as robotics and AI. It is a basic prerequisite to performance comparison of intelligent robotic systems and a basic cornerstone of the scientific method.

What it does mean to perform an experiment in Robotics/AI? What should be considered a result? To what extent is robotics a science?

Reproducibility of published results is now a strategic objective for IEEE at large and RAS in particular. Where are we heading?

3. BIOGRAPHIES OF LECTURERS



Prof. Fabio Bonsignorio

Email: fabio.bonsignorio@sssup.it

Fabio Bonsignorio is currently a professor at the Biorobotics Institute of the Scuola Superiore S'Anna in Pisa. He has been professor in the Department of System Engineering and Automation of the University Carlos III of Madrid until 2014. In 2009 he was awarded the Santander Chair of Excellence in Robotics at the same university.

He is founder and CEO of Heron Robots (advanced robotic solutions), see www.heronrobots.com. He has been working in the R&D departments of several major Italian and American companies, mainly in the applications of intelligent systems and technology transfer with coordination/management responsibilities for more than 20 years.

He is a Founding Director of euRobotics aisbl, the private part of SPARC, the Eu Robotics PPP. He is currently a member of the Research Board of Directors of SPARC.

He coordinated and has been the main teacher of the ShanghAI Lectures 2013, 2014 (www.shanghailectures.org), edition an advanced network MOOC teaching initiated several years ago by Rolf Pfeifer. He is currently coordinating the 2015 edition.

His preferred research topics are in advanced robotics: cognition, control, modelling, software architectures, robot swarms, intelligent agents, epistemological issues in robotics, performance evaluation and foundational issues like 'morphological computation'.

He has pioneered the topic of Reproducible Research and Benchmarking in Robotics and AI. In this area he is one of the leading experts, with a long series of workshop, more than 20, at IROS, ICRA and RSS, involving more than 200 people from the research, industry and government area (in particular from the EU commission).

He is author or co-author of almost 140 publications in the areas of robotics, cognition and manufacturing systems in the last few years, since he became an almost full time researcher. His first paper on robot control dates back to 1985. He is a member of IEEE/RAS, AAAI, CLAWAR, and euCognition. He coordinated the EURON Special Interest Group on Good Experimental Methodology and Benchmarking in Robotics, is cochair of the IEEE RAS TC-Pebras and has been a board member of EURON III. He is a member of the Euron Training Board (the GeorgeGiralt PhD Award jury). He has been reviewer for several conferences and journals inside and outside IEEE. He is project reviewer for Ecsel and has been for FP7. He was a member of the joint Europ-Euron-other experts restricted team preparing the Robotics Public Private Partnership in Horizon 2020, the successor program at EU level of FP7.

He is the coordinator of the euRobotics Topic Group on Experiment Replication, Benchmarking, Challenges and Competitions and is co-chair of the IEEE TC-Pebras. He has participated to design and launch the new euCognition society, he is now a member of the euCognition society steering committee.

He has been general co-chair of the IEEE RAS 2015 Summer School on Replicable and Measurable Robotics Research. He has been the corresponding and more active editor of the Special Issue on Replicable and Measurable Robotics Research on IEEE Robotics and Automation Magazine, appeared in September 2015. This special issue is the very first example of a higher impact archival robotics journal issue with replicable and measurable results pioneering Reproducible Research in RAS and to a certain extent IEEE at large.

4. DESCRIPTION OF THE PARTNER INSTITUTION:



The BioRobotics Institute Scuola Superiore Sant'Anna

Address: Viale Rinaldo Piaggio, 34
56025 - Pontedera (PI)
Italy

Website: www.sssup.it, <http://sssa.bioroboticsinstitute.it/>

The Scuola Superiore Sant'Anna (SSSA, www.sssup.it) is a public University with a special status admitting excellent students at graduate, doctoral and post-doctoral level in the sectors of engineering, medicine, agriculture, economics, law and political science. The mission of SSSA is to perform excellent research through a number of highly qualified research institutes.

The BioRobotics Institute of SSSA has been started on January 1, 2011, by merging the ARTS and the CRIM Labs and the EZ Research Centre. The Director of the BioRobotics Institute is Paolo Dario. The BioRobotics Institute conducts theoretical and experimental research in biorobotics, a discipline characterized by a high degree of interdisciplinary. For this reason it has a strong tendency toward integrating heterogeneous bodies of knowledge, of both scientific and humanistic nature, in order to study the theoretical and practical problems associated with the development of advanced robotic systems. The former ARTS Lab, over the course of its 20-year history, has built and consolidated a vast wealth of knowledge and expertise in the fields of Service Robotics, Humanoid Robotics, Neurorobotics, Bionics, Neural Interfaces, Assistive Robotics, Robotics for Neurorehabilitation, Gerontechnologies, Biomimetic Robotics, Soft Robotics and Marine Robotics, as well as the former CRIM Lab had become a reference at international level for microfabrication technologies and for microrobotics applied in the medical field. Several robotic platforms have been developed in the framework of national and international projects, as for example humanoid robots, biomimetic robots, robotic and prosthetic hands, robotic systems for rehabilitation and for personal assistance of disable and elderly people. At present, the BioRobotics Institute includes over 190 people. The BioRobotics Institute is located at the "Polo Sant'Anna Valdera", in Pontedera, a research park specifically created to better house the research activities of SSSA and to favour technology transfer, with a surface of 6,300 square metres and important facilities for design and (micro) fabrication, as well as for educational activities.

The peculiarity of the BioRobotics Institute is the capability to perform excellent research according to the standards of the scientific communities of robotics and biomedical engineering (i.e. publications) and at the same time fostering the application and the exploitation of the research results, to the benefit of the local area and of European citizens at large.