



Figure 3. Stefano Stramigioli reports highlights from the discussion in his group.



Figure 4. Laura Margheri, Kyu Jin Cho, Atsushi Yakhita, and Ramode Abichandani discuss the relationship between academia and industry relative to RAS.

- 3) Events should be reformatted so that information can easily be disseminated outside of academia.
- 4) The RAS should collaborate with other organizations to extend the leadership and the reach of the RAS.
- 5) The RAS should create new positions for young professionals to increase volunteer participation and enthusiasm.
- 6) The RAS should promote robotics and the Society to governments to open a dialogue about technology roadmaps, solving common regulation issues and existing barriers.

These items will be further discussed by the Long Range Planning Committee and the corresponding RAS boards to determine further plans for action. I believe our leadership will significantly contribute to the future of robotics and automation and accelerate social change for humanity using robotics.

I deeply appreciate the excellent participants at the meeting and thank the IEEE staff, especially Randi S. Sumner, and the IEEE Technical Activities Board who facilitated the meeting.

2014 IEEE-RAS International Conference on Humanoid Robots

By Concepción A. Monje and Carlos Balaguer

For the first time, the 14th edition of the IEEE Robotics and Automation Society (RAS) International Conference on Humanoid Robots (Humanoids 2014) was held in Madrid, Spain during 18–20 November 2014 (www.humanoids2014.com). The conference was organized by the University Carlos III of Madrid. Prof. Carlos

Balaguer was the general chair of the conference. This conference is held annually alternating among America, Asia, and Europe. The last two conferences were in Osaka (2012) and Atlanta (2013), and the next one will be held in Seoul, South Korea. Over time, this event has become the most relevant conference on humanoids in the RAS community.

The conference theme was “humans and robots face to face” (Figure 1), confirming the growing interest in the field

of human–humanoid interaction. Currently, significant research efforts are devoted to the cooperation between humans and robots when dealing with the execution of daily activities in real environments. Out of these activities, emphasis is placed on scenarios that include health care, assistance for elderly and disabled people, home and office tasks, and industrial environments (construction, manufacturing, and aeronautics, among others).

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A record number of 173 scientific papers from 30 countries were presented at Humanoids 2014. The single-track scheme organization of the conference selected six main oral sessions (Figure 2):

- novel mechanism design
- locomotion planning
- learning
- grasping and manipulation
- modeling and simulation
- social interaction.

The highest number of workshops to date (17) was organized, both in full- and half-day formats. In addition, eight interactive sessions complemented these activities and permitted participants to establish direct communication within the humanoids community (Figure 3). These data represent a growth of about 60% with respect to the previous conferences and demonstrate the importance of humanoids in technology. Three plenary sessions were also given by top researchers in the field:

- Dr. Alin Albu-Schäffer from the Institute of Robotics and Mechatronics at the German Aerospace Center, Germany, gave the lecture “Humanoid Assistance Robots: Designing and Controlling Robots for Direct Interaction with Human.”
- Prof. Masayuki Inaba from the Department of Creative Informatics, University of Tokyo, Japan, gave the lecture “Inheriting and Evolving the Infrastructure of Systems and Devices for Humanoid Robotics.”
- Dr. Jerry Pratt from the Institute for Human and Machine Cognition, Pensacola Florida, gave the lecture “Towards Humanoid Avatar Robots for Co-Exploration of Hazardous Environments.”

The conference also included a mini-humanoid robot competition, Humabot, and an exhibition of the most advanced humanoid robots and related technologies (Figure 4), with robots such as Task Environment Operator (University Carlos III of Madrid), REEM-C (PAL Robotics), iCub (Italian Institute of Technology), Darwin (Robotis), and RoboThespian (The Engineered Arts) and products from



Figure 1. The Humanoids 2014 conference poster.



Figure 2. An oral session during Humanoids 2014.

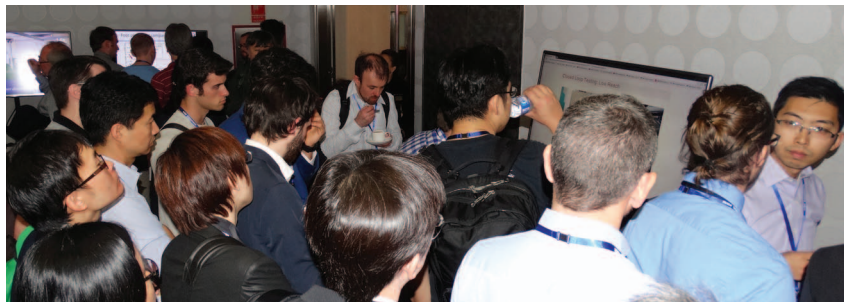


Figure 3. An interactive session during Humanoids 2014.



Figure 4. The Humanoids 2014 exhibition.

Shadow, Schunk, Robotnik, Optoforce, IniLabs, Technaid, and Mathworks, among others. The RoboCity2030 research and development program of the community of Madrid also participated very actively in the conference activities by organizing a presentation of undergraduate students’ robots.

In addition to the technical program, a wide variety of social activities and tours were also organized throughout

Madrid and the surrounding area, including the welcome reception held in the Santiago Bernabéu Stadium, the official headquarters of the Real Madrid football team.

With over 460 attendees from over 30 countries, Humanoids 2014 had the largest international participation of any conference, confirming the success of the event and the increasing focus on humanoid robotics around the world.