2012 IEEE/OES Autonomous Underwater Vehicles

(AUV 2012)

Southampton, United Kingdom
24-27 September 2012
2012 IEEE/OES Autonomous Underwater Vehicles (AUV)

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Persistent Presence – Day 1
Tuesday – Sept. 25th

08:15 Registration

08:50 Opening Remarks

09:00 Keynote: Bill Gilmour - Field resident AUV systems: Chevrons long-term goal for Autonomous Underwater Vehicle (AUV) Development

09:30 AM – Vehicle

Brett Hobson, MBARI, USA: Tethys-Class Long Range AUVs - Extending the Endurance of Propeller-Driven Cruising AUVs from Days to Weeks

Mathieu Kemp, Bluefin Robotics, USA: Persistence at Full Ocean Depth

Maaten Furlong, NOC, UK: Autosub Long Range: a deep diving long range AUV for ocean monitoring

11:15 AM – Vehicles in Action

Clayton Jones, Teledyne Webb Research, USA: Slocum Gliders : persistent oceanography

Mark Inall, SAMS, UK: AUV observations of surface mixing and bubble entrainment in the Clyde estuary, Scotland

Bastien Queste, UEA, UK: Deployments in extreme conditions: pushing the boundaries of Seaglider capabilities

Edward Steele, Plymouth Univ., UK: Cooling of the West Spitsbergen current: AUV-based turbulence measurements west of Svalbard

12:55 LUNCH – thank you RS Aqua ltd

2:00 pm – Vehicle developments and operational issues

Brian Claus, MUN, Canada: Analysis and development of a buoyancy-pitch based depth control algorithm for a hybrid underwater glider

Alex Phillips, Univ. Southampton, UK: Nature in Engineering for Monitoring the Oceans (NEMO): An isopycnal soft bodied approach for a deep diving autonomous underwater vehicle

Don Brutzman, NPS, USA: An implemented universal mission controller with run-time ethics checking for Autonomous Unmanned Vehicles a UUV example

Roland Rogers, NOC, UK: The legal regime governing AUV operations - how far and how wide?
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Persistent Presence – Day 1
Tuesday – Sept. 25th

4:00pm Single Power Point Slide Poster Introduction

4:50 pm Poster Session

Javier Busquets, UACH, Chile: Low-cost AUV based on Arduino Open Source Microcontroller Board: for oceanographic research applications in a collaborative long term deployment missions and suitable for combining with an USV as autonomous automatic recharging platform

Abhra Roy Chowdhury, NUS, Singapore: Kinematics Study and Implementation of a Biomimetic Robotic-Fish Underwater Vehicle based on Lighthill Slender Body Model

Marc Hildebrandt, DFKI, Germany: Two years of Experiments with the AUV Dagon - a versatile vehicle for high precision visual mapping and algorithm evaluation

Alexandra Gottschall, Florida Tech, USA: Design of an underwater glider for education and research

Maryam Haroutunian, Newcastle Univ., UK: Mission based optimum system selector for bio-inspired unmanned untethered underwater vehicles

Thomas Hiller, Thurne Hydrographic Ltd, UK: Expanding the small AUV mission envelope; longer, deeper & more accurate

Carlos Insaurralde, Heriot-Watt Univ., UK: Autonomic Management for the Next Generation of Autonomous Underwater Vehicles

Banghyun Kim, KORDI, South Korea: Design and implementation of control architecture for the JSIMI6000 Autonomous Underwater Vehicle

Ji-Hong Li, Korea Institute of Robot and Convergence, South Korea: Real Time Path Planning for a Class of Torpedo-Type AUVs in Unknown Environment

Nicholas Limparis, Univ. Maryland, USA: Design of a distributed control architecture for the SAMURAI deep submergence manipulator

Katherine McBryan, Univ. Maryland, USA: Vision recognition using shape context for autonomous underwater sampling

Pareecha Rattanasiri, Univ. Southampton, UK: Numerical investigation into the drag of twin prolate spheroid hulls in various configurations

Leo Steenson, Univ. Southampton, UK: Effect of Measurement Noise on the Performance of a Depth and Pitch Controller using the Model Predictive Control Method

Martin Syre Wiig, FFI, Norway: Autonomous identification planning for mine countermeasures

Wine and Cheese – Thank you Teledyne RDI
Persistent Presence – Day 1  
Tuesday – Sept. 25th

**Award Presentations**

*AUAV2012 Best Student Paper Award – Thank you SeeByte LTD*

*IEEE/OES Distinguished Technical Achievement Award*

5:50 PM Close

7:00 PM Gala Dinner Welcome Drinks – Thank you EdgeTech

*8:30 PM – Dining Starts*

*Table wine – Thank you Ocean Business*

Keynote: Dana Yoerger
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Persistent Presence – Day 2  
Wednesday – Sept. 26th

08:30 Registration
08:50 Opening Remarks
09:00 Keynote: Prof. David Lane: Persistent Autonomy - Artificial Intelligence or Biomimesis?

09:30 - Autonomy

Carlos Insaurralde, Heriot-Watt, UK: Autonomy-assessment criteria for underwater vehicles

Catherine Harris, Univ. Birmingham, UK: Contingency planning for long-duration AUV missions

Mario Brito, NOC, UK: The role of adaptive mission planning and control in persistent autonomous underwater vehicles presence

10:45 AM Morning Coffee – Thank you Sonardyne International ltd

11:15 AM – Obstacle Avoidance and Navigation

Sarah Houts, Stanford Univ., USA: Aggressive terrain following for motion-constrained AUVs

Serge Karabchevsky, Ben Gurion Univ, Israel: AUV Real-Time acoustic vertical plane obstacle detection and avoidance

Shandor Dektor, Stanford Univ., USA: Improving robustness of terrain-relative navigation for AUVs in regions with flat terrain

Giancarlo Troni, Johns Hopkins Univ., USA: Preliminary experimental evaluation of in-situ calibration methods of MEMS-based attitude sensors and Doppler sonars for underwater vehicle navigation

12:55 LUNCH – thank you RS Aqua ltd

2.00 PM – Collaboration

Chris German, WHOI, USA: A long term vision for long-range ship-free deep ocean operations: persistent presence through coordination of Autonomous Surface Vehicles and Autonomous Underwater Vehicles

Axel Hackbarth, Hamburg Uni. of Technology, Germany: Collaborative Control of Multiple AUVs for Improving the Estimation of Flow Field Dependent Variables


João Sousa, Universidade do Porto, Portugal: Coordinated control of ocean going vehicles

Douglas Horner, NPS, USA: Undersea acoustic communication maps for collaborative navigation
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Persistent Presence – Day 2
Wednesday – Sept. 26th

3:40 PM Morning Coffee – Thank you Sonardyne International Ltd

4:25 PM – Path Planning and Control

Peter King, MUN, Canada: Real-time side-scan image generation and registration framework for autonomous AUV route following

Zheng Zeng, Flinders Univ., Australia: Optimal path planning based on annular space decomposition for AUVs operating in a variable environment

Tan Yew Teck, NUS, Singapore: Hierarchical multi-agent command and control system for autonomous underwater vehicles

5:40 PM – Closing Remarks