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Submersible Technology – UUST 2013
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Special Topics

ENABLING NEW UNDERWATER ROBOTICS CAPABILITIES AT WOODS HOLE OCEANOGRAPHIC INSTITUTION - *Dana Yoerger, Andrew Bowen, Michael Jakuba, Deep Submergence Laboratory, Center for Marine Robotics, Woods Hole Oceanographic Institution, USA*

REGIONALLY-DEPLOYED ADAPTIVE PLATFORMS FOR OCEAN RESEARCH TECHNOLOGIES - Jim Costopulos, CEO, Global Oceans, Vernon Hills, IL, USA

HIGHLY RESONANT WIRELESS POWER TRANSFER IN SUBSEA APPLICATIONS - Dr. Morris Kesler, Colin McCarthy, WiTricity Corporation, Watertown, MA, USA

Systems

SLOCUM GLIDER; EXPANDING THE CAPABILITIES - Clayton Jones, Ben Allsup, Doug Webb, Teledyne Webb Research, Falmouth, MA

SABERTOOTH A SEAFLOOR RESIDENT HYBRID AUV / ROV SYSTEM FOR LONG TERM DEPLOYMENT IN DEEP WATER AND HOSTILE ENVIRONMENTS - Jan Siesjö, Saab Underwater Systems AB - Chris Roper, Saab Seaeye Ltd., Contributions from Marcus Furuholmen Aker Solutions AS

AUTONOMOUS TRANSIENT OCEAN EVENT MONITORING (ATOEM) - Kevin M. Ulmer, Seaquester, Inc., East Sandwich, Massachusetts USA & Woods Hole Oceanographic Institution, Woods Hole, Massachusetts USA

UNDERWATER POSITIONING OF MULTI-LEGGED SUBSEA ROBOT FOR SUBMARINE EXPLORATION EQUIPMENT - Seong-yeol Yoo, Hyungwon Shim, Bong-Huan Jun, Gyeong-mok Lee, Hangoo Kang, Pan-Mook Lee, Ocean System Engineering Research Division, Korea Institute of Ocean Science & Technology, Daejeon, Korea

Navigation

RESOLVING VEHICLE MOTION IN AN UNTETHERED UNMANNED UNDERWATER VEHICLE -Greg Rivalan, Teledyne RDI, USA

MULTI-VEHICLE DYNAMIC PURSUIT WITH ACOUSTICS AND COARSE QUANTIZATION - Brooks L. Reed, MIT/WHOI Joint Program in Oceanographic Engineering, Josh Leighton, Mei Yi Cheung, and Franz S. Hover, Department of Mechanical Engineering, Massachusetts Institute of Technology, Cambridge MA

RUN-TIME ETHICS CHECKING FOR AUTONOMOUS UNMANNED VEHICLES: DEVELOPING A PRACTICAL APPROACH - Donald P. Brutzman, Duane T. Davis, George R. Lucas Jr., and Robert B. McGhee, Naval Postgraduate School (NPS), Monterey California USA

TOWARDS THREE-DIMENSIONAL UNDERWATER MAPPING WITHOUT ODOMETRY - Alistair Dobke, Joshua Vasquez, Lauren Lieu, Ben Chasnov, Christopher Clark, Harvey Mudd College, Claremont, California, USA, Ian Dunn, Zo e J. Wood, California Polytechnic University, San Luis Obispo, California, USA, Timothy Gambin, University of Malta, AURORA Trust, Msida, Malta

Modeling & Simulation

A MULTI-ARMED BANDIT WITH SWITCHING COSTS FOR AUTONOMOUS ACOUSTIC RELAY POSITIONING - Mei Yi Cheung, Joshua Leighton and Franz S. Hover
Massachusetts Institute of Technology, Cambridge MA 02139

THRUST GENERATION AND PROPULSIVE EFFICIENCY IN GROUND EFFECT FOR HEAVING AND PITCHING HIGH ASPECT RATIO FOILS - Jason Dahl, Stephen Licht, *Ocean Engineering Department, University of Rhode Island, USA*

GAME ENGINE-BASED SIMULATOR FOR AUTONOMOUS UNDERWATER VEHICLES - Alexander B. Strout & Roy M. Turner, *School of Computing and Information Science, University of Maine, Orono*

BIO-INSPIRED FLOW SENSING AND CONTROL: AUTONOMOUS UNDERWATER NAVIGATION USING DISTRIBUTED PRESSURE MEASUREMENTS - Francis D. Lagor, Levi D. DeVries, Kathryn M. Waychoff, and Derek A. Paley, *Department of Aerospace Engineering and the Institute for Systems Research, University of Maryland, College Park MD, USA*

HOW TO MAXIMIZE PECTORAL FIN EFFICIENCY BY CONTROL OF FLAPPING FREQUENCY AND AMPLITUDE - John S. Palmisano, Ravi Ramamurti, Jason D. Geder, Marius Pruessner, William C. Sandberg, and Banahalli Ratna

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POWER AND THRUST COMPARISON OF BIO-MIMETIC PECTORAL FINS WITH TRADITIONAL PROPELLER-BASED THRUSTERS - John S. Palmisano*, Jason D. Geder**, Marius D. Pruessner*, Ravi Ramamurti**, *Center for Biomolecular Science and Engineering, Naval Research Laboratory (NRL), Washington, DC USA, **Laboratory for Computational Physics & Fluid Dynamics, NRL Washington, DC, USA

Sensors

AQUAPIX – A LOW-COST INTERFEROMETRIC SYNTHETIC APERTURE SONAR FOR AUVS: SEA TRIALS AND RESULTS - David Shea, Peter Crocker, Jeremy Dillon, Sean Chapman, *Kraken Sonar Systems, St. John's, NL, Canada,*

HIGH-RESOLUTION ACOUSTIC CAMERA ON CR200 AND POST-PROCESSING - Jin-Yeong Park, Hyuk Baek, Pan-Mook Lee, Bong-Huan Jun, *Ocean System Engineering Research Division, Maritime Ocean Engineering Research Institute, Korea Institute of Ocean Science & Technology (KIOST)*

LIMIT CYCLING IN CONTROL OF UNDERWATER VEHICLES CAUSED BY LOSSY QUANTIZED COMMUNICATION CHANNELS - Eric Gilbertson and Franz Hover
Department of Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts

USING TIME OF FLIGHT DISTANCE CALCULATIONS FOR TAGGED SHARK LOCALIZATION WITH AN AUV - Yukun Lin, Hannah Kastein, Taylor Peterson, Christopher Clark, Harvey Mudd College, Claremont, California, USA, Connor White, Christopher Lowe, *Department of Biological Sciences, CSU Long Beach Long Beach, CA, USA*

PIEZOELECTRIC MEMS SENSOR FOR FISH-LIKE UNDERWATER SENSING - *Mohsen Asadnia¹, Ajay Giri prakash Kottapalli^{1,2}, Jianmin Miao^{1,2}, and Michael Triantafyllou^{2,3}; ¹School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore, ²Singapore-MIT Alliance for Research and Technology (SMART), Singapore, ³Department of Mechanical Engineering, Massachusetts Institute of Technology, Massachusetts, USA*

COLLISION AVOIDANCE PASSIVE SONAR - *Dale Green, Steven J McManus, Teledyne Benthos, Inc.,*

Control

A ROBUST FRAMEWORK FOR FAILURE DETECTION AND RECOVERY FOR TERRAIN-RELATIVE NAVIGATION - *Sarah E. Houts, Shandor G. Dektor, Aerospace Robotics Laboratory, Stanford University, Stanford, CA, Stephen M. Rock, Aerospace Robotics Laboratory, Stanford University, Stanford, CA, USA & Monterey Bay Aquarium Research Institute (MBARI), Moss Landing, CA 95039, USA*

STABILITY CRITERION FOR A WALL-FOLLOWING AUV - *Robert S. McEwen, Stephen M. Rock, Monterey Bay Aquarium Research Institute, Moss Landing, CA, Stanford University, Stanford, CA, USA*

INTEGRATED CONTROL SYSTEM FOR AUTONOMOUS SEARCH

CAPABILITY - *Douglas E. Humphreys, Rafael A. Mandujano, Thomas F. Tureaud, Vehicle Control Technologies, Inc, Reston, VA, USA*

Planning

TOWARD HIGH-COVERAGE IMAGING OF HYDROTHERMAL VENT FIELDS: A RECURSIVE PATH-PLANNING METHOD OF AN AUV - *Yoshiki Sato*, Toshihiro Maki*, Ayaka Kume**, Takumi Matsuda**, Takashi Sakamaki*, and Tamaki Ura***; *Institute of Industrial Science, The University of Tokyo, Tokyo, Japan, **Graduate School of Frontier Sciences, The University of Tokyo, Chiba, Japan, ***Kyushu Institute of Technology, Japan*

DEVELOPMENT OF CENTRALIZED CONTROL SYSTEM FOR AUV GROUP - *Igor Tuphanov and Alexander Scherbatyuk, Institute for Marine Technology Problems FEB RAS and Far Eastern Federal University, Vladivostok, Russia, Yury Vaulin, Far Eastern Federal University, Vladivostok, Russia*

ASSESSING AUTOMATED AND HUMAN PATH PLANNING FOR THE SLOCUM GLIDER - *Hans Christian Woihe, Rutgers University, Mike Eichhorn, Institute for Automation and Systems Engineering, Ilmenau University of Technology, Oscar Schofield, Ulrich Kremer, Rutgers University*

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DISTRIBUTED, CONTEXT-BASED ORGANIZATION AND REORGANIZATION OF MULTI-AUV SYSTEMS - *David Gagne, Department of Computer Science, University of Southern Maine, Sonia Rode and Roy M. Turner, School of Computing and Information Science, University of Maine*

Operations

OCEAN OBSERVING IN THE 4TH DIMENSION – AUTONOMOUS GLIDER SURVEYS IN THE GULF OF MEXICO - *Peter Brickley, Horizon Marine, Inc, 15 Creek Road, Marion, MA, USA*

MODULAR LOW LOGISTICS AUVS IN COMMERCIAL SURVEY APPLICATIONS - *Thomas Hiller, Teledyne Gavia, Reykjavik, Iceland, Arnar Steingrímsson, Robert Melvin, Teledyne Benthos, Falmouth MA, USA*

SEAFLOOR MAPPING AND IMAGING EFFORTS USING AUTONOMOUS UNDERWATER VEHICLES - *Eric J. Martin, Hans Thomas, David W. Caress, and Brett W. Hobson, Monterey Bay Aquarium Research Institute*