

# Preface

This volume on “Intelligent Robotics and Automation Systems” from the Springer *Communications in Computer and Information Science* series (Springer CCIS) consists of the best papers selected from the Joint Conference on Robotics 2014: 11th Latin-American Robotics Symposium, Second Brazilian Robotics Symposium, and 6th Workshop on Applied Robotics and Automation. The Joint Conference on Robotics and Intelligent Systems (JCRIS 2014) was held during October 18–23, 2014, at the University of São Paulo at São Carlos, Brazil. JCRIS 2014 was composed of several satellite events including artificial intelligence and computational intelligence conferences, robotics competitions, PhD and MSc Best Dissertation and Thesis Contest, and the most important Latin-American Robotic Conferences composed by three major joint events: LARS-SBR-Robocontrol.

The Joint Conference on Robotics 2014 was organized by the ICMC (Computer and Mathematics Sciences Institute from USP São Carlos), the EESC (São Carlos School of Engineering), and the CRob/USP-SC (Center for Robotics of USP São Carlos). The event was promoted jointly by the SBC (Brazilian Computer Society) and the SBA (Brazilian Automation Society), with support from FAPESP, CAPES, and CNPq. The joint conferences received more than 3,000 participants following the competitions, plenary talks with renowned international invited speakers, panels, posters, and oral presentations of papers.

We received 76 submissions (57 submissions to LARS/SBR and 19 submissions to Robocontrol) from eight countries, from which 45 papers were accepted for oral presentation at the SBR-LARS-Robocontrol conferences (37 papers accepted for LARS/SBR and eight papers accepted for Robocontrol). Each paper was reviewed by at least three experts. Our final decision on these submissions took into account mainly the potential of each paper to foster fruitful discussions and the future development of robotics in Latin America and Brazil. In some cases, an additional review was offered in order for a decision to be taken.

The best papers were selected considering the best scores obtained by the papers according to the reviewers. We selected the eight best papers from SBR-LARS-Robocontrol and also one paper as the Best PhD Thesis in 2014 from the PhD Thesis Contest in Robotics. Extended and improved versions of the best papers were requested from the authors of these nine papers. The submitted articles were reviewed again by selected Program Committee members of the conferences and, after corrections, the articles were accepted for publication in this volume of the CCIS series.

This book aims to bring together innovative results and new research trends in intelligent robotics and automation systems selected from the Joint Conference on Robotics 2014. Authors of selected best papers were invited to revise and extend their papers submitting their work to this special volume. We have also included in this book a chapter describing the awarded thesis work (first place) from the PhD Thesis Contest in Robotics presented by Douglas Macharet and Mario Campos (Advisor). The selected

papers present a complete and solid reference of the state of the art in the intelligent robotics and automation research field, covering the following areas: autonomous mobile robots, tele-operated and telepresence robots, human–robot interaction, trajectory control for mobile robots, autonomous vehicles, service-oriented robotic systems, semantic mapping, environment mapping, visual odometry, applications of RGB-D sensors, humanoid and biped robots, Robocup Soccer robots, robot control, path planning, multiple vehicles, and teams of robots.

We hope that you will find these papers interesting and consider them a helpful reference in the future when addressing any of the aforementioned research areas.

May 2015

Fernando S. Osório  
 Denis Fernando Wolf  
 Kalinka Castelo Branco  
 Valdir Grassi Jr.  
 Marcelo Becker  
 Roseli A. Francelin Romero

Robotics

Joint Conference on Robotics, LARS 2014, SBR 2014,  
Robocontrol 2014, São Carlos, Brazil, October 18-23,  
2014. Revised Selected Papers

Osorio, F.; Wolf, D.F.; Castelo Branco, K.; Grassi Jr., V.;  
Becker, M.; Romero, R.A.F. (Eds.)

2015, XVII, 169 p. 91 illus. in color., Softcover

ISBN: 978-3-662-48133-2