

## Summer School on Human-Machine Systems, Cyborgs, and Enhancing Devices

**June 14-18, 2012**  
**Iasi, Romania**

### INVITATION

This is the third summer school offered through co-sponsorship of the Advanced Technologies for Enhanced Quality of Life Society (AT-EQUAL) in Iasi, Romania.

Previous schools were:

- 2009 International Summer School in Robotics and Intelligent Systems (ISRIS)
- 2010 IEEE-RAS/IFFR School of Robotics Science on Social and Cognitive Robotics (SOCORO)

"Human-Machine Systems, Cyborgs, and Enhancing Devices" is an avant-garde theme; we expect it to be the subject of intensive debates, and to generate many novel ideas. We will explore current technologies used to advance the condition of man- by the use of robots, of devices, and of implants, and we will engage in discussions and brainstorming on future directions of high interest.

As the name suggests there will be three main topics:

- \* Human-Machine Systems: humans and machines in collaborative relationships
- \* Enhancing Devices: focusing on a next-gen prosthetics, designed to enhance human capabilities
- \* Cyborgs: focusing on true hybrids that fuse living tissue and artificial structures.

Each of these topics will be the theme of one day. The other two days will include a school poster session and introduction of student interests and research topics, lectures on state of the art in Humanoid robotics, Future Robots, Advanced prosthetics, and Ethical and Social Implications. The social program includes a tour to N. Moldavia monasteries to allow further development of bonds between school students, setting the basis for future collaborations in international projects.

Tentative schedule:

Day 1

Robotics and Advanced Prosthetics: State of the art in robotics, Humanoid robotics, Advanced prosthetics, Panel

Day 2

Human-Machine Systems:

Therapeutic robots, Assistive and caregiving robots, Human-computer and human-robot interaction

Day 3

Enhancing Devices: Design and fabrication of miniature assistive devices, Brain-Machine Interfaces, Portable devices collecting/processing bio-signals, Exoskeletons, Collective emotional intelligence, Discussion and brainstorming on enhancing device for Fun/entertainment/edutainment

Day 4

Cyborgs: Robotic surgery, Tissue engineering, cell stems, regenerative medicine, Implant engineering and control

Day 5

Social implications: Ethical and Social implication panel, Social Program including visit of Iasi and tour to N. Moldavia monasteries.

Confirmed Lecturers and Invited Speakers:

Raja Chatila, LLAS-CNRS, France  
Sukhan Lee, Sungkyunkwan University, Korea  
Karsten Berns, U. Kaiserslautern, Germany  
Paolo Fiorini, U. Verona, Italy  
Kevin Warwick, U. Reading, UK  
Joe Ferguson, CognitiveDevices, USA  
Adriana Tapus, ENSTA-ParisTech, France  
Kenji Suzuki, U. Tsukuba, Japan  
Bram Vandergorgh, Vrije U. Brussel, Belgium  
Luminita Labusca, Univ Hospital Iasi, Romania  
Daniel David, U. Babes-Bolyai, Cluj, Romania  
Adrian Stoica, NASA/JPL, USA

Target audience:

PhD-level researchers - those currently pursuing the degree, seriously considering, or having completed the PhD and showing interest in the topics of the school.

Applicants should submit, in PDF, two documents of 1 page each: a resume highlighting experience relevant to the school, and a description of research interests.

Emails should have the subject: HSS-2012 Application and should be addressed to [Adrian.stoica@jpl.nasa.gov](mailto:Adrian.stoica@jpl.nasa.gov) , [paolo.fiorini@univr.it](mailto:paolo.fiorini@univr.it) , [idorofte@mail.tuiasi.ro](mailto:idorofte@mail.tuiasi.ro)

The school will be limited to 40 students.  
Please submit your application before March 25th.

It is recommended that you submit early - applications will be reviewed in the order received.

School Directors:

Dr. Adrian Stoica, NASA-JPL, USA

Prof. Paolo Fiorini, University of Verona, Italy

Prof. Ioan Doroftei, Gheorghe Asachi Technical University of Iasi, Romania

For further information please visit our homepage: <http://www.humascend.info/school.htm>