

# Preface

The International Symposium on Robotics Research (ISRR) is a series of biennial symposia, which began in 1989, and is sponsored by the International Foundation of Robotics Research (IFRR). ISRR is the longest running series of robotics research meetings and dates back to the very earliest days of robotics as a research discipline. The first meeting was organized by Mike Brady and Richard Paul and took place in Bretton Woods (New Hampshire, USA) in August 1983. In the following years, the ISRR symposia were held successively in Kyoto (Japan) 1984, Gouvieux (France) 1985, Santa Cruz CA (USA) 1987, Tokyo (Japan) 1989, Hidden Valley PA (USA) 1993, Herrsching (Germany) 1995, Shonan Village (Japan) 1997, Snowbird UT (USA) 1999, Lorne (Australia) 2001, Siena (Italy) 2003, San Francisco CA (USA) 2005, Hiroshima (Japan) 2007, and Lucerne (Switzerland) 2009. The ISRR symposia are conceived to bring together in a small group setting researchers from academia, government, and industry to assess and share their views and ideas about the state of the art of robotics, and to discuss promising new avenues for future research.

The Fifteenth International Symposium of Robotics Research was held in Flagstaff, Arizona on December 9–12, 2011. Nearly 80 participants from the major institutions of robotics research around the world joined the meeting. The technical program featured 37 contributions, selected from open submissions and invited contributions by the program committee and the members of IFRR. The program was organized around oral presentation in a single-track format and included for the first time a small number of interactive presentations.

The symposium contributions contained in this volume report on a variety of new robotics research results. The technical program was organized in 10 sessions covering a broad spectrum of robotics research. The session topics included perception, manipulation, grasping, vehicles and design, navigation, control and integration, estimation and SLAM. In addition to the technical sessions, the program included two forums: (i) the *Frontier Forum* was chaired by Prof. Hirochika Inoue (JSPS), with the participation of Robert Ambrose (NASA), Thomas Bongrath (KUKA), Herman Bruynincks (KU Leuven), Steve Cousin (Willow Garage),

Sadao Kawamura (RSJ), Kazuhiro Kosuge (IEEE-RAS), Yoshi Nakamura (Tokyo University), Gill Pratt (DARPA), Chuck Thorpe (OSTP), and Richard Voyles (NSF); (ii) the *Pioneer Forum* was chaired by Ruzena Bajcsy (Berkeley) with the participation of Bob Bolles (SRI), Rodney Brooks (Rethink Robotics), Raja Chatila (LAAS), Paolo Dario (SSSA), Shigeo Hirose (TITECH), John Hollerbach (Utah), Hirochika Inoue (JSPS), and Yoshiaki Shirai (Ritsumei University). These forums brought a global view of the field and generated much discussion on the challenges in robotic research and its future perspective. The technical program was complemented by a rich social program and a unique technical field visit to NASA test site in Arizona with spectacular demonstrations of NASA's robotic platforms.

We are grateful to Robert Ambrose and his team for organizing the exceptional field visit to NASA test site. We would like also to express our special thanks to Marie Johnson for all the efforts she devoted to the management and local organization of the symposium.

The greatest words of thanks go of course to the authors and participants who have all contributed to the success of this symposium by bringing an outstanding program, excellent technical presentations, and stimulating and insightful discussions.

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