

## Preface

The RoboCup – Robot World Cup – 2014 took place at the Convention Center “Poeta Ronaldo Cunha Lima” in João Pessoa, Brazil, from July 19–24. The RoboCup 2014 competition had a total of 2,631 participants from 45 countries in the Major and Junior leagues. If we consider also the exhibitors, staff, local organization, and volunteers, RoboCup 2014 had more than 2,900 participants. Approximately 100,000 visitors from different Brazilian states attended RoboCup 2014 during the five days that it was open to the general public.

The 18th annual RoboCup International Symposium was held in the same venue, on July 25th, and was attended by more than 800 members of the RoboCup Community. We also had 186 students from Brazilian universities, attending only the RoboCup Symposium.

For the 18th RoboCup International Symposium, we received a total of 66 regular paper submissions, which were reviewed carefully by the International Program Committee, consisting of 54 members. Each paper was reviewed by at least three reviewers. Overall, we accepted 36 of those (54%), of which 10 were chosen for oral presentation.

Besides the regular papers, this year we had three special tracks: Champion Teams, Open Source Development, and Advancement of the RoboCup Leagues Tracks.

The Champion Teams Papers Track contains 11 papers written by the teams who won the competition. This track is used to document and disseminate the state of the art in each League, and to introduce new ideas and promising technologies.

The Open Source Software and Hardware Development Track was introduced in 2013. This track encourages the sharing of technology, software implementations, and hardware projects among RoboCup researchers. This year we had three papers published in this track, including one that won the Best Paper Award for its engineering contribution, selected from among all papers submitted to the Symposium.

This year we introduced a new track to the Symposium: the Special Track on the Advancement of RoboCup Leagues. The aim of this track was to foster discussion on the future of RoboCup, league by league, with focus on changes in the next year and plans for future. Two panel discussions were held, one about the soccer leagues and another about the application leagues. The results of these discussions are reported in nine papers published in this book.

We also had two invited speakers: Rodney Brooks, Professor emeritus at MIT, robotics entrepreneur and Founder, Chairman and CTO of Rethink Robotics; and Sami Haddadin, Full professor and director of the Institute of Automatic Control (IRT) at Leibniz University Hanover. Professor Brooks’ talk was about the Challenges for Robotics Research, which involve having robots that are able to support human society in the future, and making progress in three areas of research: Mobility, Manipulation, and Messiness. Professor Haddadin’s talk was also focused on the interaction between robots and humans: he described his work on human-centered robot design, control,

and planning, which may lead to robots that can safely act as human assistants and collaborators over a variety of application domains.

The award committee selected two papers, printed first in the book, as best papers:

- The Best Paper Award for its Scientific Contribution: Balanced Walking with Capture Steps, by Marcell Missura and Sven Behnke.
- The Best Paper Award for its Engineering Contribution: RoboCup@Home Spoken Corpus: Using Robotic Competitions for Gathering Datasets, by Emanuele Bastianelli, Luca Iocchi, Daniele Nardi, Giuseppe Castellucci, Danilo Croce, and Roberto Basili.

Finally, we would like to thank the chairs of RoboCup 2014, Flavio Tonidandel, Esther Luna Colombini, Alexandre da Silva Simões, and all the members of the Organizing Committee who brought together this splendid event; the Program Committee Members and additional reviewers, who ensured the quality of the contributions assembled in this book; and finally, all the participants and authors, for making this event a huge success.

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Reinaldo A.C. Bianchi  
H. Levent Akin  
Subramanian Ramamoorthy  
Komei Sugiura

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Bianchi, R.A.C.; Akin, H.L.; Ramamoorthy, S.; Sugiura, K.  
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