

**SEVENTH FRAMEWORK PROGRAMME  
THE PEOPLE PROGRAMME**

**FP7-PEOPLE-2013-ITN - #608022**

**Marie Skłodowska-Curie Initial Training Network**

**SMART-E: Sustainable Manufacturing through Advanced  
Robotics Training in Europe**

**SMART-E Summer School  
“Advanced Robotics for Sustainable  
Manufacturing”**

**6 – 10 July 2015, Livorno, Italy**



SUSTAINABLE MANUFACTURING  
THROUGH ADVANCED ROBOTICS TRAINING  
**IN EUROPE**

<http://smart-e-mariecurie.eu/>



## SMART-E Summer School and Meetings

**SMART-E** is a **Marie-Curie Initial Training Network** (FP7-PEOPLE-2013-ITN # 608022) that aims to prepare the next generation of leading **Advanced Roboticists to ensure a Sustainable Manufacturing sector in Europe**. Started in November 2013, SMART-E is coordinated by the University of Salford Manchester, in partnership with the University of Sheffield, the University of Zurich, the Italian Institute of Technology, the BioRobotics Institute of the Scuola Superiore Sant'Anna, the Technical University of Munich and AGCO GmbH. A total of 14 associated partners, from both academia and industry are currently supporting the consortium of experts.

SMART-E brings together a team of world-renowned experts in the areas of advanced manufacturing, embodied intelligence, novel compliant actuators lightweight, human factors, soft and safer robotic structures using smart materials enabling higher performance, dexterity and agility.

13 fellows are participating in the SMART-E ITN with a series of projects organised around the following topics: *Dexterous, Soft and Compliant Robotics in Manufacturing; Reconfigurable and Logistics Robotics; Safety and Human Robot Interaction and Cooperation*.

The programme of the **first SMART-E Summer School on Advanced Robotics for Sustainable Manufacturing** will involve industrial leaders of manufacturers and automation R&D companies in Europe as well as experts in Embodied intelligence, Soft Robotics, Compliant Robotics, Smart materials, Safety and Human machine interaction, autonomous systems, dextrous end effectors and statistics, that will present the latest technologies, industrial challenges and visions. The programme of the School include the Meeting of the Management Committee. During the meeting, fellows will present their research activity in preparation to the SMART-E mid-term conference and will discuss their results and their future plans. A series of sessions of students' meeting will be dedicated to brainstorming among fellows who will discuss together about their project, their results and their future work. The results of the discussion, with new ideas, projects and collaboration initiatives will be collected in a report by the students after the end of the School.

### Organizers

**Cecilia Laschi**, The BioRobotics Institute, Scuola Superiore Sant'Anna, Italy

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

**Laura Margheri**, ([laura.margheri@sssup.it](mailto:laura.margheri@sssup.it) - contact person)

The BioRobotics Institute, Scuola Superiore Sant'Anna, Italy

**Samia Nefti-Meziani**, SMART-E Coordinator, University of Salford, UK

This event is organized under the European Project SMART-E: Sustainable Manufacturing through Advanced Robotics Training in Europe, FP7-PEOPLE-2013-ITN Initial Training Networks, contract # 608022 <http://smart-e-mariecurie.eu/>

## Program of the week

### Monday 6, July 2015

Time	Lecture/activity		Location
10:30 – 11:00	<b>Welcome Breakfast and Registration</b>		Grand Hotel Palazzo – Terrace (5 <sup>th</sup> floor)
11:00 – 11:15	<b>Cecilia Laschi</b> <i>The BioRobotics Institute</i>	Introduction to the Summer School and SMART-E Meeting	Grand Hotel Palazzo – Salone delle Feste
11:15 – 11:45	<b>Laura Margheri</b> <i>The BioRobotics Institute</i>	SMART-E dissemination: promote your project	Grand Hotel Palazzo – Salone delle Feste
11:45 – 12:45	<b>Cesare Stefanini</b> <i>The BioRobotics Institute</i>	Industrial applications of biorobotics research	Grand Hotel Palazzo – Salone delle Feste
13:00 – 14:30	<b>Lunch break</b>		Grand Hotel Palazzo – Terrace (5 <sup>th</sup> floor)
<b>Technical Tour at the BioRobotics Institute</b>			
14:30 – 15:00	<b>Bus transfer: meeting in front of the Grand Hotel Palazzo at 14.30</b>		
15:00 – 16:00	Presentation of the BioRobotics Institute		The BioRobotics Institute
16:00 – 18:00	Tour		The BioRobotics Institute
18:00 – 18:30	<b>Bus transfer to the Grand Hotel Palazzo</b>		
20:00 – 22:30	<b>Fellows &amp; Leaders Dinner</b> Meeting at 20:00 at “Baracchina Il Delfino” (see Venue Map)		Baracchina Il Delfino

### Tuesday 7, July 2015

Time	Lecture/activity		Location
8:30 – 8:40	<b>Samia Nefti-Meziani</b> <i>University of Salford</i>	Welcome and introductory talk	Grand Hotel Palazzo – Salone delle Feste
8:40 – 11:00	<b>ESR presentations</b>	SMART-E ESR1, ESR2, ESR3, ESR12, ESR5, ESR7, ESR8	Grand Hotel Palazzo – Salone delle Feste
11:00 – 11:30	<b>Coffee break</b>		Grand Hotel Palazzo – Roof (5 <sup>th</sup> floor)
11:30 – 13:30	<b>ESR presentations</b>	SMART-E ESR11, ESR4, ESR6, ESR9, ESR10, ESR13	Grand Hotel Palazzo – Salone delle Feste
13:30 – 14:30	<b>Lunch break</b>		Grand Hotel Palazzo – Terrace (5 <sup>th</sup> floor)
14:30 – 14:45	<b>Samia Nefti-Meziani</b> <i>University of Salford</i>	SMART-E programme update	Grand Hotel Palazzo – Salone delle Feste
14:45 – 16:30	<b>ALL</b>	Preparation mid-term review and report: <ul style="list-style-type: none"> <li>- Updates on organisation</li> <li>- Mid-term report</li> <li>- Mid-term review, content to be covered: <ul style="list-style-type: none"> <li>• Scientific</li> <li>• Training programme</li> <li>• Fellows</li> <li>• Management</li> </ul> </li> </ul>	Grand Hotel Palazzo – Salone delle Feste
16:30 – 18:00	<b>Supervisory Board</b>	Supervisory Board meeting	Grand Hotel Palazzo – Salone delle Feste

## Wednesday 8, July 2015

Time	Lecture/activity	Location
9:00 – 10:00	<b>Geoff Pegman</b> <i>RURobots</i>	Commercial Robotics: Opportunities, challenges and risks
10:00 – 11:00	<b>Fabio Bonsignorio</b> <i>The BioRobotics Institute</i>	Problems in Reproducible Robotics Research
11:00 – 11:30	<i>Coffee break</i>	
11:30 – 13:00	<b>Fellows Meeting</b>	
13:00 – 14:30	<i>Lunch break</i>	
14:30 – 16:00	<b>Fellows Meeting</b>	
16:00 – 17:00	<b>Nicola Vitiello</b> <i>The BioRobotics Institute</i>	Wearable robotics: research and market perspectives

## Thursday 9, July 2015

Time	Lecture/activity	Location
9:00 – 10:00	<b>Giancarlo Teti</b> <i>RoboTech srl</i>	ROBOTECH: a spin-off company between research and industry in robotics
10:00 – 11:00	<b>Fellows Meeting</b>	
11:00 – 11:30	<i>Coffee break</i>	
11:30 – 13:00	<b>Fellows Meeting</b>	
13:00 – 14:00	<i>Lunch break</i>	
14:00 – 15:00	<b>Andrea Piccaluga</b> <i>The Institute of Management</i>	PhD students: researchers and/or entrepreneurs?
15:00 – 16:00	<b>Robert Lemmens</b> <i>Marel</i>	Service innovation at Marel
16:00 – 17:00	<b>Closing</b>	

## Friday 10, July 2015

Time	Lecture/activity
ALL DAY	Tour at COMAU (Torino)
7:30	Bus departure: meeting in front of the Hotel Boston at 7.30
20:00	Back to Hotel Boston

## Speakers

### 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.

### Laura Margheri



Laura Margheri received her Master Degree in Biomedical Engineering (with Honours) from the University of Pisa in July 2008 and her PhD in BioRobotics (with Honours) at The BioRobotics Institute (Scuola Superiore Sant'Anna) in April 2012. She has a scientific and technological background mainly in the fields of biorobotics and biomimetics, soft robotics, marine robotics, and biology. She is currently Post Doc research assistant and Project Manager in the areas of soft robotics at the BioRobotics Institute of the Scuola Superiore Sant'Anna. She works for the management, the organization, planning and control of research and development activities, for the reporting of activities, the coordination of the consortium, and the public dissemination of project results. She has also experience in negotiations with funding agencies and companies, international cooperation, consultations, strategic planning, writing of texts for calls for proposals, evaluation of projects and papers. She has received an interdisciplinary education in robotics science and engineering, and she has worked and collaborated with biologists and roboticists, as well as with managers and politicians, acting also as a bridge between different disciplines and languages cultures. She has organized several international events in robotics (project meetings, workshops and special sessions at international conferences, exhibitions, Summer Schools). She is an active member of the IEEE Robotics & Automation Society, in which she has been appointed as AdCom (Administrative Committee) Student Member in December 2011 and Chair of the Students Activities Committee in the 2012-2013 term. Since the beginning of 2014 she is the Chair of the Women In Engineering (WIE) Committee of the Robotics & Automation Society. She is also member of the Conference Activities Board and of the Members Activities Board in the same society.

## Cesare Stefanini



Cesare Stefanini is Associate Professor in the Department of Biomedical Engineering at Khalifa University. He received his PhD degree from Scuola Superiore Sant'Anna, Pisa, Italy in Micro engineering and served first as Assistant Professor and then, from November 2014, as Associate Professor at the BioRobotics Institute of Scuola Superiore Sant'Anna of Pisa, Italy, with the role of Area Leader in "Creative Engineering Design". From February 2015 he is Faculty at Khalifa University. His research activity is applied to different fields, including small scale biorobotics, actuators for compliant robots, biomechatronics and micromechatronics for medical applications. He received international recognitions for the development of novel actuators for microrobots and he has been visiting researcher at the University of Stanford, Center for Design Research, where he focused his activity on the issue of high-efficient, high performance mechanisms for bio-robotics. Prof. Stefanini has been the project manager of two European Projects, the first one addressing new bioinspired robotic artefacts, the second one aimed at developing new high precision manufacturing technologies for flexible, cost efficient and eco-friendly mass production of complex shape parts at the micro/meso-scale level. Prof. Stefanini is also founder of a spin-off company active in the field of micro-scale energy and actuation. Prof. Stefanini is the author or co-author of more than forty articles on refereed international journals, of more than seventy papers published in international conferences proceedings and of seven international patents, two of which industrially exploited by world-leading companies. His Scopus hindex is 17. He is member of the IEEE Societies RAS (Robotics and Automation), EMBS (Engineering in Medicine and Biology) and PES (Power and Energy).

## Geoff Pegman



Geoff Pegman is the Managing Director of R U Robots and is a Chartered Director with over 26 years' experience of the advanced robotics industry. R U Robots is a robotics consultancy performing research and development work, as well as studies, for, mainly, large companies across a wide range of application sectors as well as being an active participant in collaborative R&D developments. Geoff helped set up the UK National Advanced Robotics Research Centre in the late 1980's and ran the successful research programme there before going on to set up and

lead UK Robotics, a spin-out with majority ownership by BNFL. As well as running his own company for the past 12 years, Geoff has been instrumental in spinning out another 6 hi-tech companies during his robotics career.

Amongst his current and recent affiliations are: UK representative to, and Vice President of, the International Advanced Robotics Programme, an intergovernmental organisation with 15 country members; Board Member and SME representative to the EC SPARC Robotics Public Private Partnership; Member of the UK RAS SIG Executive Board; Visiting Fellow at the Bristol Robotics Lab; Council Member of the British Automation and Robot Association; Treasurer / Board Member of the UK Food Manufacturing Engineering Group; Member of the IMechE Mechatronic Committee; Founder member of the UK Northern Robotics Network; Member of the Editorial Advisory Board for Industrial Robot: An International Journal; Member of the UK Engineering and



Physical Sciences Research Council peer review group; Rapporteur for the interim and final reviews of the EC recovery PPPs (Factories of the Future, Green Cars and Energy-efficient Buildings); Member of the EC Ad-hoc Advisory Committee for Factories of the Future; Frequent reviewer of ongoing EC projects.

Geoff co-authored the EC Strategic Research Agenda for Robotics and was a major contributor to the Robotics Multi-annual Roadmap. As a member of the RAS-SIG Executive Board he played a significant role in the development of the UK RAS Strategy. The focus of much of his recent work in European projects has been in the areas of Entrepreneurship in robotics and the practical stimulation of dormant or failed markets through pre-competitive procurement and public procurement of innovation. Geoff has high level contacts across the UK robotics community, in terms of research and commercial ventures and potential end users, as well as good networks across Europe and, to a lesser degree, USA, Japan and Korea. Geoff is 61 and has degrees in Maths, Physics and Psychology.

## **Fabio Bonsignorio**



Fabio Bonsignorio is currently a (visiting) professor at the BioRobotics Institute of the Scuola Superiore Sant'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](http://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 over 20 years.

He is a Founding Director and a member of the current Board of Directors of euRobotics aisbl, the private part of SPARC, the EU Robotics Public Private Partnership. He is Co-Chair of the Strategy Task Force of the same organization. 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. He coordinated the EURON Special Interest Group on Good Experimental Methodology and Benchmarking in Robotics, is co-chair of the IEEE RAS TC-Pebras and has been a board member of EURON III. He is the guest editor of the very first special issue on Reproducible Robotics Research to be published by IEEE RAM this September. He is the coordinator of the euRobotics Topic Group on Evaluation and Assessment of Research Results a.k.a. 'Benchmarking and Competitions'. He is a member of the Euron Training Board (the GeorgeGiralt PhD Award jury).

He has participated to design and launch the new euCognition society, he is now a member of the euCognition society steering committee.

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



## Nicola Vitiello



Nicola Vitiello received the MSc degree in biomedical engineering (cum laude) from the University of Pisa, Italy, in 2006, and from Scuola Superiore Sant'Anna (SSSA), Pisa, Italy, in 2007. He also received the PhD degree in Biorobotics from SSSA, Pisa, Italy, in 2010. He is currently Assistant Professor with The BioRobotics Institute, SSSA where he leads the Wearable Robotics Laboratory. He is the author or co-author of 39 ISI/Scopus papers and 31 peer-review conference proceedings papers. He is

also guest editor of three special issues (SI) on three different prestigious ISI journals, namely Robotics and Autonomous Systems, IEEE Transactions on Neural Systems and Rehabilitation Engineering, and IEEE Robotics and Automation Magazine. He has served as the Scientific Secretary of the EU FP7 CA-RoboCom project, and he was the scientific project coordinator of the EU FP7 CYBERLEGS project and the EARLYREHAB project funded by Regione Toscana. Currently he is the scientific project coordinator of the IUVO research project funded by a local bank Foundation, namely "Fondazione Pisa", and Partner of the H2020-ICT-AIDE project. His interests include the development, experimental validation and maturation of novel wearable robotic devices for human motion assistance and rehabilitation. On November 2014, SSSA gave him the permission to found the spin-off company IUVO S.R.L with the ultimate goal to progressively mature and bring on the market the wearable robots developed within the Wearable Laboratory he leads. On January 2015 he was one of the co-founder of the spin-off company IUVO S.R.L.

## Giancarlo Teti



Giancarlo Teti graduated in Computer Science at the University of Pisa, Italy, in 1996 and he received the Ph.D. in Biomedical Robotics in 2002 from the Scuola Superiore Sant'Anna, Pisa, Italy. From 1996 to 2005 he was with the ARTS Lab, now Institute of BioRobotics, of the Scuola Superiore Sant'Anna. Since 2005 he is R&D Manager at ROBOTECH, a spin-off company of Scuola Superiore Sant'Anna whose mission is Service Robotics. His research interests are in the field of robot control architectures,

navigation, HRI and bio-inspired schemes for sensory-motor control of robots. Main application areas are Personal Robotics, Humanoid Robotics and Edutainment and Service Robotics. He has been and currently is involved in many national and EU-funded projects in the field of robotics and he has authored/co-authored more than 30 papers, appeared in international journals and conference proceedings.

## Andrea Piccaluga



Andrea Piccaluga is Professor in Business Administration and Innovation Management at the Istituto di Management, Scuola Superiore Sant'Anna ([www.sssup.it](http://www.sssup.it)), where he is coordinator of the PhD programme in Management ([www.phdmanagement.sssup.it](http://www.phdmanagement.sssup.it)). He is President of Netval ([www.netval.it](http://www.netval.it)), the Italian network of University Technology Transfer Offices. He has also launched DBA programmes at Scuola Sant'Anna ([www.dba.idm.sssup.it](http://www.dba.idm.sssup.it)). He holds a PhD from Scuola Superiore Sant'Anna

and a Master in Technology and Innovation Management from SPRU (University of Sussex, Brighton). He is Associate editor of the R&D Management Journal and Creativity and Innovation Management Journal. He collaborates with large and medium-sized companies (Knauf, GE Oil&Gas, Loccioni, TT Venture, etc.) in the field of Open Innovation and with the regional governments of Puglia (Arti) and Tuscany in the field of policies for entrepreneurship and technology transfer. He is member of the board of SIAF ([Scuola Internazionale di Alta Formazione](http://www.scuolainternazionale.it)) in Volterra. He has published books and papers in the field of R&D management and technology transfer. He is co-author of "La sfida del trasferimento tecnologico. Le università italiane si raccontano" (Springer, with M. Bianchi) and "La gestione del trasferimento tecnologico" (Springer, with G. Conti and M. Granieri).

## Robert Lemmens



Started at Marel in 2011 after finishing the Master 'Innovation Management' with a thesis at Marel. Concerned with the development and optimization of the maintenance concept in order to service customers' Marel equipment in an efficient way and keep their uptime and performance in good shape against acceptable costs. In order to secure efficient service delivery there is a need for more lifecycle awareness already in the development phase of new equipment, within Marel this is called 'Design for Availability'. One topic within 'Design

for Availability' is condition based monitoring. What is the service vision of Marel, what future possibilities can help Marel in providing better service and what are the steps to achieve this?

## Meeting Venue



### **Grand Hotel Palazzo**

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

Website: <http://www.grandhotelpalazzo.com/>

Email: [info@grandhotelpalazzo.it](mailto: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 [www.trenitalia.com](http://www.trenitalia.com) 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

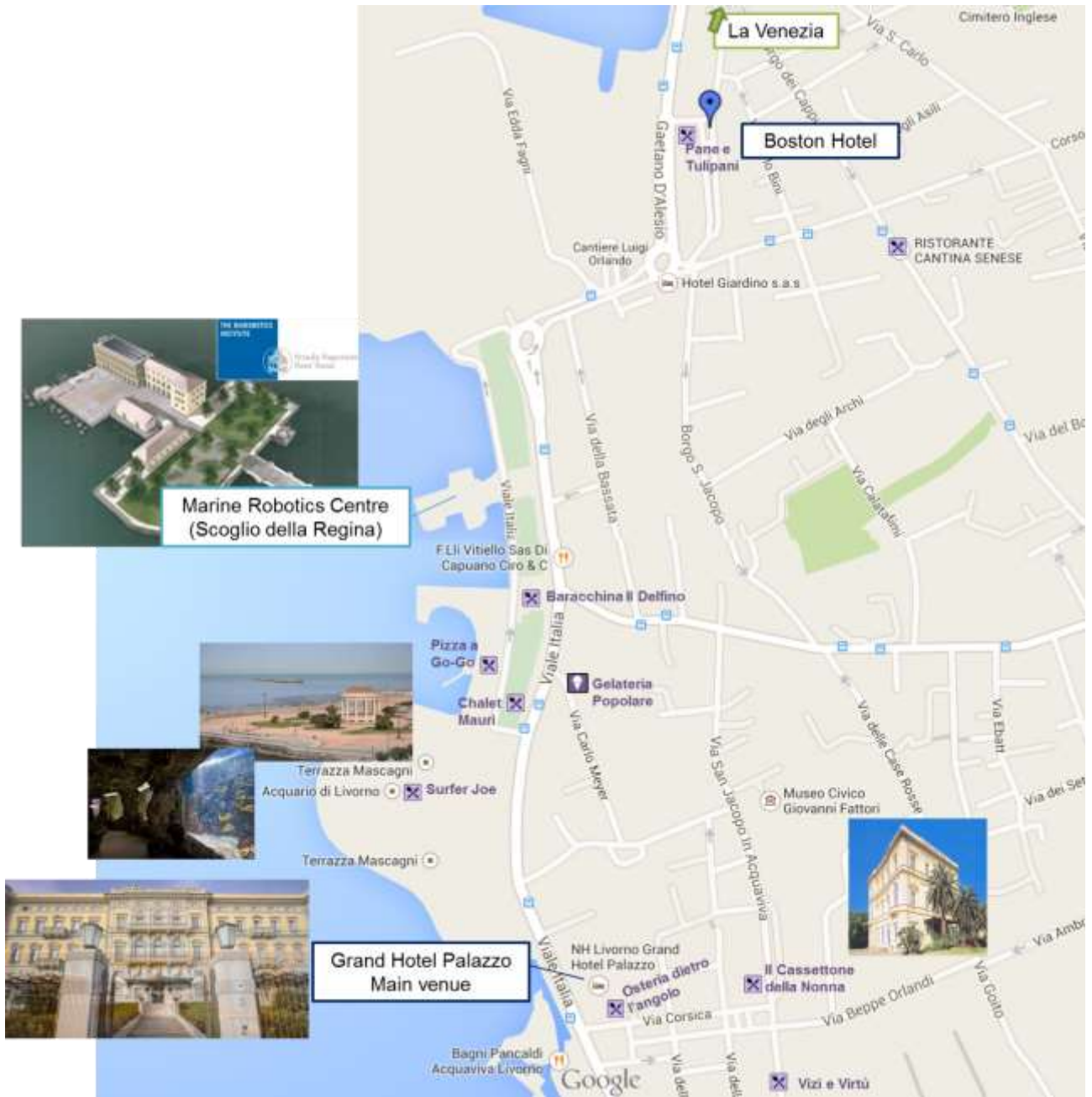
## **Fellows' Hotel**

**Boston Hotel** (<http://www.bostonh.it/hotel-livorno/?lang=en>)

Piazza Mazzini, 40 – Livorno 57126 (Li) Italy

tel.39/0586/882333 Fax 0586/882044

# Venue Map



# SMARTe

SUSTAINABLE MANUFACTURING  
THROUGH ADVANCED ROBOTICS TRAINING  
IN EUROPE



Scuola Superiore  
Sant'Anna