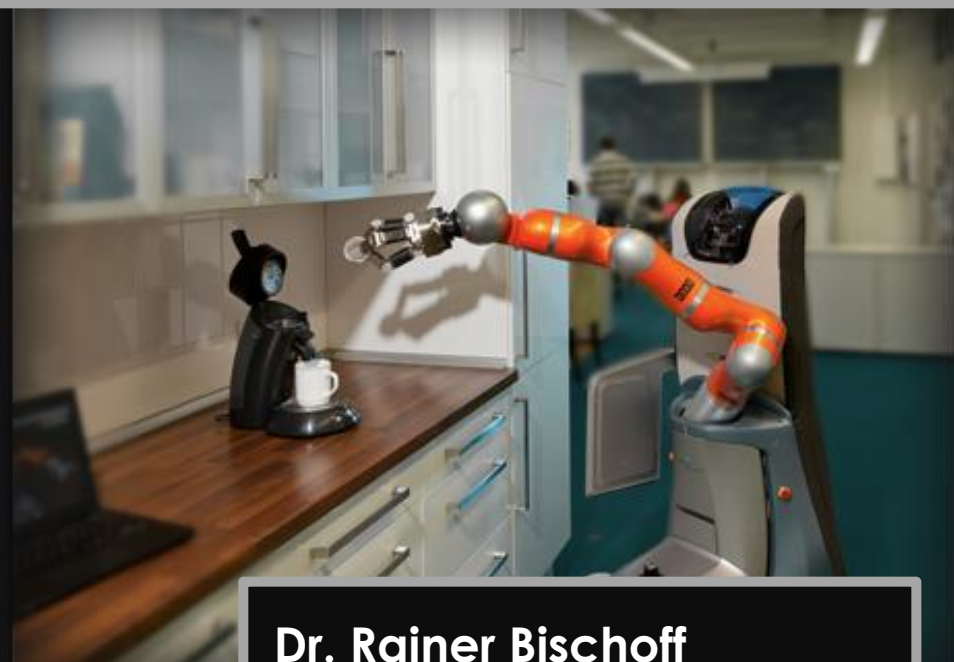


RoCKIn – Robot Competitions Kick Innovation in Cognitive Systems and Robotics



Dr. Rainer Bischoff
KUKA Laboratories GmbH

Competitions lead to...

- Innovation
 - Competitions are a powerful means to foster progress in R&D and to bring about best practices.
 - Best practices in relevant problem domains lead to technology transfers, and thus, competitions can be seen as catalyst for smarter, more dependable robots.
- Focused R&D
 - research challenges derived from real-world problems
 - development of commonly accepted test-beds and benchmarks
 - experimental validation of state-of-art research
- Better awareness of new technologies among citizens
- Higher attractiveness of scientific and engineering disciplines
 - primary / high school education
 - university level education



Project strategy

Build upon the well-established infrastructure of **RoboCup** competitions **plus**:

- introducing **networked robot systems** (multiple robots, multiple sensors and devices)
- adding further **natural interaction** between robots and humans, based on cognitive systems and principles
- reducing the number and importance of subjective evaluation vs. **objective evaluation in the competitions**
- revising the evaluation criteria of tests such that the overall measure combines the **quality of subsystems** and the success in performing the **overall task**
- applying more care in the design and revision of the **competition rules for better comparison across years**
- **lowering the entry barrier for new teams**



Competition Events

Camps and
Community Building

Test Beds

RoCKIn@Work
RoCKIn@Home

Dissemination

Benchmarking



The consortium



Advisory Board Members:

Adam Jacoff, NIST, USA

Bill Smart, Oregon State University, USA

Bruno Siciliano, University of Naples Federico II, Italy

Jon Agirre Ibarbia, Tecnalia, Spain

Manuela Veloso, Carnegie-Mellon University, USA

Oskar von Stryk, Technical University of Darmstadt, Germany

XiaoPing Chen, University of Science and Technology of China, China

Experts Board:

Alessandro Saffiotti, Örebro University, Sweden

Herman Bruyninckx, University of Leuven, Belgium

Tijn van der Zant, University of Groningen, The Netherlands



RoCKIn@Work

- **Innovative robot applications in industry that:**
 - work interactively with humans
 - have reduced initial programming requirements
 - have enhanced physics simulation capabilities
- **Contribute to the continued commercial competitiveness of European industry**



RoCKIn

RoCKIn@Home

- **Socially beneficial domestic service robots that**
 - Have enhanced networking and cognitive abilities
 - Support the impaired and the elderly
- **Contribute to an improved quality of life for the population of Europe**



ROCKIN

RoCKIn@Work

IROS 2012 Robot Competition



RoCKIn@Home

b-it-bots (BRSU @Home team at the finals of the German Open 2012)



ROCKIN

Camps and related events

- **RoCKIn Kickoff Camp** (June 28th to July 1st during RoboCup2013, Eindhoven)
 - covered subjects such as
 - principles for benchmarking robotics;
 - @Home and @Work challenges
 - raising awareness and disseminating robotics research;
 - first-hand experience of demo challenges, tests, and hw & sw solutions during the @Home and @Work practical sessions.



12 participants from 7 countries



Camps and related events

- **RoCKIn Camp**

- 26-30 January, 2014 – Rome, Italy
- Small groups working together to build upon 2013 introductory event
- 30+ applications from 15 countries, including non-EU
- Aim is to educate, advance current tech and develop robots appropriate for RoCKIn competitive events
- Support from IEEE RAS Summer School Program

- **RoCKIn Field Exercise**

- Planned for 2015
- Supports the final stage of team development
- Opportunity to test creations in a real world situation

- **Forums and workshops**



Competition events

- **2014:**

- Cité de L'Espace, Toulouse, 26-30 November 2014 (European Robotics Week)



- **2015:**

- Planned for European Robotics Week, Lisbon, end of November 2015

About RoCKIn



SAPIENZA
UNIVERSITÀ DI ROMA



Hochschule
Bonn-Rhein-Sieg

KUKA



POLITECNICO
DI MILANO

INNOCENTIVE®

- Find out more:
 - <http://rockinrobotchallenge.eu>
 - Twitter: @RoCKInchallenge
 - Facebook: search 'RoCKiN'



RoCKIn Call Information

Project	Call title	Website	Call deadline
RoCKIn Robot Competitions Kick Innovation and Cognitive Systems and Robotics	RoCKIn Camp 2014, Rome	http://rockinrobotchallenge.eu http://www.dis.uniroma1.it/~rockin/	20 November 2013
	RoCKIn Competition Event 2014, Toulouse, 26-30 November 2014	http://rockinrobotchallenge.eu	Call for participation: June 2014 (tentative)
	RoCKIn Camp/Field Exercise 2015, Rome, June 2015	http://rockinrobotchallenge.eu	TBA
	RoCKIn Competition Event 2015, Lisbon, 25-29 November 2015 (tentative)	http://rockinrobotchallenge.eu	Call for participation: June 2015 (tentative)

