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*First Call for Papers, Satellite Events and Sponsors*

**Living Machines V: The 5th International Conference on Biomimetic and Biohybrid Systems**  
**18th to 22nd<sup>st</sup> July 2016**

<http://csnetwork.eu/livingmachines>

To be hosted at the

Dynamic Earth

Edinburgh, Scotland

In association with the Heriot Watt University and University of Edinburgh

Accepted papers will be published in

Springer *Lecturer Notes in Artificial Intelligence*

Submission deadline March 11th, 2016

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## **ABOUT LIVING MACHINES 2016**

The development of future real-world technologies will depend strongly on our understanding and harnessing of the principles underlying living systems and the flow of communication signals between living and artificial systems.

**Biomimetics** is the development of novel technologies through the distillation of principles from the study of biological systems. The investigation of biomimetic systems can serve two complementary goals. First, a suitably designed and configured biomimetic artefact can be used to test theories about the natural system of interest. Second, biomimetic technologies can provide useful, elegant and efficient solutions to unsolved challenges in science and engineering. **Biohybrid** systems are formed by combining at least one biological component—an existing living system—and at least one artificial, newly-engineered component. By passing information in one or both directions, such a system forms a new hybrid bio-artificial entity. The theme of the conference also encompasses biomimetic methods for manufacture, repair and recycling inspired by natural processes such as reproduction, digestion, morphogenesis and metamorphosis.

The following are some examples of “Living Machines” as featured at past conferences:

- Biomimetic robots and their component technologies (sensors, actuators, processors) that can intelligently interact with their environments.
- Active biomimetic materials and structures that self-organize and self-repair.
- Nature-inspired designs and manufacturing processes.
- Biomimetic computers—neuromimetic emulations of the physiological basis for intelligent behaviour.

- Biohybrid brain-machine interfaces and neural implants.
- Artificial organs and body-parts including sensory organ-chip hybrids and intelligent prostheses.
- Organism-level biohybrids such as robot-animal or robot-human systems.

## ACTIVITIES

The main conference will take the form of a **three-day single-track oral and poster presentation programme**, 20th to 22nd July 2016, hosted at Dynamic Earth, Edinburgh, Scotland.

The conference programme will include **five plenary lectures** from leading international researchers in biomimetic and biohybrid systems, and the demonstrations of state-of-the-art living machine technologies

The full conference will be preceded by up to two days of **Satellite Events** hosted by the School of Informatics at the University of Edinburgh.

## SUBMITTING TO LIVING MACHINES 2016

We invite both **full papers** and **extended abstracts** in areas related to the conference themes. All contributions will be refereed and accepted papers will appear in the Living Machines 2016 **proceedings which we expect to be published in the Springer-Verlag LNAI Series.**

Full papers (minimum 8 pages, up to 12 pages) are invited from researchers at any stage in their career and should present significant findings and advances in biomimetic or biohybrid research. More preliminary work would be better suited for short papers submission (minimum 4 pages, with a maximum of ten references and no more than three self-citations). Full papers will be accepted for either oral presentation (single track) or poster presentation. Extended abstracts will be accepted for poster presentation only.

Authors of the best full papers will be invited to submit extended versions of their paper for publication in a special issue of the Taylor & Francis journal **Connection Science**.

## Satellite events

Active researchers in biomimetic and biohybrid systems are invited to propose topics for **1-day or 2-day tutorials, symposia or workshops** on related themes to be held 18-19<sup>th</sup> July at the School of Informatics, University of Edinburgh. Events can be scheduled on either the 18<sup>th</sup> or the 19<sup>th</sup> or across both days. Attendance at satellite events will attract a small fee intended to cover the costs of the meeting. There is a lot of flexibility about the content, organisation, and budgeting for these events. Please contact us if you are interested in organising a satellite event!

## EXPECTED DEADLINES

March 11th, 2016 Paper submission deadline

April 29th, 2016 Notification of acceptance

May 16th, 2016 Camera ready copy

July 18-22 2016 Conference

## SPONSORSHIP

Living Machines 2016 is part-sponsored by the *Convergent Science Network (CSN) for Biomimetics and Neurotechnology*. CSN is an EU FP7 Future Emerging Technologies Co-ordination Activity that also organises two highly successful workshop series: the *Barcelona Summer School on Brain, Technology and Cognition* (<https://bcbt.upf.edu/bcbt15>) and the *Capocaccia Neuromorphic Cognitive Engineering Workshop* (<https://capocaccia.ethz.ch/capo/wiki/2015>).

The 2016 Living Machines conference will also be hosted and co-sponsored by Heriot Watt University.

**Call for Sponsors.** Other organisations wishing to sponsor the conference in any way and gain the corresponding benefits by promoting themselves and their products to through conference publications, the conference web-site, and conference publicity are encouraged to contact the conference organisers to discuss the terms of sponsorship and necessary arrangements. We offer a number of attractive and good-value packages to potential sponsors.

## ABOUT THE VENUE

Living Machines 2016 will be hosted at Dynamic Earth (<http://www.dynamicearth.co.uk>), a 5 star visitor attraction in the heart of Edinburgh's historic old town, next door the Scottish Parliament and Holyrood Palace. Dynamic Earth is a visitor experience that invites you to take a journey through time to witness the story of planet Earth. Through a series of interactive exhibits, state of the art technology and even a 4D encounter you will feel the heat of a bubbling volcano, face the chill of polar ice, fly across the globe before crash landing in a tropical rainforest. Attendees at the conference will receive a discount voucher to visit the Dynamic Earth exhibit. Workshops will be held at the University of Edinburgh's School of Informatics in George Square, a short walk from Edinburgh city centre.

### **Organising Committee:**

Mark Desmulliez, Heriot Watt University (Co-chair)

Tony Prescott, University of Sheffield (Co-chair)

Nathan Lepora, University of Bristol (Programme Chair)

Michael Mangar, University of Edinburgh (Satellite Events Chair)

Anna Mura, Universitat Pompeu Fabra (Communications)

Paul Verschure, Universitat Pompeu Fabra (International Steering Committee)