

IEEE RAS Chapter Washington/NoVa Sections



Chair: Raj Madhavan, Ph.D.

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R & D Staff Member

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&

Guest Researcher

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Guest Researcher

Norbert Wiener Center of Harmonic Analysis

University of Maryland, College park MD

&

Automation and Controls Project Engineer

GEA Group P-Division, Columbia MD





WS-RASC Mission & Vision

- **Serve as a forum for discussions, dissemination of ideas;**
- **Enhance and foster collaborations and partnerships between researchers, graduate students, practitioners from industry, academia, and government agencies enabling their personal and professional growth; and**
- **Do both of the above pertinent to RAS goals:**

The Society is interested in both applied and theoretical issues in robotics and automation. Robotics is here defined to include intelligent machines and systems used, for example, in space exploration, human services, or manufacturing; whereas automation includes the use of automated methods in various applications, for example, factory, office, home, laboratory automation, or transportation systems to improve performance and productivity.

Robotics and Automation involves designing and implementing intelligent machines which can do work too dirty, too dangerous, too precise or too tedious for humans. It also pushes the boundary on the level of intelligence and capability for many forms of autonomous, semi-autonomous and teleoperated machines. Intelligent machines have applications in medicine, defense, space and underwater exploration, service industries, disaster relief, manufacturing and assembly and entertainment.





Chapter Comms.

- **Chapter Website**
 - <http://ewh.ieee.org/r2/washsec/ras>
 - Presentation and minutes of this (and subsequent) meeting(s) will be posted here
- **Mailing List**
 - ieeews-rasc@ieee.org
 - Currently all messages are “moderated”
- **Newsletter**
 - Include significant milestones/achievements of Chapter & its members
 - Robotics News





Outreach

Judge for Robotics Competitions

- Montgomery County Public Schools Career, Engineering, and Technology Student Challenge
- FIRST (For Inspiration and Recognition of Science and Technology) Robotics Competition www.usfirst.org/robotics/
- LEGO League Robotics Competition

Paper Reviews for Conferences and Journals

Courses, Tutorials, Workshops

Membership Development

- Involve student branches
- Affiliated organizations
- Other society members





IEEE Senior Member/Fellow

- **Senior Member Program**

- <http://www.ieee.org/organizations/rab/md/smprogram.html/>
- *Guide to Applying*

- **Benefits of IEEE Senior Membership**

- The professional recognition of your peers for technical and professional excellence
- An attractive fine wood and bronze engraved Senior Member plaque to proudly display
- Up to \$25.00 gift certificate toward one new Society membership
- A letter of commendation to your employer on the achievement of Senior member grade (upon the request of the newly elected Senior Member)
- Announcement of elevation in Section/Society and/or local newsletters, newspapers and notices
- Eligibility to hold executive IEEE volunteer positions
- Can serve as Reference for Senior Member applicants
- Invited to be on the panel to review Senior Member applications

- **Fellow Program**

- <http://www.ieee.org/web/membership/fellows/index.html/>
- *Recognizes unusual distinction in the profession and shall be conferred by the Board of Directors upon a person with an extraordinary record of accomplishments in any of the IEEE fields of interest*





Chapter Activities

- **Virtual Manufacturing Automation Competition**
 - 2007-2008 & 2008-2009 <http://vmac.hood.edu/>
 - Stephen Balakirsky, Raj Madhavan and Chris Scrapper (Organizers)
 - Hood College Winner in two “Best in Class” Competitions (Path Planning and Docking)
 - National Competition to be held at NIST March 25-26, 2009
 - International Competition co-located with the 2009 International Conf. on Robotics and Automation (ICRA'09) to be held at Kobe, Japan May 2009
- **Autonomous Small Robot Speedway Competition**
 - Melanie Vida, Raj Madhavan (Organizers)
 - Competition held on October 4th 2008 at UMD
 - Grant from RAS \$1000
 - Three winners
 - See <http://www.robotronics.org/> for more details
- **Speaker Series**
 - Have interesting robotics, intelligent systems, automation research/implementations within the Wash. Section, MD (Baltimore, Annapolis), VA (Northern Virginia) represented via local speakers
 - IEEE Distinguished Lecturer Series





Chapter News & Updates

- **Treasurer term Vacant (2009)**
 - Thanks to Jason Gorman for his service
 - Bob Noteboom

Planned Activities

- Social Networking Event
- Industrial Tours
 - Toyota Motor Manufacturing Kentucky, Inc. <http://www.toyotageorgetown.com/tour.asp/>
 - NASA Goddard Space Flight Center <http://www.gsfc.nasa.gov/>
 - Dreyer's/Nestle Grand Ice Cream factory





Sensors Council Chapter

- Sensors Council Chapter Formed
 - <http://www.ewh.ieee.org/tc/sensors/>
 - 25 member societies (including RAS)
 - The combined membership of the member societies is > 260,000
 - *“the fields of interest of the Council and its activities shall be the theory, design, fabrication, manufacturing and application of devices for sensing and transducing physical, chemical, and biological phenomena, with emphasis on the electronics, physics and reliability aspects of sensors and integrated sensor-actuators.”*
 - Fields of Interest
http://www.ewh.ieee.org/tc/sensors/Field_of_Interest.htm
 - Looking for a new Chair to lead the Chapter





Guest Speaker Series

RAS Chapter (Washington/NoVa Sections)*  IEEE

2009 Guest Speaker Series

Date: Jan. 22nd, 2009
Time: 7:00 PM

Location:
 The MITRE Corporation Building
 #2, Conference Room 1N100,
 7515 Colshire Drive, McLean, VA.

The speaker series will be preceded by an RAS Chapter update meeting at 6:30 PM. See next page for directions and parking information.

Contact Information

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State of the Art in Ground Robotics

Dr. Robert Grabowski

Senior Robotics Engineer
 MITRE Corporation

Abstract

Small ground robots, such as the PackBot and Matilda, have found a strong niche in military and civilian applications over the past year supporting efforts such as IED disruption, bomb disposal, search and rescue, and vehicle inspection. However, the robotic community is still several years away from fielding the first large-sized ground vehicles in any significant operational situations. Issues of sensor fidelity, perception, and safety (both human and property) still exceed the current capabilities of large UGVs. This presentation discusses issues and challenges facing large UGVs. It examines the progress demonstrated through DARPA's last two Grand Challenges. It also highlights recent research and capabilities of the MITRE robotics group.

Speaker Biography

Dr. Bob Grabowski has been a Senior Robotics Engineer at the MITRE Corporation for the past few years supporting development of their large UGV program. Dr. Grabowski earned his PH.D ECE degree from Carnegie Mellon in 2004 where he developed sensing platforms and perception algorithms for the Millibot project, a team of 5cm, heterogeneous robots. Dr. Grabowski went from researching small robots to developing large, autonomous, outdoor vehicles - one of which (The Meteor) made it to the finals of the 2005 DARPA Grand Challenge. Dr Grabowski has been the Principle Investigator on five internally sponsored robot projects as well as supporting the Army's Future Combat Systems and the OSD Test Resource Management Center's new Unmanned and Autonomous Systems Testing focus area.

** This meeting is co-sponsored by the newly formed IEEE W/NV Sensors Council Chapter, Engineering in Medicine & Biology Society Chapter, and the Control Systems Society Chapter.*

