

RSS 2019 – Robotics Science and Systems – Workshop

Generation GrowBots: materials, mechanisms and systems design for adaptable and growing robots inspired by plants

June 22, 2019

Faculty of Engineering, University of Freiburg, Freiburg, Germany

WS1-4, Building 101, Room 01 013

9:00 – 9:15	Welcome and overview of the event: Barbara Mazzolai and Ian Walker
9:15 – 9:45	Robert Shepherd, Dept. Mechanical and Aerospace Engineering, Cornell University “Soft robotics: an emerging field”
	Fundamentals of plant biology for new technologies and robotics
9:45 – 10:15	Thomas Speck, Plant Biomechanics Group, University of Freiburg “Plants as role models for (inter-)active mobile technical systems: inspiration for soft-robotics and architecture”
10:15 – 10:45	Nicholas Rowe, Botany and Modelling of Plant Architecture and Vegetation, CNRS “Diversity, performance and developmental strategies of climbing plants in tropical forests”
10:45 – 11:00	Coffee Break
11:00 – 11:30	Yasmine Meroz, Meroz Lab, Tel Aviv University “What plant behavioral processes teach us about control strategies for growing robots”
	Plant-inspired technologies, growing robots and bioinspired robotic construction
11:30 – 12:00	Petra Gruber, Biomimicry Research and Innovation Center, University of Akron “A living architecture - how growth in biology informs building design”
12:00 – 12:30	Virgilio Mattoli, Center for Micro-BioRobotics, Istituto Italiano di Tecnologia “Conducting polymers for soft robotics and electronics”
12:30 – 13:00	Q&A and discussion
13:00 – 13:45	Lunch break
	Plant-inspired technologies, growing robots and bioinspired robotic construction
13:45 – 14:15	Barbara Mazzolai, Center for Micro-BioRobotics, Istituto Italiano di Tecnologia “GrowBots: a new generation of plant-inspired growing robots”
14:15 – 14:45	Ian Walker, Dept. of Electrical and Computer Eng., Clemson University “Plant-inspired continuum robots”
14:45 – 15:15	Marwa ElDiwiny, Robotics and Mechatronics, University of Twente “Modeling, design, and simulation of Knitted and Weaved Ionic Electroactive Polymer for the smart garment”
15:15 – 15:30	Coffee Break
15:30 – 16:00	Thrishantha Nanayakkara, Morph Lab, Imperial College London “Conditioning the body to reduce entropy of perception”
16:00 – 16:30	Yasmin Ansari, The BioRobotics Institute, Scuola Superiore Sant'Anna “Control strategies for robots based on soft materials”
16:30 – 17:00	Mirko Kovac, Aerial Robotics Lab, Imperial College London “Construction with robots and what we can learn from biology”
17:00 – 17:30	Closing discussion: perspectives for growing robots and sustainable architecture

Organizers: Barbara Mazzolai and Ian Walker
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