

THE 2014 IEEE-RAS RESPONSE ROBOTICS SUMMER SCHOOL AND WORKSHOP



From the 26th to the 30th of September, 2014 Perth, Western Australia www.responserobotics.org info@responserobotics.org

A HANDS-ON SUMMER SCHOOL AND WORKSHOP FOR GRADUATE STUDENTS AND EARLY CAREER RESEARCHERS ON THE CHALLENGES AND BEST-IN-CLASS SOLUTIONS FOR RESPONSE ROBOTICS.

The 2014 IEEE Robotics and Automation Society Response Robotics Summer School and Workshop (RRSS+W) addresses the need for effective robotic solutions in emergency response scenarios, focusing on remote handling in response situations. The RRSS+W is ideal for final year undergraduate, Masters and PhD research students, and early career researchers. We also welcome all attendees from around the world who have an interest in this domain, including teachers, industry research and development personnel and enthusiasts in this field.



The Event:

The event consists of single-tracked lectures and hands-on practical demonstration and development sessions, lead by world class researchers, developers and responders. Attendees will have the opportunity to better understand the challenges and capabilities in this domain and network with their peers, responders and industry. The DHS-NIST-ASTM International Standard Test Methods for Response Robots (ASTM E54.08.01) will form the common language by which students, researchers, responders, manufacturers and government communicate their capabilities and requirements.



The Topics:

Lecture topics include advanced sensors, mobile dexterous manipulation, operator interfaces and autonomous behaviours drawn from Best-in-Class robotic capabilities demonstrated in the international RoboCupRescue Robot League, the Standard Test Methods development process, and the wider Safety, Security and Rescue Robotics (SSRR) and Mobile Manipulation (MM) research communities. The event will be highly interactive, with panel discussions and opportunities for attendees to also present their work. The practical component of the event will be held at the Perth Artifactory, a vibrant HackerSpace. Here attendees will have the opportunity to gain an in-depth understanding of the Best-in-Class robotic implementations from the Response Robotics research community and have the opportunity to further develop their own implementations. The practicals will feature the Open Academic Robot Kit, a family of easy-to-build robots based around standard components and 3D printed parts. The goal

will be for attendees to be able to recreate these robots at their home institutions, make improvements and contribute the designs back to the research community.

The Motivation:

Every day, all around the world, responders approach known explosives and hazardous materials to make them safe. Significant opportunities exist to improve the utility of response robots through the application of Best-in-Class technologies developed within academia and that have been applied to other domains such as industrial automation. We will advance the state-of-the-art in this field by informing responders and government agencies as to the Best-in-Class capabilities across the field of robotics, helping students and budding entrepreneurs to identify viable gaps in capabilities for their research and possible commercialisation, and helping manufacturers identify capability gaps and those who may be able to help them to fill those gaps.



Registration:

Further details regarding registration, schedules, costs and travel support scholarships, will be made available in Q2 2014. Please send email to info@responserobotics.org to be kept up to date!

ORGANISING COMMITTEE

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National Institute of Standards and Technology, US Department of Commerce
Robolit LLC

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The History:

This event is the latest in a long line of highly successful response robotics education events:

- 2004-2007, Rescue Robotics Camp hosted by the University of Rome “La Sapienza” and held at the Istituto Superiore Antincendi, Rome, Italy.
- 2009-2010, Rescue Robotics Workshop hosted by Mahidol University and held in Pattaya, Thailand.
- 2012, IEEE-RAS Safety, Security and Rescue Robotics Summer School hosted by Robotit LLC with the support of the IEEE Robotics and Automation Society, Safety, Security and Rescue Robotics Technical Committee and held at the Drita Hotel, Alanya, Turkey.
- 2013, Response Robotics Summer School hosted by the Curtin University Department of Computing in collaboration with the Western Australia Police Bomb Response Unit and held at the Western Australia Police Complex in Maylands, Australia.

It also draws inspiration from several related teaching events that focus on specific challenges in this field:

- 2010-2012, Robot Operating System (ROS) Summer School hosted by the University of Koblenz-Landau in Koblenz, Germany, and the Technical University of Graz in Graz, Austria.
- 2010, Rescue Robotics Camp hosted by Texas A&M University in College Station, USA.
- 2013, Rescue Robotics Camp hosted by Linköping University in Linköping, Sweden.

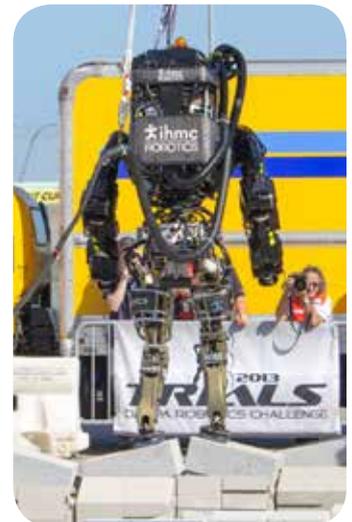


These events are tightly coupled to the RoboCupRescue Robot League competitions, a league of international teams all working towards advancing the state of response robotics through collaborative competition. The RoboCupRescue Robot League was started in response to the 1995 Kobe earthquake. These teaching events, held several months after the competition, are a vital forum that allows teams to share the league’s Best-in-Class capabilities, network and form closer ties with the responder community. Alumni of the RoboCupRescue Robot League include the “Quince” robots that entered and surveyed the upper floors of the Fukushima Daiichi nuclear power plant buildings.

These events form a vital part of the US National Institute of Standards and Technology’s DHS-NIST-ASTM International Standard Test Methods for Response Robots, an international project that links responders, researchers, manufacturers, test administrators and governments to advance the capabilities available to responders around the world. This project also works with other agencies to further the state-of-the-art. Most recently, the DHS-NIST-ASTM International Standard Test Methods for Response Robots project played an instrumental role in designing the tasks for the DARPA Robotics Challenge Trials 2013.

The Organisations:

This event is sponsored by the IEEE Robotics and Automation Society under the RAS Technical Education Program. It will be run by the Curtin University Department of Computing with the support of the Departments of Mechanical Engineering and Electrical and Computer Engineering, and in collaboration with Robotit LLC, the Intelligent Systems Division of the US National Institute of Standards and Technology, and the International RoboCup Federation through the RoboCupRescue Robot League. Practical sessions will be held in collaboration with the Perth Artifactory, Perth’s very own HackerSpace.



Related Events:

The Response Robotics Summer School 2014 forms part of a series of co-ordinated events through 2014 that seek to advance the state of SSRR and Response Robotics through encouraging collaboration and dissemination of challenges and Best-in-Class technologies. These include the 2014 RoboCupRescue Robot League Regional Opens and World Championships, the 2014 IEEE-RAS International Symposium on Safety, Security and Rescue Robotics and the DARPA Robotics Challenge Finals.

Further Information:

For further information about this event, please visit <http://www.responderobotics.org/> and send email to info@responderobotics.org to join the mailing list!