Introduction

The events of the Twelfth AAAI Robot Competition and Exhibition, held August 9-15, 2003 as part of Eighteenth International Joint Conference on Artificial Intelligence (IJCAI-2003), included "Robot Rescue" and "Robot Host" competitions, and "Robot Challenge" event. In addition, the exhibition was held to allow groups to demonstrate their research outside of the robot competitions. This year's event results are as follows:

Robot Rescue

The objective of this contest is to give participants the opportunity to work in a domain of critical practical importance. Robots must enter a fallen structure, find human victims, and direct human rescuers to the victims.

- *First Place:* INEEL
- *Second Place:* Swarthmore College
- *Technical Award for Inspired Interfaces:* University of New Orleans

Robot Host

The objective of this contest is to offer information or serve as a guide to the exhibits. The focus was on navigation in typical human environments, human-robot interaction, and robustness to situations the robot encounters.

- *First Place:* University of Rochester
- *Second Place:* State University of New York, Stony Brook

Robot Challenge

The purpose of this event is to "raise the bar" for intelligent robot participation in a natural human environment, to stimulate robotics research groups to address these challenges, and to use robotics demonstrations to educate the public about the excitement and difficulties of intelligent robotics research. Robot is to attend a conference, interact with the other attendees, and give a (brief) technical talk on itself.

- *Complete Run:* Washington University in St. Louis
- *Complete Run:* GRACE Team (Carnegie Mellon University, Naval Research Laboratory, Northwestern University, Swarthmore College, Metrica Labs)
- *Ben Wegbreit Award for Integration of AI Technologies:* Washington University in St. Louis

Traditionally, the workshop for the AAAI Robot Competition and Exhibition is held the last day of the conference, after all the events have concluded. Participants from University of Manitoba, Utah State University, Carnegie Mellon University, Northwestern University, Swarthmore College, Stony Brook University, Washington University in St. Louis, University of New Orleans, University of Rochester, INEEL, and Naval Research Laboratory presented their research at this year's workshop. Broad range of topics was covered including innovative vision approaches for face tracking and recognition, human detection, and self-localization, sensor-fusion, human-robot interaction, control interface design, and cooperation in robot teams.

Even though participants focused on the research and work done prior to the competition and exhibition, they also discussed the performance of the systems during the contest -- instances of both failure and success were heard. The future direction of each team's research was briefly mentioned as well. This workshop gave the participants an opportunity to share their research with fellow researchers and to get valuable feedback for future work. Each of the participants was invited to submit a paper to this technical report.

The organizers would like to thank all the participants for their great work and our sponsors (DARPA, iRobot, Activmedia, and Ben Wegbreit) for making these events possible.

Bruce Maxwell
Swarthmore College
General Co-Chair, 2003 AAAI Mobile Robot
Competition and Exhibition

Bill Smart
Washington University in St. Louis
General Co-Chair, 2003 AAAI Mobile Robot
Competition and Exhibition