



October 1, 2007

Office of the Provost

Randolph W. Hall, Ph.D.
Vice Provost for
Research Advancement

The Honorable Mike Doyle
United States House of Representatives
401 Cannon House Office Building
Washington, DC 20515

The Honorable Zach Wamp
United States House of Representatives
1436 Longworth House Office Building
Washington, DC 20515

Dear Congressman Doyle and Congressman Wamp:

I am writing to thank you for forming the new bi-partisan Congressional Caucus on Robotics. As you clearly realize, the robotics industry has the potential for providing better technologies in support of our rapidly aging society, improving homeland security and defense, enabling space exploration, enhancing medical delivery and healthcare, and reversing the downward spiral in manufacturing and growing decline in the balance of trade in manufactured goods.

At the University of Southern California (USC), we have a vibrant and diverse research program in robotics with a strong emphasis on societal relevance and impact. There are faculty with expertise in robotics for health, in space robotics, in robotics for environmental monitoring and stewardship, and many other areas. We offer you these researchers' expertise as a resource as you work to educate Members of Congress and congressional staff on current and future research, development, and utilization initiatives involving robotics. This will ensure that our nation remains globally competitive as robotics begins to exert a profound effect on the way our citizens live their lives. In addition, we would like to extend an invitation to you and any interested members of the Robotics Caucus to visit the USC campus and see some of the exciting projects that are underway.

One area of robotics research underway at USC that has tremendous potential for significant societal impact is our work on robotics for health applications, such as assistance, training and rehabilitation for large at-risk populations, including children, the elderly, and veterans. The goal is to enable robots to assist people in daily activity, and to develop robotic systems that provide individualized monitoring, encouragement, coaching, training, and teaching through embodied social interaction but without physical contact with the user. On our campus, you can see advanced prototypes of both simple and affordable robot platforms that assist patients in post-stroke rehabilitation, in managed care facilities for the elderly, and in educational settings aimed at interacting with children with autism, ADHD, and other special needs.

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Another major area of focus at USC is to create robots that enable scientific discoveries and are useful in environmental stewardship. Research is underway to build robots that environmental scientists can use to measure and monitor the natural

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environment (from forest canopies to oceans and lakes) to understand, and thereby mitigate, the effects of humankind on the biosphere. On our campus, you can see advanced prototypes of robot boats and submarines that patrol the ocean near Los Angeles for contaminant monitoring and other environmental studies.

In addition to these areas, USC researchers work on novel robots that reconfigure their own shape, and may someday be useful in space robotics applications. Researchers at USC have also worked on surveillance robots specifically designed to help warfighters in military deployments to perform their tasks better.

USC faculty have a wide perspective on the role robotics can play in society, and the breadth of USC research is demonstrated by the range of our research and funding partners. For example, our Center for Robotics and Embedded Systems partners with a variety of organizations, including John Deere, iRobot Corp., Intel, the Jet Propulsion Lab, and the California Science Center. In addition, USC robotics research is supported by a number of different federal agencies, including the Defense Advanced Research Project Agency, the National Institutes of Health, NASA, the National Science Foundation, and the Office of Naval Research.

In addition to research projects, we are very active in education and outreach activities. The hands-on nature of robotics makes it an attractive activity through which to introduce children to the thrill of technical careers, and the wide range of robotic applications demonstrate clearly the good that comes from scientific and engineering work. USC faculty are involved in developing robotics curricula and textbooks, mentoring robot contests, supporting robotics clubs, and developing teacher-training programs.

We welcome you and any interested members of the Robotics Caucus to visit the USC campus to see the future of robotics in a wide variety of areas. In the meantime, we look forward to providing any assistance, information, and support the Caucus may need in the area of robotics research and advanced applications.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. Hall', written over a horizontal line.

Randolph W. Hall
Vice Provost for Research Advancement