RoCKIn - Robot Competitions Kick Innovation in Cognitive Systems and Robotics

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RoCKIn Camp 2013 Report

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Scope

This report provides a description of the activities related to the organization, attendance and outcomes of the RoCKIn Camp 2013 Introductory Event, comprehensive of an analysis of the feedback gathered from participants.

Contents

1. Introduction

RoCKIn1 is an EU-funded Coordinated Action, that will be run over the next three years, consisting of robot competitions, symposiums, educational RoCKIn camps and technology transfer workshops. Robotics needs now an impetus that brings existing appealing prototypes from research laboratories to actual products in the mass market. One of the driving forces for such a significant and long-awaited technology transfer to happen is to focus the research in robotics on integrated systems that address and solve grand challenges. Obviously, the goal is not simply to realize a robotic system engineered to solve that particular challenge, but to develop formal methods that enable systematic approaches to building better and smarter robots in a given class of applications, benchmarked against building blocks common to most grand challenges for robots. It was on this basis that RoCKIn was formed.

RoCKIn major goals are:

- developing standardised testbeds and benchmarks that will streamline R&D for the future;
- focusing on cognitive skills and networked robots;
- acting as a catalyst for smarter, more dependable robots.

RoCKIn pursuits these goals by leveraging on different aspects:

- scientific dissemination, through the participation at conferences and major events;
- releasing a benchmarking framework;
- designing testbeds adopted by the whole robotic community;
- organizing competition events to evaluate robotic teams through standard benchmarks and testbeds;
- introducing teams to RoCKIn competitions through Camps.

This latter activity is further described in this document.

[1] http://rockinrobotchallenge.eu

2. RoCKIn Camps

RoCKIn Camps should be considered as events in preparation of RoCKIn competitions. They are conceived as summer schools, but put special emphasis on the hands-on experience of the participants, who are organized in small working groups focused on the implementation of specific components and their performance evaluation through the benchmarks developed in WP2, as in a "living lab".
Three Camps are scheduled, as below reported:

- RoCKIn Introductory Event, June 28th to July 1st 2013, Eindhoven (The Netherlands)
- RoCKIn Camp, January 2014, Rome (Italy)
- RoCKIn Field Exercise, 2015

UNIROMA1 leaded the task, supporting the overall event organization and management, travel support to participants and lecturers (subcontracted).
In particular, in this document we focus on the first Camp, the RoCKIn Introductory Event, by describing its peculiar aspects and main activities.

The goal of the Introductory Event was to introduce potential participants to the RoCKIn project with the ultimate aim of facilitating the entry of new teams into RoCKIn@Home and RoCKIn@Work.

This goal has been achieved by involving lectures, attending and evaluating parts of RoboCup@Home and RoboCup@Work, and participatng at the RoboCup symposium. The Introductory Event wasn't conceived as a practical session, rather as an opportunity to establish a first RoCKIn community of robotic experts new to the context of robotic competitions but willing to join it. We also encouraged members of other robotic competitions (e.g. RoboCup) to apply for a different track with respect to the one they've already experience on. More in depth, below are reported the main goals of this Camp:

- creating a social community related to robot benchmarking;
- establishing a direct interaction among RoCKIn partners and incoming teams;
- promoting RoCKIn in the scientific community;
- introducing participants to RoCKIn competitions.

3. RoCKIn Introductory Event 2013

This Section describes the main activities carried out during the Introductory Event, as well as providing the reader with management details.

3.1 Venue

RoCKIn Camp 2013 has been co-located with RoboCup 2013 at the Genneper Parks in Eindhoven, the Netherlands, within the Major League venue, which was the Indoor Sports Center. Last day the Camp was co-located with the venue of the RoboCup Symposium at the Blauwe Zaal, situated in the Auditorium of Eindhoven University of Technology.

Figure 1: An arena of the RoboCup venue at the Genneper Parks where RoCKIn was co-located.

3.2 Participants

Twelve people coming from all over the world joined the first RoCKIn Camp, as below reported.

Table 1: The participants of the RoCKIn Introductory Event.

Surname	Name	University	Country
Silva	Manuel	ISEP/IPP - School of Engineering, Polytechnic of Porto	Portugal
Zanotto	Elena	University of Padua	Italy
Mendez Nunes Vaz	Miguel Antonio	Instituto Superior Técnico - Technical University of	Portugal

		Lisbon	
Rodgriguez Lera	Francisco	Universidad de León	Spain
Yldiz	Erenus	Hochschule Bonn-Rhein-Sieg University of Applied Sciences	Germany
Badri Narayanan	Bipin Kumar	Bonn-Rhein-Sieg University of Applied Sciences	Germany
Gharbi	Mamoun	LAAS-CNRS, Toulouse	France
Benjamin	Vadant	Université de Toulouse - LAAS/CNRS	France
Guimarães da Silva	Alan Deivite	Universidade do Estado da Bahia	Brazil
Shoaib	Umar	Politecnico di Torino	Italy
Wang	Jiuguang	Carnegie Mellon University	USA
Mudrovà	Lenka	Czech Technical University in Prague	Czech

Despite being an EU-funded Coordinated Action, two out of twelve participants came from non EU countries (Brazil and the USA). Furthermore, it is interesting to highlight that just four out of twelve participants are directly related to one of the project's partner, which implies that the dissemination and promotion activities conducted before the Camp (e.g. European Robotics Forum 2013) lead to a very good result in terms of attacting participants. Ten people are PhD students or Post-docs, while just one person is a researcher and another person is an undergraduate student.

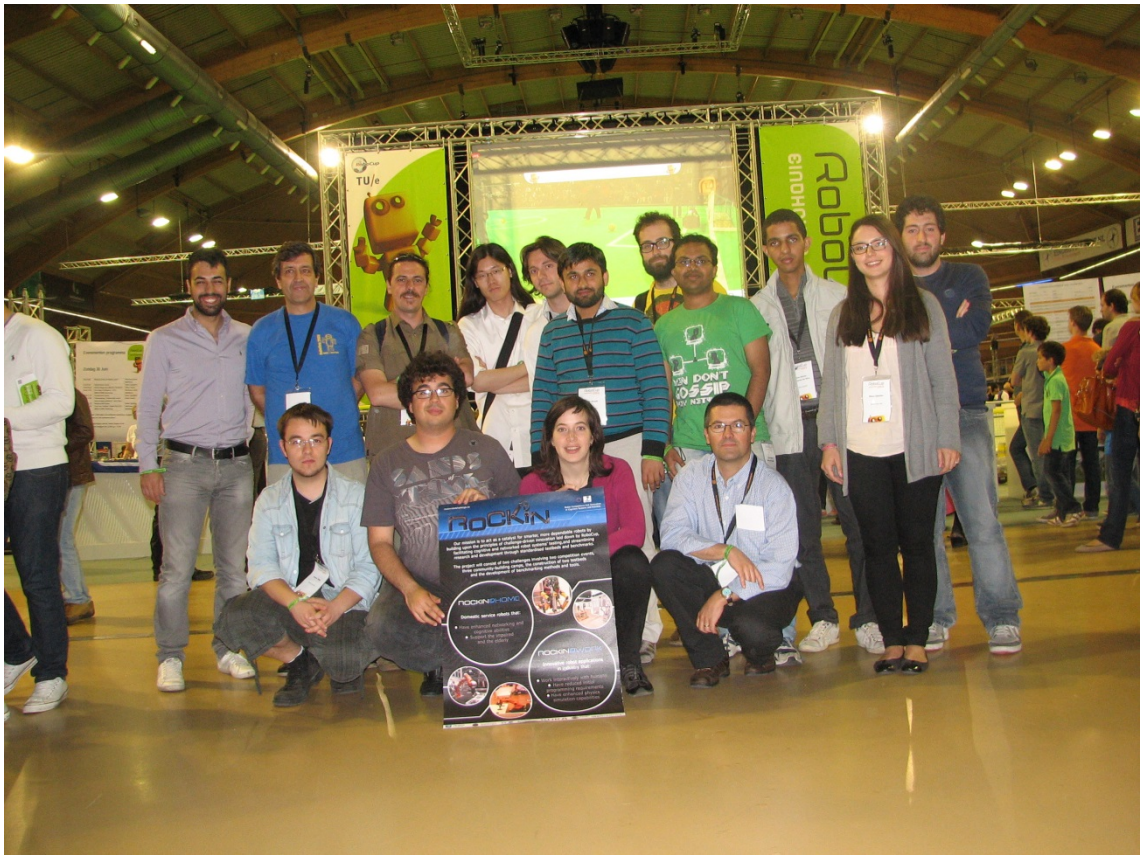

Figure 2: The participants of the RoCKIN Introductory Camp with some of the lecturers.

3.3 Program

The Camp has involved participants in a four-day intensive program, interleaving lectures with practical sessions, attendance to RoboCup competitions and research talks at the RoboCup Symposium.

Below is reported the Camp's program, also available at http://www.dis.uniroma1.it/~rockin/node/8.

Table 2: The program of the RoCKIn Introductory Event.

June 28th		
Morning		
	09:00 / 10:00	**L1 - Introduction about RoCKIn and Robotics competitions** Prof. Pedro U. Lima (Instituto Superior Técnico, Lisbon)
Coffee Break 10:00 / 10:15		
	10:15 / 11:15	**L2 - Benchmarking Robotics** Prof. Matteo Matteucci (Politecnico di Milano)

	11:30 / 12:30	**L3 - RoboCup@Work** Prof. Gerhard Kraetzschmar
Afternoon		
	14:00 / 18:00	**P1 - Experience on the Field - RoboCup@Work competitions** Dr. Jakob Berghofer
June 29th		
Morning		
	09:30 / 10:30	**L4 - RoCKIn: raising awareness and disseminating robotics research** Dr. Graham Buchanan (InnoCentive)
Coffee Break 10:30 / 10:45		
	10:45 / 11:45	**L5 - Benchmarking Intelligent Service Robots through Scientific Competitions: the RoboCup@Home approach** Prof. Luca Iocchi (Sapienza University of Rome)
Afternoon		
	14:00 / 18:00	**P2 - Experience on the Field RoboCup@Home competitions** Prof. Luca Iocchi (Sapienza University of Rome)
June 30th		
Full day		
		Attendance of the RoboCup 2013 finals
July 1st		
Full day		
		Attendance of the RoboCup Symposium

In addition to the aforementioned program, participants also joined video lectures within the major RoboCup experts.

3.4 Lecturers

Lectures covered subjects such as principles for benchmarking robotics, raising awareness and disseminating robotics research, as well as a discussion about the value of developing robotics through scientific competitions like RoboCup. Speakers included: Prof. Pedro U. Lima, Prof. Matteo Matteucci, Prof. Gerhard Kraetzschmar, Prof. Luca Iocchi, and Dr. Graham Buchanan.

The main goal of lectures was to provide participants with an overview of the main aspects related to benchmarking of robotic systems and current competitions. Slides about the lectures have been collected and published on the RoCKIn Web site.

3.5 Practical Sessions

Despite being an introductory event, in addition to lectures, RoCKIn Camp conducted practical sessions that enabled attendees to get first-hand experience of demo challenges, tests, hardware and software solutions. Even if not really hands-on sessions, practical sessions were attended in RoboCup arenas, with the opportunity to meet RoboCup teams, Technical Committees and Organizing Committees. The practical sessions have been organized by Dr. Jakob Berghofer and Prof. Luca Iocchi. Participants also had the opportunity to participate at the scoring procedure adopted by the @Home Technical Committee.

3.6 RoboCup Finals and Symposium

The last two days of the RoCKIn Camp implied a direct involvement in RoboCup 2013. This included attending all the RoboCup finals, awards and closing ceremonies, and the RoboCup International Symposium. The Symposium represented the core meeting for presentation and discussion of scientific contributions to a variety of research areas related to all the RoboCup leagues.

Figure 3: The Blauwe Zaal at the Eindhoven Institute of Technology, which hosted the Robocup Symposium joined by the RoCKIn participants.

3.7 Camp Website

An important aspect of the Camp is to establish a RoCKIn community, and one of the most efficient way to continuously foster this aspect is through a dedicated Web infrastructure. A web site devoted just to Camps is available at http://www.dis.uniroma1.it/~rockin/.

The Web site reports information about all the Camps (at the moment it is specific for the Introductory Event), the main news associated to the community, published questionnaires and additional material (e.g. slides), and so on.

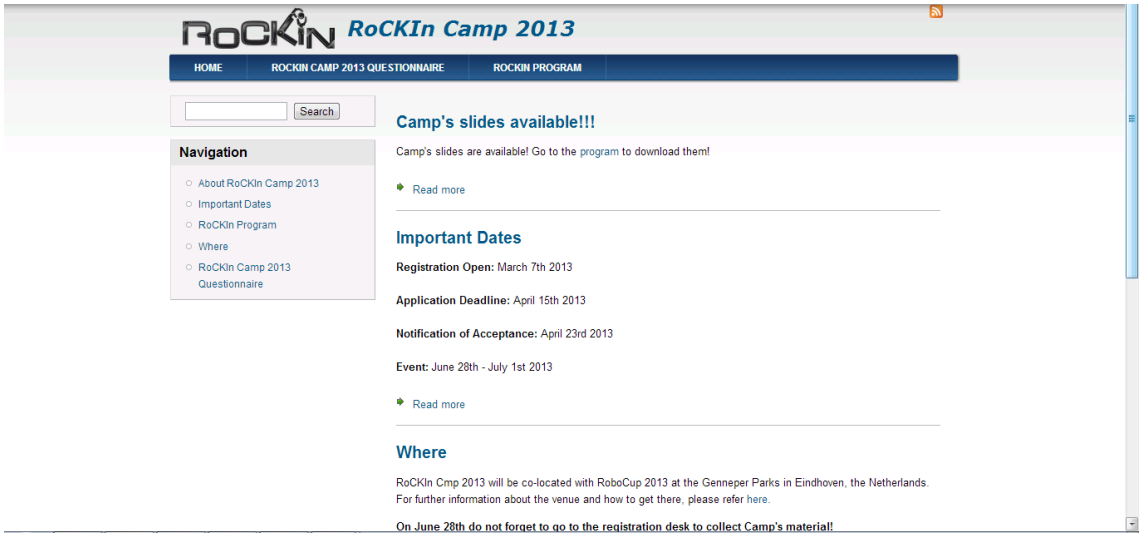

Figure 4: A snapshot of the RoCKIn Camp website where material and information about the event has been published.

Appendix A

Questionnaires

Part of the tasks related to the Camp management involves assessing the quality of the activities related to the Camp.
UNIRM1 has designed a satisfaction questionnaire with the following two goals:

- gather a feedback from participants with respect to the overall quality of the Camp;
- assess the status of the participants joining the future RoCKIn competitions, in terms of hardware and software availability, team members, and any other type of support necessary to participate.

Below is reported a table comprehensive of all the questionnaire's questions and the feedback provided by the participants. An analysis follows up.

Q1: Quality of the Camp's venue

Fully Satisfying	Satisfying	Poorly Satisfying	Not Satisfying
6	5	-	-

Q2: Quality of the equipment for the Camp's activities

Fully Satisfying	Satisfying	Poorly Satisfying	Not Satisfying
4	6	1	-

Q3: Staff courtesy

Fully Satisfying	Satisfying	Poorly Satisfying	Not Satisfying
9	2	-	-

Q4: Access to Camp's location

Fully Satisfying	Satisfying	Poorly Satisfying	Not Satisfying
-	8	2	1

Q5: Did the Camp satisfy your personal expectations?

Fully Satisfying	Satisfying	Poorly Satisfying	Not Satisfying
2	8	1	-

Q6: How do you consider participants' involvement?

Fully Satisfying	Satisfying	Poorly Satisfying	Not Satisfying
5	4	2	-

Q7: Where the Camp's lectures satisfying?

Fully Satisfying	Satisfying	Poorly Satisfying	Not Satisfying
5	6	-	-

Q8: Where the Camp's practical sessions satisfying?

Fully Satisfying	Satisfying	Poorly Satisfying	Not Satisfying
1	2	7	1

Q9: Did you find the RoboCup integration interesting?

Fully Interesting	Interesting	Poorly Interesting	Not Interesting
6	4	1	-

Q10: Which track did you prefer?

@Home	@Work
5	6

Q11: Would you like to repeat this experience, and attend the next RoCKIn Camp?

Yes	No
11	-

Q12: Are you planning to create a new team for RoCKIn competitions?

Yes	Don't Know	No
10	1	-

Q13: Which track would you like to join?

@Home	@Work	Both
2	4	5

Q14: How many team members do you plan to have?

3 Members	4 Members	5 Members	6 Members	Don't Know
3	2	3	1	2

Q15: Do you already own a robot platform for your selected track?

Yes, and it is fully working	Yes, but additional hardware is required	No, we have to buy it
1	2	8

Q16: Did you already develop the software system for your robotic platform?

Yes, and it is fully working	Yes, but we need to develop additional software modules	Not at all

1	7	3

Q17: What kind of support do you expect from RoCKIn to attend competitions?

Team Formation	Platform Acquisition	Software Development	Networking with RoboCup Teams	Evaluation and Benchmarking
3	8	5	7	7

Two additional open-form questions are present in questionnaires, which are respectively:

Q18: What are your goals in participating to the next RoCKIn Camp?
Q19: What are your goals in setting up a team and participating to RoCKIn competitions?

Replies to both these questions are not reported here.

Concerning the Camp's quality, the following aspects arise:

- the overall Camp's management, in terms of facilities, location and services, has been appreciated, despite there's been an access problem due to the distance of the first hotel from the location, which has been handled and solved in the second day of the Camp;
- the participants' involvement and the integration with the RoboCup competitions have been appreciated;
- while the satisfaction level of lectures is very high, practical sessions have room for improvement, even if it is worth noting that this latter aspect will be crucial starting from the next Camp 2014 ;
- @Home and @Work are pretty balanced in terms of participants' interest.

On the other hand, addressing the future intents of participants, the following aspects arise:

- most of the participants lack a robotic platform and expect from RoCKIn some support in its acquisition;
- many teams are interested in joining both the tracks; on the other hand, few seem interested only in @Home, which could be motivated by the complexity of @Home platforms with respect to @Work ones.

Two additional benefits from RoCKIn might be supporting participants in gathering feedback from RoboCup teams, and evaluating and benchmarking their robotic systems.