

Robotics and Remote
Systems Division
of the
American Nuclear Society



Fall 2014 Newsletter

Message From the Chair

Dr. Mark Noakes

Oak Ridge National Laboratory

Welcome to the Fall 2014 edition of the Robotics and Remote Systems Division (RRSD) Newsletter. My name is Mark Noakes, and I am the RRSD Chair for the June 2014 to June 2015 period. I am in the Remote Systems Group at Oak Ridge National Laboratory and have been presenting papers in the ANS RRSD since the late 1980s and have been a RRSD executive committee member for about ten years.

The focus of the RRSD is to provide our membership with relevant robotics and remote systems information and a means of collaboration through technical conferences. RRSD also has a mission to stir and support student interest in robotics from elementary school through graduation school. This newsletter is one way we keep our membership informed of RRSD activities and goals. We intend to publish two newsletters this business year—Fall 2014 and Spring 2015.

We have three major goals for the new year: (1) to better engage and serve the nuclear power industry, (2) to pursue more student and young professional involvement, and (3) to expand an existing focus to engage and interact with other groups, both inside and outside of the ANS. For many years, the executive committee (ExCom) of the RRSD was mostly dominated by the Department of Energy laboratories with some university members. Several years ago we purposed to expand participation on the ExCom to more nuclear industry and university representatives. This effort has been successful and is ongoing. While we have always had a focus on student support, this past year we added a student representative to the ExCom. Over the last few years, RRSD has supported or held joint topicals with what is now called the Decommissioning and Environmental Sciences (DES) Division. We also have a desire to more actively engage the Institute of Electrical and Electronics Engineers Society (IEEE) Robotics & Automation (R&A) Society.

This past June, RRSD joined with ANS DES to produce an embedded topical in the main ANS meeting in Reno, NV. It was well attended with much interaction and discussion. Plans are already under way for another joint topical with DES for 2016 in Pittsburgh, PA. We hope to engage the Carnegie-Mellon Robotics Institute and the IEEE R&A for this meeting. Please consider participating!

Besides myself as chair, your officers and committee members this year include:

Jim Tulenko, Ex-officio chair, University of Florida
Chris Eason, Vice Chair, Esterline Souriau
Mitch Pryor, Secretary, University of Texas at Austin
Rick Minichan, Treasurer, Savannah River National Laboratory

General Members:

Stephen Canfield, Tennessee Technological University
Daren Cato, Duke Energy
Miles Close, PaR Systems
Bill Hamel, University of Tennessee at Knoxville (UTK)
John Jansen, EPRI
Leonel Lagos, Florida International University
Steven Shaw, Merrick & Company
Jessica Shewmaker, UTK

John Jansen will be managing our newsletters for this year, and Stephen Canfield will be working to upgrade our division website. Daren Cato will be our liaison to the nuclear power industry. Jessica Shewmaker will be working to expand our focus on students and young professionals. Bill Hamel, a long time participant in IEEE R&A governance will assist RRSD in better engaging the IEEE.

Please feel free to contact myself or anyone else on the committee for any ideas you may have to better the RRSD mission in its goal to serve its members.

Don't forget to visit our website at:

<http://rrsd.ans.org/>

Sincerely,



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Chair, ANS Robotics and Remote Systems Division
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Ray Goertz Award

The Ray Goertz Award was established in 1985 to recognize and honor ANS Robotics and Remote Systems Division members who have made outstanding contributions to the field of remote technology. It honors the late Raymond C. Goertz for his lifetime contribution to the advancement of remote handling systems and for his development of the master/slave manipulator. This award is presented approximately every two years, is an American Nuclear Society level award, and is the highest honor presented by the Robotics and Remote Systems Division.

On June 16, 2014, Jim Tulenko, the chair of the Robotics and Remote Systems Division of the ANS, awarded the Ray Goertz Award to Dr. William Ross Hamel. Dr. Hamel is a professor in the Mechanical, Aerospace, and Biomedical Engineering department at the University of Tennessee at Knoxville. He was head of that department from 2005 until last year. Dr. Hamel, has a long history of contribution in the area of robotics and remote systems for nuclear environments spanning from the 1970s until the present while at the Oak Ridge National Laboratory and the University of Tennessee. His primary contributions include technical and visionary leadership in the creation of the first microprocessor-based servomanipulator system, the jointly developed CRL/ORNL M-2 dual arm force reflecting manipulator system. CRL provided the mechanical components; ORNL under the leadership of Bill Hamel produced the control system hardware and software. All servomanipulator systems since have been influenced by that early design. Bill then proceeded to lead the development of the advanced servomanipulator system, a remotely maintainable dual arm system with an architecture amenable to rad hardening designed to support spent fuel reprocessing. He then when on to co-lead the Robotics Technology Development Program for the Department of Energy along with other program managers at other national laboratories. The RTDP was active throughout the 1990s in generating technology solutions for cleanup of DOE sites. He was also instrumental in early experiments in telerobotics. He has consistently contributed technical papers to RRSD conferences since our first topicals in the early 1980s. We are proud to present the 2014 Ray Goertz Award to Dr. William Ross Hamel. Congratulations Bill!



Dr. William Hamel Receiving the Ray Goertz Award from Mr. James Tulenko.

RRSD Topicals

June 2014 Embedded Topical

RRSD and the Decommissioning & Environmental Sciences (DES) division of ANS teamed together for an embedded topical as part of the June 2014 ANS meeting in Reno, Nevada. The Monday opening plenary session topic was 2014 Decommissioning and Remote Systems. Presentations included six decommissioning presentations related to Chernobyl and Fukushima as well as several reactor decommissioning studies. There were eight RRSD-specific sessions with a total of 34 papers presented on Tuesday and Wednesday. The sessions were all well attended and well received with extensive peer-to-peer networking between participants. This was a successful endeavor for the RRSD. Thank you for your participation!

June 7 – 11, 2015 ANS Annual Meeting, San Antonio, TX

RRSD would like to sponsor one or two robotics & remote systems sessions at next Summer's annual meeting in San Antonio. Summaries are due January 9, 2015. Please contact Mark Noakes, Chris Eason, Mitch Pryor, or Rick Minichan if you would like to present a paper at this conference. Please see the following link for more information:

http://www.ans.org/meetings/c_1

2016 Joint Topical

RRSD is planning to team with DES for a joint topical in Pittsburgh, Pennsylvania in 2016. The conference is still in the early planning stages and a call for papers and detailed information is not yet available. Please be watching for more information in the near future!

RRSD Funds Robotic Student Teams

Jeff Coughlin, SRNL

Encouraging student involvement in the field of robotics and remote systems is a RRSD priority. A Student Support Fund created by the RRSD Executive Committee, defrays a portion of the student costs related to robotics team involvement. This fund is sourced with a fraction of ANS conference and membership fees collected annually. Student teams apply for a grant by using the instructions located at the RRSD homepage.

In 2013 fall/spring meetings, RRSD voted to disburse \$500 grants to four different Lego League teams.

- Central Hardin High School, Vex Robotics Team
- Burlingame High School Robotics Team (The Iron Panthers)
- Monkey Madness Robotics (Huntsville High School)

- FIRST Robotics Competition Team 614, The Nighthawks

It is rewarding to receive first-hand thank you letters and updates about tomorrow's robotics experts knowing that RRSB has, at some level, been instrumental. The following is an example of such an update from Monkey Madness Robotics Team (Huntsville High School):

Dear Jeff,

The Monkey Madness Robotics Team continued their successful competition season at the Southeast Super Regional Championship in San Antonio on February 27-28, bringing home a top award and a bid to the World Championship for the third year in row! Over the past months, thirteen state championship tournaments advanced 72 very competitive teams to San Antonio. During the Super Regional, Monkey Madness was the 3rd seed after qualification matches and was narrowly eliminated in the semifinals. In the judging category, we won the Connect Award which recognizes the team that best connected with their local community, seeking engineers and exploring the opportunities available in the world of engineering, science, and technology. The top 24 teams from San Antonio received bids to the World Championship on April 23-26 in St. Louis.

Monkey Madness consists of five students from Huntsville High School. The attached pictures show our team after the Awards Ceremony at Southeast Regional Championship as well as our robot in a rare quadruple hang from one of our matches. A quadruple hang occurs when all four competing robots end the 2 1/2 minute round suspending themselves from the bar (Monkey Madness is the top left robot).

We truly appreciate ANS for selecting Monkey Madness as a recipient of the ANS RRSB Grant. Without your support, the team would not be able to achieve the success it has achieved both on and off the field. We hope to represent you well at the 2014 FTC World Championships!

Monkey Madness competes in the FIRST(r) Tech Challenge

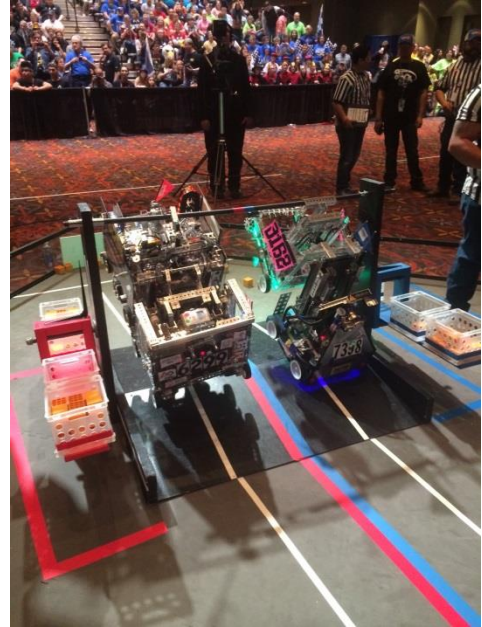
<http://www.usfirst.org/roboticsprograms/ftc>, a robotics competition for middle and high school students based on a sports model. Teams are responsible for designing, building and programming their robots to compete as alliances against other teams. Robots are limited to 18 inches per side and are remotely controlled on a 12 by 12 foot playing field. This year, approximately 30,000 students in 20 countries are competing on 3100 FTC teams.

Thank You,

Tom Kozar and FTC Team 5096 Monkey Madness



Monkey Madness Team: Awards Ceremony



Quadruple Hang

Executive Committee Members at Large

2014 Jim Tulenko (Ex-Officio Chair:)
University of Florida
tulenko@ufl.edu

2014 Mark Noakes (Chair)
Oak Ridge National Laboratory
noakesmw@ornl.gov

2014 Chris Eason (Vice Chair)
Esterline/Sourian
CEason@souriau.com

2014 Mitch Pryor, (Secretary)
University of Texas at Austin
512- 471-5182
mpryor@mail.utexas.edu

2014 Richard Minichan,
Savannah River National Laboratory
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2016 Steven Canfield
Tennessee Tech University
scanfield@tntech.edu

2017 Daren Cato (Liason to Nuclear Power Companies)
Duke Power
daren.cato@duke-energy.com

2015 Miles A. Close
PaR Systems, Inc.
mclose@par.com

2017 Bill Hamel (Liason to IEEE Robotics and Automation Society)
University of Tennessee, Knoxville
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2015 John Jansen (Newsletter)
Electric Power Research Institute (EPRI)
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2016 Leonel Lagos
Florida International University (FIU)
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2017 Steven Shaw
Merrick & Company
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2017 Jessica Shewmaker (Student Representative)
University of Tennessee, Knoxville
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