

2012 IEEE/OES Autonomous Underwater Vehicles

(AUV 2012)

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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 Insaurrealde, 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 ISiMI6000 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

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Persistent Presence – Day 1
Tuesday – Sept. 25th

Award Presentations

AUV2012 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](#) ..

Francesco Maurelli, Heriot-Watt, UK: [Marine world representation and acoustic communication: challenges for multi-robot collaboration](#) ..

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

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