

FP7 ICT-2013.9.1 Future and Emerging Technologies FET-Open Coordination Action



SUSTAINABLE MANUFACTURING
THROUGH ADVANCED ROBOTICS TRAINING
IN EUROPE

FP7 PEOPLE-2013-ITN

# Soft Roboties Week

April 13-17, 2015 Livorno, Italy

# **Event Guide**













SMART-E & RoboSoft Joint School "Applications and Frontiers of Soft Robotics" April 13-17, 2015

> RoboSoft Plenary Meeting April 15-16, 2015

# **Program of the week**

# Monday 13, 2015

Time	Lecture/activity		Location
9:00 – 9:30	Registration (poster and exhibition set-up)		Grand Hotel Palazzo Reception desk at the entrance
9:30 – 10:15	Cecilia Laschi The BioRobotics Institute, RoboSoft Coordinator	Welcome and introductory lecture	Grand Hotel Palazzo Sala Marconi
10:15 – 11:00	Fumiya lida ETH Zurich	Designing and building soft robots	Grand Hotel Palazzo Sala Marconi
11:00 – 11:30	Coffee break (poster and exhibition set-up)		Grand Hotel Palazzo Sala Marconi and Sala Fattori
11:30 – 12:15	Espen Knoop University of Bristol	Electroactive Polymers - soft actuators for soft robots	Grand Hotel Palazzo Sala Marconi
12:15 – 13:00	Matteo Cianchetti The BioRobotics Institute	SMA, Jamming, Pneumatic technologies - soft actuators for soft robots	Grand Hotel Palazzo Sala Marconi
13:00 – 14:30	Lunch break		Walking transfer to the Marine Robotics Centre and free lunch
	Starts of hands-on sessions of students working groups		Marine Robotics Centre
14:30 – 15:30	Espen Knoop University of Bristol	Dielectric Elastomer Actuators	Marine Robotics Centre
15:30 – 16:30	Matteo Cianchetti The BioRobotics Institute	SMA, Jamming, Pneumatic technologies	Marine Robotics Centre
16:30 - 18:30	Students working groups		Marine Robotics Centre
19:00 – 20:30	Welcome cocktail		Baracchina Il Delfino

# Tuesday 14, 2015

Time	Lecture/activity Location			
Time				
9:00 – 9:40	Adam Stokes	The Fabrication Challenge in Soft	Grand Hotel Palazzo	
	The University of Edinburgh	Robotics and Integrated Soft Systems	Sala Marconi	
9:40 – 10:20	Christian Duriez Institut National de Recherche en Informatique et Automatique	From Soft-Tissue to Soft-Robot: Modeling deformations in real-time using SOFA	Grand Hotel Palazzo Sala Marconi	
10:20 – 11:00	Frédéric Boyer Ecole des Mines de Nantes	Bio-inspired Locomotion Dynamic Modelling: from discrete to continuous and soft systems	Grand Hotel Palazzo Sala Marconi	
11.00 11.20	Coffee break + poster & exhibition		Grand Hotel Palazzo	
11:00 – 11:30			Sala Marconi and Sala Fattori	
11:30 – 12:10	Antonio De Simone SISSA - International School for Advanced Studies, Trieste, Italy	Some case studies in the modeling of bio-inspired motility: euglenoid movement and snake-like undulatory locomotion	Grand Hotel Palazzo Sala Marconi	
12:10 – 12:50	Francesco Giorgio-Serchi The BioRobotics Institute	Flexibility: Nature's secret to aquatic and aerial locomotion. A lesson learnt for Soft Robotics.	Grand Hotel Palazzo Sala Marconi	
12:50 – 14:30	Lunch break		Walking transfer to the Marine Robotics Centre and free lunch	
14:30 - 19:00	Students working groups		Marine Robotics Centre	

# Wednesday 15, 2015

Time	Lecture	Location	
9:00 – 9:30	Cecilia Laschi The BioRobotics Institute, RoboSoft Coordinator	Opening of the RoboSoft Plenary Meeting	Grand Hotel Palazzo Sala Marconi
9:30 – 10:15	Joint Talk   Embodied Intelligence Theory.		Grand Hotel Palazzo Sala Marconi
10:15 – 11:00	Ruairi Glynn Interactive Architecture Lab at University College London	Softening Architecture	Grand Hotel Palazzo Sala Marconi
11:00 – 11:30	Coffee break + poster & exhibition		Grand Hotel Palazzo Sala Marconi and Sala Fattori
11:30 – 12:15	Giulia Tancredi Innovative Startups Incubator of Polytechnic of Turin (I3P S.c.p.a.)  From lab to market: seizing the opportunities of soft robotics		Grand Hotel Palazzo Sala Marconi
12:15 – 13:00	Plenary discussion of RoboSoft working groups		Grand Hotel Palazzo Sala Marconi
13:00 – 14:30	Lunch break		Grand Hotel Palazzo Sala Marconi and Sala Fattori
14:30 – 16:30	Parallel session of RoboSoft working groups		Grand Hotel Palazzo Sala Marconi and Salone delle Feste
17:30	Tour "Livorno by boat"		
20:00	Social Dinner		Ristorante L'Ancora

# Thursday 16, 2015

Time	Lecture/activity		Location
9:00 – 9:45	Barry Trimmer Tufts University Soft Robotics Editor In-Chief	How will soft technology make better robots?	Grand Hotel Palazzo Sala Marconi
9:45 – 10:30	Paul Beardsley and Moritz Bächer Intro to DRZ and Intentions		Grand Hotel Palazzo Sala Marconi
10:30 – 12:00	Disney Research Zurich (DRZ) in Soft Robotics  Parallel session of RoboSoft working groups (coffee served)		Grand Hotel Palazzo Sala Marconi and Salone delle Feste
12:00 – 12:45	Wrap-up of RoboSoft working groups and plenary discussion		Grand Hotel Palazzo Sala Marconi
12:45 – 13:00	Closing of the RoboSoft Plenary Meeting and announcements		Grand Hotel Palazzo Sala Marconi
13:00 – 14:30	Lunch break		Free lunch
14:30 – 19:00	Students working groups		Marine Robotics Centre

# Friday 17, 2015

Time	Lecture/activity		Location
9:00 – 9:15	Cecilia Laschi The BioRobotics Institute, Introduction RoboSoft Coordinator		Grand Hotel Palazzo Sala Marconi
9:15 – 11:00	Students teasers on the working group projects		Grand Hotel Palazzo Sala Marconi
11:00 - 12:00	Soft Robots Competition		Marine Robotics Centre
12:00 – 13:00	Award and closing		Grand Hotel Palazzo Sala Marconi

## **Speakers**

### Monday 13, 2015

#### Cecilia Laschi

Prof. Cecilia Laschi is Full Professor of Biorobotics at the the BioRobotics Institute of the Scuola Superiore Sant'Anna in Pisa, Italy, where she serves as Rector's delegate to Research and PhD. She graduated in Computer Science at the University of Pisa in 1993 and received the Ph.D. in Robotics from the University of Genoa in 1998. In 2001-2002 she was JSPS visiting researcher at Waseda University in Tokyo.

Her research interests are in the field of biorobotics and she is currently working on soft robotics, humanoid robotics, and neurodevelopmental engineering. She has been and currently is involved in many National and EU-funded projects, she was the coordinator of the ICT-FET OCTOPUS Integrating Project, leading to one of the first soft robots, and she coordinates the European Coordination Action on Soft Robotics RoboSoft. She has authored/co-authored more than 50 papers on ISI journals (over 200 in total), she is in the Editorial Board of Bioinspiration&Biomimetics, Frontiers in Bionics and Biomimetics, Applied Bionics and Biomechanics, Advanced Robotics.

She is member of the IEEE, of the Engineering in Medicine and Biology Society, and of the Robotics & Automation Society, where she served as elected AdCom member and currently is Co-Chair of the TC on Soft Robotics.

#### **Fumiya Iida**

Fumiya lida is a university lecture at University of Cambridge and an assistant professor at ETH Zurich. He received his bachelor and master degrees in mechanical engineering at Tokyo University of Science (Japan, 1999), and Dr. sc. nat. in Informatics at University of Zurich (2006). In 2004 and 2005, he was also engaged in biomechanics research of human locomotion at Locomotion Laboratory, University of Jena (Germany). From 2006 to 2009, he worked as a postdoctoral associate at the Computer Science and Artificial Intelligence Laboratory, Massachusetts Institute of Technology in USA. In 2006, he awarded the Fellowship for Prospective Researchers from the Swiss National Science Foundation, and in 2009, the Swiss National Science Foundation Professorship. His research interest includes biologically inspired soft robotics, embodied artificial intelligence, and biomechanics, where he was involved in a number of research projects related to dynamic legged locomotion, and navigation of autonomous robots.

#### **Espen Knoop**

Espen Knoop graduated with a first class MEng in Engineering Mathematics from the University of Bristol in 2012. He is currently in the final year of his PhD in the Soft Robotics Group at the Bristol Robotics Laboratory, under the supervision of Jonathan Rossiter. His PhD research is looking at using Electroactive Polymers and other smart materials to create soft and compliant tactile user interfaces. Other research interests include smart mechanisms and soft robotic sensors. He is also leading a public engagement project, Tangible Networks.

#### Matteo Cianchetti

Dr. Matteo Cianchetti received the MSc degree in Biomedical Engineering (cum laude) from the University of Pisa, Italy, in 2007 and the PhD degree in Biorobotics (cum laude) from Scuola Superiore Sant'Anna. He is currently Assistant Professor with The BioRobotics Institute, Scuola Superiore Sant'Anna where he leads the Soft Mechatronics for Biorobotics Lab. He has been and currently is involved in several EU-funded projects with the main focus on the development of Soft Robotics technologies. His main research interests include the study and development of new systems and technologies based on soft/flexible materials for soft actuators, smart compliant sensors and flexible mechanisms.

#### **Tuesday 14, 2015**

#### Adam Stokes

Dr Stokes is a Lecturer in the Institute for Micro and Nano Systems (IMNS) and the Institute for Bioengineering (IBioE), at The University of Edinburgh; where he is the Programme Director for the MSc in Bioelectronics and Biosensors. He also teaches BEng/MEng Digital Systems Design 3 & Computer Organisation and Architecture 4. He is an interdisciplinary scientist and engineer, and the Director of The University of Edinburgh FabLab. Dr Stokes is an Affiliate Asst. Professor in the School of Pharmacy at The University of Maryland and he sits on the Management Committee for the UK Robotics and Autonomous Systems Network. His research interests include: robotics, physical chemistry, electrical engineering, materials science, nanotechnology, optics, proteomics, and cell biology. He holds degrees in engineering, biomedical science, and chemistry. Before joining the faculty at Edinburgh he was a Fellow in the George M. Whitesides group at Harvard University. He holds a prestigious appointment as a Member of The Royal Society of Edinburgh's Young Academy.

#### **Christian Duriez**

Christian Duriez, Director of research at INRIA (Institut National de Recherche en Informatique et Automatique) received his PhD degree in robotics from University of Evry and CEA, France in 2004. After a postdoctoral position at the CIMIT SimGroup (Harvard Medical School) in Boston, he arrived at INRIA in 2006 as permanent researcher and in 2014 as research director. His research topics are Fast Finite Element Methods, simulation of contact response, new algorithms for haptics and soft-robot models. He is the author of more than 50 publications (A or A+ journal and conference). He was on of the founders of SOFA (<a href="www.sofa-framework.org">www.sofa-framework.org</a>) and of the start-up company InSimo (<a href="www.insimo.fr/">www.insimo.fr/</a>). He is the head of DEFROST team, created in January 2015, dedicated to deformable robot software.

#### Frédéric Boyer

Professor Frederic Boyer is currently a Professor in Robotics at Ecole des Mines de Nantes, France. He is the member of the Institut of Communication and Cybernetic of Nantes, and Head of the Biorobotics group of the Robotique Team of IRCCyN. His research fields are two folds: one is focused on the applications, the other on the fundamental and methodological tools. Since 2003, the applications are centered on Bio-inspired robotics, with two topics, i.e. bio-inspired locomotion and electric sensing with the use of dynamics tools (Geometric mechanics, Multibody systems and

Structural dynamics and more recently Fluid mechanics). Professor Boyer has published 30 articles in ISI journals covering a broad range of disciplines, in particular in the journals of Robotics (Journal of Robotics Research, IEEE Transactions on Robotics), of sensors (IEEE Sensors), of Fluid Mechanics (Journal of Fluid Mechanics), of Geometric mechanics (Journal of Nonlinear Science) of Finite Elements (International Journal of Numerical Methods in Engineering), of Aeronautics (AIAA Journal). He has four chapters of book (Flexible multibody systems, Electric sense) and was awarded pf the Montpetit Prize of french Académie des Sciences and with his team of the La Recherche Prize in the category Ground-breaking technologies for ther work on Electric Sense. He is associate editor of Biomimetics and Bioinspiration and IEEE TRO. Professor Boyer was the Scientific Manager of several national CNRS and EU projects, such as "Robot-Anguille", "ANR RAAMO" and the FET UE project "ANGELS".

#### **Antonio De Simone**

Antonio DeSimone is full professor of Structural Mechanics (Scienza delle Costruzioni) at SISSA, the International School for Advanced Studies in Trieste (Italy). He graduated in Civil Engineering at the University Federico II in Naples in 1987, and received a PhD degree in Mechanics from the University of Minnesota in 1992. In 1998-2002 he was the leader of the research group on "Multiscale Phenomena in Materials" at the Max Planck Institute for Mathematics in the Sciences in Leipzig. His research interests are in the mechanics of active materials and he is currently working on biological and bio-inspired locomotion within the ERC Advanced Grant MicroMotility, of which he is the PI. He has authored/co-authored around 100 papers on ISI journals, and he is in the editorial board of Acta Applicandae Mathematicae, Journal of Nonlinear Science, International Journal of Nonlinear Mechanics, Networks and Heterogeneous Media, Soft Robotics.

#### Francesco Giorgio-Serchi

Dr. Francesco Giorgio-Serchi is a Postdoctoral Fellow at the Research Center on Sea Technologies and Marine Robotics, Livorno, Italy. He holds an MSc from the University of Pisa in Marine Sciences and a PhD in Computational Fluid Dynamics from the Centre for CFD of the University of Leeds. In 2011 he was awarded a European Marie Curie Reintegration Grant to study the propulsion of bioinspired soft-bodied aquatic vehicles. From 2013 he is co-investigator in the PoseiDRONE project, a national foundation grant sponsored research project the purpose of which is to develop a soft robotics platform for underwater operations.

#### Wednesday 15, 2015

#### **Rolf Pfeifer**

Rolf Pfeifer is currently a "Specially Appointed Professor" at Osaka University, Japan, and a visiting professor, at Shanghai Jiao Tong University, China. He is a member of the board of several Artifical Intelligence and Robotics companies and co-founder of the National Competence Center Robotics, Switzerland. He has a master's degree in physics and mathematics and a Ph.D. in computer science (1979) from the Swiss Federal Institute of Technology (ETH). From 1987-2014 he was professor of computer science at the University of Zurich and director of the Artificial Intelligence Laboratory. He was a visiting fellow at the Free University of Brussels, MIT in Cambridge, Mass. (US), the Neurosciences Institute (NSI) in San Diego, the Beijing Open Laboratory for Cognitive Science, the Ludwig-Maximilians-University, Munich, the University of São Paolo, Brasil, and the Sony Computer Science Laboratory, Paris. In 2004 he was elected "21st Century COE Professor, Information Science and Technology, Strategic Core" at the University of Tokyo. In 2009 he was a visiting professor at the Scuola Superiore Sant'Anna in Pisa, and at Shanghai Jiao Tong University in China and was appointed "Fellow of the School of Engineering" at the University of Tokyo.

He is a pioneer of the fields of "embodied intelligence" and "soft robotics" which have had a decisive impact on artificial intelligence and robotics. His book "How the body shapes the way we think" (MIT Press, 2007) has been published in English, Japanese, Chinese, Arabaic, and French. In 2009 he started the "ShanghAl Lectures", an experiment in global teaching, which now involves over 50 universities from all over the planet. He developed the humanoid "Roboy", which has attracted world-wide media attention, and he is currently pursuing the "Robolounge" project, where robots will take care of the well-being of the customers, to be launched in an Asian metropolis in 2016/2017.

#### **Benny Hochner**

Benny Hochner is a Professor of Neurobiology at the Hebrew University, in the Department of Neurobiology, Silberman Institute of Life Sciences. He is studying octopuses and other cephalopods because: first, he is interested in motor control of soft bodied animals as inspiration for soft robotics. And second, he is also interested in the neural mechanisms that make these invertebrate mollusks as intelligent as vertebrates.

#### Ruairi Glynn

Installation artist and Director of the Interactive Architecture Lab at University College London. Recent art exhibitions at the Centre Pompidou Paris, the National Art Museum of China, Beijing, and Tate Modern, London. Recent commercial projects with Nike, Buro Happold & Arup. Ruairi's design research lab is interested in the behaviour & interaction of things, environments & their inhabitants. Through kinetic and interactive installations Ruairi's recent work has explored the primacy of movement before colour, form and texture in human visual perception. Ruairi's work particularly draws on fields of architecture, psychophysics, cybernetics, robotics and performance.

#### Giulia Tancredi

Giulia Tancredi is an Industrial Management Engineer and Business Consultant at the Innovative Startups Incubator of Polytechnic of Turin (I3P S.c.p.a.). She received her engineering degree at

Polytechnic of Turin and she has worked in an important consultancy firm, the ICM Advisors of ICM Research Group. In her career at ICM she has faced problems of evaluation of intangible assets such as trademarks and patents. She began to work at I3P S.c.p.a. as an analyst more than two years ago. She provides strategic consultancy to those who wants to create a new innovative company in the industrial field. In particular she is actually mentoring entrepreneurial teams in writing a business plan and she is supporting startups hosted in I3P in commercial and marketing activities. She has a strong interest in the study of production processes, supply chain management, innovation strategy and market study in terms of segmentation, competitive positioning and consumer behaviour. Board Member of AIGEST Laureati (Association of Industrial Graduate Engineers and former STudents), she is helping industrial management engineering students to interface with the working world by organizing successful initiatives and events.

#### Thursday 16, 2015

#### **Barry Trimmer**

Barry Trimmer is the Henry Bromfield Pearson Professor of Natural Science and holds secondary appointments in Biomedical Engineering and in Neuroscience at the Tufts Medical School. He received both his undergraduate and PhD degrees from the University of Cambridge in England and carried out post doctoral training in Neuroscience at Harvard Medical School with Professor Edward Kravitz and at the University of California, Berkeley and the University of Oregon, Eugene with Professor Janis Weeks. His research focus is on the Neuromechanics of Locomotion. In addition to his work on living systems, Professor Trimmer is Director of the Tufts Neuromechanics and Biomimetic Devices Laboratory which specializes in the application of found biological principles to the design and fabrication of soft robots. Dr. Trimmer is also Director of the NSF-funded Integrative Graduate Education and Research Training (IGERT) program in Soft Material Robotics and Editor in Chief of the journal Soft Robotics. These interests converge in his recent research that seeks to "grow" robotic devices using a combination of biosynthetic materials, cellular modulation, and tissue engineering. These Biosynthetic Robots will be versatile, safe, biocompatible, and biodegradable.

#### **Paul Beardsley**

Paul Beardsley heads the Computer Vision Group at Disney Research Zurich. He has experience in industrial research in Europe, Japan, and the US, and a PhD from the Robotics Group at the University of Oxford. He has been with DRZ since 2009, working on computer vision systems including vision for mobile robots.

#### **Moritz Bächer**

Moritz Bächer is a Postdoctoral Researcher in the Computational Materials group at Disney Research Zurich. His research interests lie at the intersection of computer graphics and digital fabrication and span a wide range of computational aspects therein: interactive design, physically-based and geometric modeling, and data-driven techniques. Before joining Disney Research in 2013, he received a PhD from the Harvard School of Engineering and Applied Sciences.

# **Students**

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		Hassan		
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38	Zhenishbek	Zhakypov	Reconfigurable Robotics Lab, EPFL	zhenishbek.zhakypov@epfl.ch

#### **Social Events**

#### **Welcome Cocktail**

A welcome cocktail with snacks and drinks will be offered on Monday, April 13, 19:00-20:30 at the Baracchina II Delfino (Viale Italia, 22; see the Venue Map of this Guide).

#### Livorno by boat: a boat tour on the Canals

A particular and fun trip on the boat that crosses the old town to discover the history, culture and tradition of Livorno will be organized on Wednesday, April 15, 17:30-20:00. The tour traces the ancient port and maritime workplaces: old gangways and historic cellars that open to the surface of the water in the charming neighbourhood called "Venice" (la "Venezia"). An exclusive tour on the canals with a guide to discover the culture and traditions of the sea of Livorno. At the end of the tour, the boat will arrive in a wine cellar on the water in a picturesque setting typically marinara, where you will taste an aperitif with tasting of our land. More info at: http://www.livornoinbattello.info/

- <u>To request a ticket</u>: send an email <u>before Monday April 13 at noon</u> to Serena Tricarico (<u>serena.tricarico@sssup.it</u>) or ask during registration.
- Meeting at 17:20 (first boat) or at 18:20 (second boat) in <u>Piazza Giovine Italia</u>, in front of Ristorante-Enoteca "Le Cristal" (see the Venue Map of this Guide). Further information will be announced during the plenary session on Wednesday morning.

#### **Social Dinner**

A Social Dinner will be organized on Wednesday, April 15, starting at 20:00 at the restaurant "L'Ancora" (Scali delle Ancore, 10; +39 0586 881401; <a href="http://www.ristoranteancoralivorno.com/">http://www.ristoranteancoralivorno.com/</a>).

- <u>To register</u>: send an email <u>before Monday April 13 at noon</u> to Serena Tricarico (<u>serena.tricarico@sssup.it</u>) or ask during registration.
- Meeting at 20:00 in front of the restaurant (Google Maps)

## **Meeting venue**



#### **Grand Hotel Palazzo**

Viale Italia, 195 - 57127 Livorno - Tel +39 0586 260836 - Fax +39 0586 806182 -

Website: <a href="http://www.grandhotelpalazzo.com/">http://www.grandhotelpalazzo.com/</a>
Email: info@grandhotelpalazzo.it

Find here directions on: **Google Maps** 

**Livorno** is a fascinating city of the Tyrrhenian coast where Tuscan traditions merge into Mediterranean culture creating lively, colourful and cosmopolitan atmospheres. The city was founded at the end of the 16th century by the Medici family (Grandukes of Florence) who made this little village of fishermen the first Tuscan harbour of the Mediterranean Basin.

Livorno has a peculiar history rich of culture which nowadays remains in its ancient palaces, churches, fortresses and along the medieval canals which remind the old pentagonal shape of the town. The old fortress, built during the 1500s, the suggestive Venice Quarter and the magnificent Central Market are a must of a journey to discover Livorno's history, culture and tradition.

#### **Arriving by train at Livorno Central Station**

**Livorno Central Station** is located on the railway connecting Pisa and Roma.

From **Pisa Central Station** the trip takes about 15 min; from **Florence S.M.N.** there are trains that go directly to Livorno that take about 1h 25 min. Trains run frequently from Pisa and about every hour from Florence during all the day. See <a href="https://www.trenitalia.com">www.trenitalia.com</a> for a complete timetable.

Between the Livorno Central Station and the Grand Hotel Palazzo there are about 5 km. Get off at the Livorno Central Station and take the **No.1 bus** from the station forecourt (Piazza Dante) towards Miramare. Get off at the **Viale Italia-Pancaldi** stop.

#### Florence Airport – Florence S.M.N.

The Florence airport (FLR) is called Amerigo Vespucci and is situated on the north-west outskirts of Florence, just 4 km from the city center. From the Florence airport, you can get to the central Santa Maria Novella train station (SMN) either with a taxi or with the special "Vola in Bus" bus shuttle (run by BusItalia Sita Nord). It takes about 20 minutes, sometimes a little more if there is

heavy traffic. The service runs daily, including Sundays and holidays. Departures from the airport are every 30 min between 5.30 am to 8.30 pm, then every hour until 11.45 pm. The last shuttle is at 1.00 am, but at this time, it will be more convenient to take a taxi. Departures from the SMN train station are every 30 min between 5.00 am to 8.00 pm, then every hour up until 11.00 pm.

Another option is to reach Firenze Rifredi train station by taxi (10-15 minutes, around 10 €) and take the train to Livorno from Firenze Rifredi (same train line).

#### Pisa Airport – Pisa Central Station

Connections between Pisa Airport and Pisa Central Station are provided by the PisaMover Bus Service. The PisaMover Bus service starts at 6 a.m. and stops at 12 p.m., every day, including Sunday and Bank holidays, for each route (Pisa Airport − Pisa Central Station and Pisa Central Station- Pisa Airport), with a timetable departure of every 10 minutes and a journey time of just 8 minutes. Ticket price is 1,30€\* one way. You can buy your ticket at the Pisa Airport Information Office (Arrivals Hall) and at Pisa Central Railway Station newsstands (open every day 7.00 a.m.-23.00 p.m.). During Information Office and newsstands closing time, you can buy your ticket on the bus.

Another option is to reach Pisa Central Station by taxi (5-10 minutes, around 10 €).

#### Taxi phone number

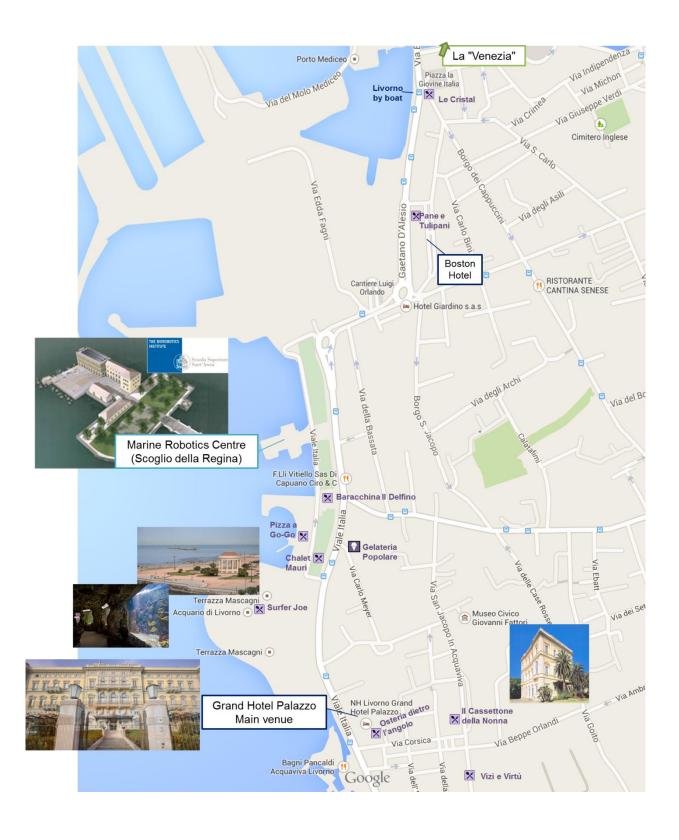
Pisa Radio Taxi +39 050 541600

Taxi Firenze +39 055 4242

Livorno Radio Taxi +39 0586 210000

Consorzio Taxi Livorno +39 0586 883377

# **Venue Map**



# **Organizers**

**Cecilia Laschi**, RoboSoft Coordinator, The BioRobotics Institute, Scuola Superiore Sant'Anna, Italy **Samia Nefti-Meziani**, SMART-E Coordinator, University of Salford, UK

Fumiya Iida, ETH Zurich, Switzerland

Jonathan Rossiter, University of Bristol, UK

Helmut Hauser, University of Bristol, UK

Matteo Cianchetti, The BioRobotics Institute, Scuola Superiore Sant'Anna, Italy

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# **On-site contact persons**

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