



UUST11 Preliminary Agenda

Sunday August 21st - Wednesday August 24th 2011 **at The Sheraton Harborside Hotel** **Portsmouth, NH**

Sunday August 21st 2011

Tutorial: 1:00PM -6:00PM

- Robot Mission Rehearsal and Replay using the Autonomous Unmanned Vehicle (AUV) Workbench

Registration: Portsmouth Harborside Hotel Lobby: 6:00PM -9:00PM

Monday August 22nd Future of AUV Applications

Featured Speakers:

Val Schmidt
Center for Coastal Ocean Mapping
University of New Hampshire

CAPT Duane Ashton
Program Manager
Unmanned Maritime Systems (PMS 406)
Washington DC

Toshihiro Maki
IIS University of Tokyo
Japan

Representative:
Ocean Science Community
To Be Determined

Hosted by:
Autonomous Undersea Systems Institute
Lee, NH 03861
www.uust.org

Monday August 22nd – Registration in Hotel lobby at 8:00AM

Monday	Ballroom	Monday	Harbor's Edge
9:00 - 10:30	Future AUV Applications - Dick Blidberg moderator*	9:00 - 10:30	Future AUV Applications - Dick Blidberg moderator (Room 1)*
	See cover page for featured speaker list		*See cover page for featured speaker list*
10:30 - 11:00	Refreshment Break	10:30 - 11:00	Refreshment Break
	<u>Hydrodynamics</u>		<u>Systems</u>
11:00 - 11:30	Maneuvering of an Over-Actuated Autonomous Underwater Vehicle using both Through-Body Tunnel Thrusters and Control Surfaces- L. V. Steenson ¹ , A. P. Phillips ¹ , M. E. Furlong ² , E. Rogers ³ , S. R. Turnock ¹ 1.Fluid Structure Interaction Research Group, University of Southampton 2.National Oceanography Centre, Southampton 3.ISIS Research Group, University of Southampton	11:00 - 11:30	Parametric AUV Modeling and Simulation: Torpedo-shaped AUV with Gimbaled Thruster and Fins – Cody Lee, Trey Fawcett University of Texas at San Antonio - Student Paper Competition winner
11:30 - 12:00	3-D Unsteady Computational Studies of a Four-Fin Bio-Inspired UUV- Ravi Ramamurti ¹ , Jason Geder ¹ , John Palmissano ² , Marius Preussner ² , Banahalli Ratna ² and William Sandberg ³ . 1 Laboratory for Computational Physics and Fluid Dynamics 2 Center for Bio-molecular Science and Engineering Naval Research Laboratory 3 Modeling and Analysis Division, SAIC	11:30 - 12:00	Development of the REMUS 600 Hovering Autonomous Underwater Vehicle- Robert Brown, John Duchesney, Jennifer Martz, Paul Pietryka, Chris von Alt Hydroid, a KONGSBERG Company, Pocasset, MA
	<u>Simulation</u>		
	Using bio-inspiration to improve capabilities of underwater vehicles- Dr Alan J Murphy ¹ and Maryam Haroutunian ² School of Marine Science and Technology, Armstrong Building, Newcastle University, NE1 7RU, Newcastle upon Tyne - UK 1 Lecturer 2 PhD Student	12:00 - 12:30	Increasing the Operational Envelope for the Slocum Electric Glider- Lauren Cooney & Doug Webb, Teledyne Webb Research, East Falmouth, MA
12:30 - 1:30	Lunch	12:30 - 1:30	Lunch
	<u>Simulation</u>		<u>Systems</u>
1:30 - 2:00	Modeling Of High-Speed Supercavitating Vehicles Vehicles-J. Dzielski, P. Sammut, and M. Gordon Stevens Institute of Technology Maritime Security Laboratory Castle Pointe on Hudson, Hoboken, NJ	1:30 - 2:00	Slocum G2 Glider - Expanding the Capabilities- Clayton Jones, Doug Webb Teledyne Webb Research Falmouth, MA, Scott Glenn, Oscar Schofield, John Kerfoot, Josh Kohut, David Aragon, Chip Haldeman, Tina Haskin, Alex Kahl, Eli Hunter Rutgers University
2:00 - 2:30	A Mission Oriented Metric to Assess the Benefits of Biologically Inspired Propulsion- Stephen C. Licht, Steve Israel. iRobot Maritime Research, Durham, NC	2:00 - 2:30	Hydrographic Unmanned Semi-Submersible (USS)- Dr. Brian S. Bourgeois, Will Avera Naval Research Laboratory Stennis Space Center, MS Pete Alleman C&C Technologies, Inc.Lafayette, LA
2:30 - 3:00	Mechanical Design Procedure and Computer-Based Simulation of Autonomous Underwater Vehicle Azadeh Kebriaee ¹ , Hamidreza Nasiri ² ¹ Mechanical Engineering School, ² Electrical Engineering School Sharif University of Technology Tehran, Iran	2:30 - 3:00	A Multi-Vehicle Testbed based on the Sea Perch Robotics Platform - Colin Parker and Raymond Bounds Department of Aerospace Engineering University of Maryland, College Park, MD Student Paper Competition winner
3:00 - 3:30	Refreshment Break	3:00 - 3:30	Refreshment Break
	<u>Control</u>		
3:30 - 4:00	Optimum design and simulation of ducted contra-rotating propellers with lifting-line theory, neural network, and genetic algorithm- Azadeh Kebriaee, Mechanical Engineering School Hamidreza Nasiri, Electrical Engineering School Sharif University of Technology, Tehran, Iran — Student Paper Competition winner	3:30 - 4:00	An Instantly Deployable Micro-AUV for Seafloor Observation- Steve Stutman, Radio Robots LLC , Sudbury, Massachusetts, USA
4:00 - 4:30	Vision Based 3D Pose Estimation for Underwater Vehicle Docking Problem- Kyung min Han and Hyun taek Choi, Korea Ocean Research and Development Institute (KORDI), Daejeon, South Korea		
4:30 - 5:00	Preliminary Results Of A Hover Capable AUV Attempting Transitional Flight - Leo V. Steenson -University of Southampton - Student Paper Competition winner		

**Reception at Portsmouth Yacht Club
Busses leave The Sheraton at 5:30**

Tuesday August 23rd

Control

8:30 - 9:00 **Modelling And Optimization Of Anguilliform Swimming For Robotic Applications**-A. J. Wiens and M. Nahon Center for Intelligent Machines McGill University, Montreal, Canada

9:00 - 9:30 **Dynamic Performance Of A Bio-Inspired Uuv: Effects Of Fin Gaits And Orientation** Jason D. Geder¹, Ravi Ramamurti¹, John Palmisano², Marius Pruessner², Banahalli Ratna², William C. Sandberg³

9:30 - 10:00

Modeling, Simulation, and Experiments of SAMSUNG AUV

10:00 - 10:30

Refreshment Break

Sensors

10:30 - 11:00 **Distributed Pressure Sensing To Locate and Identify Obstacles**- Audrey P. Maertens, Jason M. Dahl, Michael S. Triantafyllou Massachusetts Institute of Technology Cambridge MA

11:00 - 11:30 **Feature-based Navigation of a Platform Inspection AUV**- Sekhar Tangirala, Chris Debrunner, Walter Feldman, Alan Fettinger, Lockheed Martin Riviera Beach, FL

11:30 - 12:00 **Development of a Magnetometry System for an Underwater Glider**- B. Claus & R. Bachmayera Memorial University of Newfoundland, St. John's, Canada

12:00 - 12:30

12:30 - 1:30

Lunch

Sensors

1:30 - 2:00 **Phased Array Velocity Sensor Operational Advantages and Data Analysis**- Matt Burdyny, Omer Poroy and Dr. Peter Spain, Teledyne RD Instruments, USA

2:00 - 2:30 **Comparison and Testing of Inertial Sensors at the NRC-IOT**- D.Shea¹, C.D.Williams², M.Chaulk³, T.House³ and S.Holmes⁴ 1.Marport Deep Sea Technologies Inc. St. John's, NL, 2.National Research Council Canada, Institute for Ocean Technology (NRC-IOT), St. John's, NL, Canada 3.Co-op Student, Faculty of Engineering and Applied Science Memorial University of Newfoundland (MUN) St. John's, NL, Canada 4Co-op Student, Department of Mechanical Engineering Dalhousie UniversityHalifax, NS, Canada

2:30 - 3:00

03:00- 03:30

Refreshment Break

3:30 - 4:00

Operations Videos

Lobster dinner & Banquet 5:30 PM at Fosters, York ,ME

Systems

8:30 - 9:00

Fault Detection and Failure Prevention on the Tethys Long-Range Autonomous Underwater Vehicle-B. Kieft, J. G. Bellingham, M. A. Godin, B. W. Hobson, T. Hoover, R. S. McEwen, and E. C. Mellinger: Monterey Bay Aquarium Research Institute (MBARI) Moss Landing, CA USA
Results from Sea Trials of the SQX-500 AUV-David Shea, Marport, St John's Canada.

9:00 - 9:30

9:30 - 10:00

An Unmanned Surface Vehicle To Support Unmanned Undersea Vehicles-Scott Willcox Principal Technologist & Director of Defense Business Liquid Robotics, Inc.Arlington, MA

10:00 - 10:30

10:30 - 11:00

Refreshment Break

Solar Robotic Material Sampler System for Chemical, Biological and Physical Ocean Observations- D. Fries¹, G. Barton¹, G. Hendrick¹, B. Gregson¹, L. Hotaling¹, John Paul¹, A. Sanderson², R. Blidberg³ 1.University of South Florida, 2.Rensselaer Polytechnic Institute, 3.Autonomous Undersea Systems Institute

11:00 - 11:30

11:30 - 12:00

Navigation

Recognition and Tracking of Texture-free Objects for Submerged Robots in Structured Underwater Environment - Kyung min Han and Hyun taek Choi Korea Ocean Research and Development Institute (KORDI), Daejeon, South Korea

12:00 - 12:30

GLIDER SIMULATION WITH CURRENTS-

Dr. Brian S. Bourgeois, Samantha Zambo, Naval Research Laboratory Stennis Space Center, MS

12:30 - 1:30

Lunch

1:30 - 2:00

Navigation

UUV Positioning using Side-scan Features-Jeff Russell, Dr. Brian Bourgeois, Will Avera Naval Research Laboratory Stennis Space Center, MS

2:00 - 2:30

Contributions To Automated Realtime Underwater Navigation M. Jordan Stanway Department of Applied Ocean Physics and Engineering Woods Hole Oceanographic Institution Woods Hole, MA - Student Paper Competition winner

2:30 - 3:00

AUV Navigation For Contour Line Tracking-

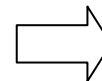
Toshihiro Maki¹, Tamaki Ura¹, Yasuhiro Ogawa²
1. The University of Tokyo Tokyo JAPAN 2.Nippon Steel Corporation, Kimitsu City, JAPAN

03:00- 03:30

Refreshment Break

3:30 - 4:00

Operations Videos



Busses leave the Sheraton at 5:00

Wednesday August 24th

Subsystems

9:00 - 9:30

Applicability of Non-Flow-Through Fuel Cell Power Systems-
Mark Hoberecht NASA Glenn Research Center, Cleveland, OH, Kenneth Burke
NASA Glenn Research Center 21000 Brookpark Rd., Cleveland, OH
Ian Jakupca QinetiQ North America Cleveland, OH

9:00-9:30

**Sub-Ice Exploration Of An Antarctic Lake:
Results From The Endurance Project-**Kristof Richmond¹, Alessandro Febretti², Shilpa Gulati¹, Christopher Flesher¹, Bartholomew P. Hogan¹, Aniket Murarka¹, Greg Kuhlman¹, Mohan Sridharan¹, Andrew Johnson², William C. Stone¹, John Priscu³, Peter Doran⁴1.Stone Aerospace, Del Valle, TX
2.Electronic Visualization Laboratory, University of Illinois at ChicagoDept. of Computer Science, Chicago, IL
3.Dept. of Land Resources & Environmental Sciences, Montana State University, Bozeman, MT
4.Dept. of Earth and Environmental Sciences, University of Illinois at Chicago, IL

9:30 – 10:00

Advances in Non Flow-Through PEM Fuel Cell Development-
William Smith & Alfred Meyer Infinity Fuel Cell & Hydrogen, Inc. Windsor, CT

9:30 - 10:00

NSWC PCD UUV Launch And Recovery Systems - Amanda Mackintosh-Naval Surface Warfare Center Panama City Division Panama City Beach, FL, Robert Gibson Naval Surface Warfare Center Panama City Division Panama City Beach, FL

10:00 - 10:30

Refreshment Break

10:00 - 10:30

Refreshment Break

10:30 - 11:00

Lithium Battery Safety in Support of Operational Fielding of Unmanned Vehicles- Julie Banner & Clinton Winchester Materials & Power System Branch, Naval Surface Warfare Center, Carderock Division, West Bethesda, MD.

10:30 – 11:00

Model Based Test Planning for Autonomous Systems –Joel Parry, Draper Labs, Cambridge, MA

Low-cost Pulse-per-Second (PPS) Signal Generator for Autonomous Underwater Vehicles-Kevin Roos, Fernando De La Garza, James Frenzel, Dean Edwards Center for Intelligent Systems Research University of Idaho Moscow, ID

11:00 - 11:30

Laminated Rubber Bearings: From Helicopters to the Deep Sea-
William L. Hinks Randolph Research Co. (RRC), Akron, Ohio

11:00 - 11:30

Mission Planning
A Universal Multiphase Mission Execution Automaton with Prolog Implementation for Unmanned Untethered Vehicles-
R. B. McGhee, D. P. Brutzman & D. T. Davis Naval Postgraduate School, MOVES Institute

11:30 – 12:00

11:30 - 12:00

Intelligent Planning and Assimilation of AUV-obtained Measurements within a ROMS-Based Ocean Modeling System- Benjamin Davini, Department of Computer Science, California Polytechnic State University, San Luis Obispo CA, Paul F. Choboter Department of Mathematics California Polytechnic State University San Luis Obispo CA
Christopher M. Clark Department of Computer Science California Polytechnic State University San Luis Obispo CA

12:00 - 12:30

Lunch

12:00 - 12:30

Lunch

End of Symposium