

Session Title:

Emerging topics in Robotics and Micro/Nano Robotics: from science-based research to high impact applications

Time of workshop:

March 6, afternoon (4 hours)

Organiser(s):

Prof. Paolo Dario

*Director, The BioRobotics Institute, Scuola Superiore Sant'Anna, Pisa, Italy
paolo.dario@sssup.it*

To announce the intended participation in the workshop or for general enquiries:

*Prof. Cecilia Laschi, Prof. Arianna Menciassi and Dr. Cesare Stefanini
The BioRobotics Institute, Scuola Superiore Sant'Anna, Pisa, Italy
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Motivation and objective:

The proposed workshop addresses a number of emerging topics in robotics, both concerning dimension scale and functionality. Micro/Nano-robots and re-configurable, multi-modal robots will be core topics of the workshop. The motivation behind this initiative is to raise awareness about these topics in experts and industry, in order to evaluate the potential of new approaches and technologies and to support innovation in companies active in this area, by investigating the transition process from research to innovative applications. This includes a "methodological" part (why this happens, and how it can be promoted) and a number of case studies ranging from micro/nano-robotics to reconfigurable and modular robots. The workshop aims at illustrating and discussing these topics, and at raising awareness about them also in industry.

Target outcomes of the workshop are:

- Composing a picture of the State of the Art in the field and of the major current R&D bottlenecks and challenges
- Identification of existing and potential applications (short to long term) in the field
- Identification of key issues in the transition from research to industrial products
- Assessment of the European potential in the addressed areas

Agenda of the workshop:

13:30-13:45: Welcome, introduction and objectives of the workshop (Paolo Dario)

13:45-15:00: Presentations I (Stéphane Regnier, Alin Albu-Schaeffer, Chris Melhuish)

15:00-15:30: Coffee break

15:30-16:45: Presentations II (Alexey Gribovskiy, Eugen Meister and Cesare Stefanini)

16:45-17:25: Plenary discussion (coordinated by Paolo Dario)

17:25-17:30: Wrap-up and Conclusion

Speakers:

- Paolo Dario (Director, The BioRobotics Institute of SSSA, Pisa, Italy)
- Stéphane Regnier (Head, Micromanipulation Group, ISIR, Université Pierre et Marie Curie-CNRS, Paris, France).
- Alexey Gribovskiy (MOBOTS/EPFL, Lausanne, Switzerland)
- Chris Melhuish (Director, BRL, Bristol, United Kingdom)
- Alin Albu-Schaeffer (Robotics and Mechatronics Center, DLR, Munich, Germany)
- Eugen Meister (IPVS, University of Stuttgart, Germany)
- Cesare Stefanini (The BioRobotics Institute of SSSA, Pisa, Italy)

How can participants contribute to, and prepare for, the workshop?

Participants are advised to visit the websites listed in the following section and to prepare a list of open questions and suggestions on product visions and application scenarios.

Further information:

<http://www.robotcompanions.eu>
<http://technav.ieee.org/tag/2313/micro-robots-and-micro-manipulation>
http://www.iris.ethz.ch/msrl/people/brad_n.php
http://www.robotimpact.com/index.php?option=com_content&task=view&id=476&Itemid=2
<http://lis.epfl.ch>
http://www.isir.upmc.fr/index.php?op=view_profil&lang=fr&id=27
<http://www.iris.ethz.ch/msrl/misc/2010-icra-workshop>
<http://www.gdr-robotique.org/robotex.php?type=4>
<http://mobots.epfl.ch/handbot.html>
<http://www.youtube.com/watch?v=FQYf0pI6fFs>
<http://modular.mmmi.sdu.dk/wiki/Publications>
<http://www.ocrobotics.com/downloads/ISR03.pdf>
http://en.wikipedia.org/wiki/Snake-arm_robot
<http://profdoc.um.ac.ir/articles/a/1008157.pdf>
<http://biorob.epfl.ch>
<http://www.brl.ac.uk/projects/mmmr/index.html>
http://www.me.vt.edu/romela/RoMeLa/Dr._Dennis_Hong.html
<http://dl.acm.org/citation.cfm?id=1735427.1735431>
<http://www.creativerobotics.magnify.net>
<http://www.molecubes.org>
<http://www.octopusproject.eu>
<http://www.lampetra.org>

Planned follow-up:

After the workshop, the information collected will be organized in a short report which will be made available on the EUROP Website and used for planning further awareness and training activities on Entrepreneurship.

Please reply to:

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The European Robotics Forum will take place from 5-7 March 2012 in Odense, Denmark, hosted by the Danish Technological Institute (DTI). More than 300 robotics researchers from industry and academia, as well as entrepreneurs and public investors are expected to discuss the latest developments, research challenges and business opportunities for European robotics. This year's theme of the European Robotics Forum is "European Robotics towards new horizons".