

2014 IEEE/OES Autonomous Underwater Vehicles

(AUV 2014)

**Oxford, Mississippi, USA
6-9 October 2014**



**IEEE Catalog Number: CFP14AUV-POD
ISBN: 978-1-4799-4343-2**

TABLE OF CONTENTS

Data Quality Monitoring With Witness	1
<i>C. Murphy</i>	
MOTH - An Underwater Glider Design Study Carried Out As Part Of The HGF Alliance ROBEX	5
<i>C. Waldmann, A. Kausche, M. Iversen, R. Bachmayer, A. Pototzky, G. Looye, D. Wilde</i>	
Adaptive Calibration Of An Underwater Robot Vision System Based On Hemispherical Optics	8
<i>C. Constantinou, S. Loizou, G. Georgiades, S. Potyagaylo, D. Skarlatos</i>	
High-Level Fuzzy Logic Guidance System For An Unmanned Surface Vehicle (USV) Tasked To Perform Autonomous Launch And Recovery (ALR) Of An Autonomous Underwater Vehicle (AUV)	13
<i>D. Pearson, E. Dhanak, K. Ellenrieder, P. Beaujean</i>	
Experimental Study Of Flapping Foil Propulsion System For Ships And Underwater Vehicles And PIV Study Of Caudal Fin Propulsors	28
<i>N. Babu, P. Krishnankutty, J. Mallikarjuna</i>	
An Obstacle Avoidance System For Autonomous Underwater Vehicles	35
<i>G. Millar</i>	
Deep Rippled Bedforms In Loch Ness: Evidence From An AUV Bathymetry Survey	39
<i>F.J. Gutierrez, M. Gutowski, S. Ganther, P. Hogarth, C. Wallace</i>	
Real Time Obstacle Detection In A Water Tank Environment And Its Experimental Study	42
<i>J.-H. Lie, M.-J. Lee, W.-S. Lee, J.-T. Kim, H.-J. Kang, J.-H. Suh</i>	
Real-Time SAS Processing For High-Arctic AUV Surveys	47
<i>D. Shea, D. Dawe, J. Dillon, S. Chapman</i>	
Successful Execution Of Remotely Piloted Autonomous Marine Vehicles To Conduct METOC And Turbidity Surveys	52
<i>S. Pai, R. Hine</i>	
Towards Online Terrain Aided Navigation Of Underwater Gliders	55
<i>B. Claus, R. Bachmayer</i>	
A Survey Of AUV And Robot Simulators For Multi-Vehicle Operations	60
<i>D. Cook, A. Vardy, R. Lewis</i>	
Preliminary Field Trials Of Autonomous Path Following	68
<i>P. King, B. Anstey, A. Vardy</i>	
Working Towards Seafloor And Underwater Iceberg Mapping With A Slocum Glider	75
<i>M. Zhou, R. Bachmayer, B. DeYoung</i>	
Using STOQS (The Spatial Temporal Oceanographic Query System) To Manage, Visualize, And Understand AUV, Glider, And Mooring Data	80
<i>M. McCann, R. Schramm, D. Cline, R. Michisaki, J. Harvey, J. Ryan</i>	
Operational Glider Monitoring, Piloting, And Communications	90
<i>B. Mensi, R. Rowe, S. Dees, D. Bryant, D. Jones, R. Carr</i>	
ALBA 14 A Long Term Low Cost Glider With Water Sampling Capabilities	93
<i>J. Busquets, D. Busquets, J. Busquets-Carbonell, J.-V. Busquets</i>	
Compensation Of Magnetic Data For Autonomous Underwater Vehicle Mapping Surveys	102
<i>S. Bloomer, P. Kowalczyk, J. Williams, T. Wass, K. Enmoto</i>	
An Underwater Robotic Testbed For Multi-Vehicle Control	106
<i>C. Kitts, T. Adamek, M. Vlahos, A. Mahacek, K. Poore, J. Guerra, M. Neumann, M. Chin, M. Rasay</i>	
A SLAM-Based Approach For Underwater Mapping Using AUVs With Poor Inertial Information	114
<i>M. Hammond, S. Rock</i>	
Return-To-Site Of An AUV Terrain-Relative Navigation: Field Trials	121
<i>S. Rock, B. Hobson, S. Houts</i>	
Visual 3D Mapping To Measure Hydrothermal Deposit Growth Rates At A Man-Made Deep Sea Vent	129
<i>A. Bodenmann, B. Thornton, T. Ura</i>	
AUV Tri-TON 2: An Intelligent Platform For Detailed Survey Of Hydrothermal Vent Fields	133
<i>T. Maki, Y. Sato, T. Matsuda, R.-T. Shiroku, T. Sakamaki</i>	
Development Of A Marine Ecosystem And Microstructure Monitoring AUV For Plankton Environment	138
<i>H. Kondo, M. Sato, T. Hotta, A. Withamana, M. Osakabe, Y. Matsumoto</i>	
Development Of A Realtime Plankton Image Archiver For AUVs	143
<i>Y. Nagashima, Y. Matsumoto, H. Kondo, H. Yamazaki, S. Gallager</i>	

Observation Opportunitieis Missed And Data Left Out At Sea During Glider Missions?	149
<i>K. Martin, V. Asper, R. Arnone, W. McCall, L. Brzuzy, R. Perry</i>	
Grid-Based GA Path Planning With Improved Cost Function For An Over-Actuated Hover-Capable AUV	152
<i>K. Tanakitkorn, P. Wilson, S. Turnock, A. Phillips</i>	
Design And Control Of Underwater Vehicle For NDT Inspections	160
<i>L. Blaha, M. Schlegel, J. Konigsmarkova</i>	
Design Elements Of A Small AUV For Bathymetric Surveys	166
<i>B. McCarter, S. Portner, V. Neu, D. Stilwell, D. Malley, J. Mims</i>	
Visual Summaries For Low-Bandwidth Semantic Mapping With Autonomous Underwater Vehicles	171
<i>J. Kaeli, J. Leonard, H. Singh</i>	
The WHOI Jetyak: An Autonomous Surface Vehicle For Oceanographic Research In Shallow Or Dangerous Waters	178
<i>P. Kimball, J. Bailey, S. Das, R. Geyer, T. Harrison, C. Kunz, K. Manganini, K. Mankoff, K. Samuelson, T. Sayre-McCord, F. Straneo, P. Traykovski, H. Singh</i>	
Author Index	