

D. Richard Blidberg  
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Lee, NH 03824

**Education:** University of New Hampshire, Durham, New Hampshire: B.S.in Electrical Engineering, 1972

**Present Position:** Director, Autonomous Undersea Systems Institute: (1993 - Present).

**Professional Experience:** Director, Marine Systems Engineering Laboratory, Northeastern University: (1993-1995), Associate Director, Marine Systems Engineering Laboratory, University of New Hampshire: (1976-1993). Provide the central technical leadership to the Marine Systems Engineering Laboratory; a multi-program, multi-discipline research and development laboratory with a prime focus on underwater robotics. Leading the development of technology related to autonomous submersible vehicles. Ocean Research Equipment Inc., Manager, Sea Bed Survey group : (1972-1976); Organized and managed ORE field operations in the Beaufort Sea, Arctic Islands, and Labrador Shelf involving multi-system survey capability including acoustic instrumentation, navigation, communication, and various handling and support systems. Responsible for the design, development, test and evaluation of Sea Bed Survey instrumentation including side scan sonar and sub bottom acoustic profiling systems as well as for system integration of multi-sensor acoustic survey systems and a deep-towed survey system containing multi-sensor acoustic systems towed close to the bottom in water depths approaching 6000 feet. U.S. Coast Guard: (1969-1971); Responsible for electronics and oceanographic instrumentation. Served aboard two ice breakers and an oceanographic ship. Released from active duty August 1972. Woods Hole Oceanographic Institution, Research Technician (1968). Engineering Design & Analysis Lab, University of New Hampshire, Research Technician (1968 and 1972).

**Current Research Interests:** The architecture and knowledge structure required for knowledge-based guidance and control of multiple intelligent underwater systems. Unmanned untethered submersible vehicle technology. Underwater acoustics, and acoustic navigation. The application of microcomputer technology to ocean science and engineering instrumentation systems.

**Professional Societies / Activities; Boards and Committees:** IEEE, ACM, Association for Unmanned Vehicle Systems (AUVS), Marine Technology Society; Co-chair, Autonomous Underwater Vehicles Committee, MTS; Associate Editor, Undersea Vehicles, IEEE Journal of Oceanic Engineering; Editorial Board, Unmanned Systems Magazine; Board of Trustees, Association of Unmanned Vehicle Systems (AUVS); Proposal Review Board, Link Foundation; Reviewer, NASA Automation and Robotics Panel Study Report; Advisor, MIT Sea Grant Lecture Series 1986; Co-Chairman Underwater Robotics, EEZ Workshop, U. of Hawaii; Member, working group on Technology Development, World Ocean Circulation Experiment (WOCE); Member, Sub-Committee for NSF Advisory Committee for Ocean Engineering; Panel Member, Committee on Undersea Vehicles and National Needs; National Academy of Sciences, Marine Board - 1993; Panel Member, World Technology Evaluation Committee, Undersea Vehicle Technology Assessment - 1993; COMINWARCOM ACTD Phase III team - 1995; Chairman, Co-chairman numerous conference technical sessions; Panel Member, World Technology Evaluation Committee, Undersea Vehicle Technology Assessment (far east), 1995; Organized fourteen International Symposia on Unmanned Untethered Submersible Technology, 2000 & 2005 Naval Studies Board Committee Member, Engineering Committee on Oceanic Resources (ECOR)

**Consulting:** Hamilton Standard; Lockheed Advanced Marine Systems; Tecnomare S.p.A.; Gould, Advanced Systems Development Division; C.E. Maguire Engineering; Garrett Pneumatic Systems Division; Martin Marietta Aerospace, Baltimore Division; Eltech Inc.; General Dynamics, Electric Boat Division; The Analytical Sciences Corporation, TASC.

**Invited Lectures/Seminars:** Invited presentation at the Intl. Conf. on Underwater Operations & Techniques, Paris, France - Dec 1982, Invited presentation at the Workshop of Autonomous Ground Vehicles, Univ. of Maryland, Oct 1983. Invited presentation Naval Research Advisory Committee - May 1986, Invited presentation at the American Geophysical Union Science Meeting, January 1986, Invited Paper at 1st Workshop on Intl. Advanced Robotics Program on Mobile Robots for Subsea Environments, Monterey, CA - October 1990, Invited Overview Paper in Platform Session of ABOOS Scientific Symposium - April 1992, Invited Paper at IEEE Robotics & Automation Conference, France - May 1992, Seminars at Carnegie Mellon University, Massachusetts Institute of Technology, University of Hawaii, US Coast Guard Academy, Drexel University, Charles Stark Draper Laboratory, Florida Atlantic University.

**International Activities:** Guest Lecturer, Swedish National Board of Technical Development, June 1986; Invited presentation, NATO Advanced Research Workshop on Mobile Robots, Portugal - May 1987; Invited presentation at IAS-2 Conference, Netherlands - December 1989; Project Leader, Autonomous Vehicle Technology Development, NOAA U.S./French Cooperative Program in Oceanography; Chairman for the development of the U.S./France Cooperative Program in Ocean Systems Technology for the National Science Foundation Engineering Directorate; Invited Participant at US-Norway Workshop on Underwater Vehicle Technology, Trondheim - October 1990; Invited Participant at US-UK Workshop on Underwater Ocean Systems Technology, Southampton - March 1991; Invited Participant at US-France Workshop on Underwater Robotics, France - May 1992; Panel member World Technology Evaluation Committee on Undersea

Vehicle Technology in the Former Soviet Union (FSU), May 1993.

**Academic Committees / Awards:**

Marine Technology Society Lockheed Martin ORCA Award 1999; Far Eastern Branch of the Russian Academy of Sciences, Certificate of Merit for International Scientific Cooperation, 1999; Executive Committee; Institute for the Study of Earth Oceans and Space Executive Committee; Ocean Engineering Center; Academic Excellence Award 1991; Marine Technology Society, ROV committee

**Student Activities:**

Chinese visiting Scholar; China: Lin Hui Yong, 1987 - 1988; Visiting PhD Candidate; Luis Correia; Portugal, 1990; Thesis Committee MSOE Chris Golas, Alan Czezynski, MSCS Terri Fisher; Thesis Projects; Systems Design PhD, Gerald Sedor, Peg Eaton; MSEE Paul Franz; MSME V. Ramacharindan, MSCS Joan Cucchiara, Steven Chappell, Dennis Stamulis; Project Advisor - Ocean Projects Course, 1978, 1979, 1981 ("best project" award in each of the three years); Project Advisor - BET Projects Course, 1986, 1988, 1989, Silvia Zanolli; Visiting PhD Candidate, University of Ancona, Ancona Italy; Liang Peng, visiting scholar, Harbin Univ, Harbin, China 1998-2001.

**Guest Editor:**

IEEE Journal of Oceanic Engineering - Special Issue on Autonomous Underwater Vehicle Technology, July 1990; Vol. 15, No. 3. AUVS Unmanned Systems Magazine-Special Issue: Unmanned Underwater Vehicles, Spring 1991, Vol.9, No. 2

**Publications:** Over 75 journal articles, guest editorials, proceedings, and published technical reports related to ocean systems technology.

Ageev, M.D, Blidberg, D.R., "Solar Powered Autonomous Underwater Vehicles" 2002

Ageev, M.D, Blidberg, D.R., "Autonomous Underwater Vehicles" Vladivostok, Dalnauka, 1999

Ageev, M.D, Blidberg, D.R., Jalbert, J.C. "Description and Analysis of a Solar Autonomous Underwater Vehicle (SAUV)", Marine Technology Society Journal, Winter 1998 Issue "Marine Science and Technology in the Asia-Pacific Region".

Jalbert, J.C., Blidberg, D.R., Ageev, M. "Some Design Considerations for a Solar Powered AUV; Energy Management and its Impact on Operational Characteristics" Unmanned Systems, Vol. 15 No. 4, Fall 1997 (pp 26-31)

Blidberg, D.R., "Solar Autonomous Undersea Vehicles" Sea Technology, December 1997, pp. 45-51

Blidberg, D.R. "Unmanned Underwater Vehicles Challenged by Evolving Market" 1997-98 International Guide to Unmanned Vehicles. April 1997.

Blidberg, D.R., Meyrowitz, A.L., and Michelson, R.C. 1996. Autonomous Vehicles. Proceedings of the IEEE, 84(8): 1147-1164.

Ayers, J., Kashin, S., Blidberg, D. and Massa, D. 1994. Biologically Based Underwater Robots. Unmanned Systems 12: 30-36.

Blidberg, D.R. and Turner, R. 1994. Mission Planner. In: Underwater Robotic Vehicles: Design and Control. J. Yuh (ed.) Ch. 5.

Blidberg, D.R. and Turner, R. 1994. Mission Planner and Application Software Architecture. In: Underwater Robotic Vehicles: Design and Control. J. Yuh (ed.) Ch. 6.

Blidberg, D.R. and Jalbert, J. 1994. AUV Mission & System Sensors. In: Underwater Robotic Vehicles: Design and Control. J. Yuh (ed.) Ch. 7.

Baldwin, K., Blidberg, D.R., Sedor, G., "Emphasis on Interdisciplinary, Interactive Ocean Engineering at the University of New Hampshire", Marine Technology Society Journal, Spring 1992, Vol. 26, No. 1.

Blidberg, D.R., Chappell, S., Turner, R.M., "Autonomous Underwater Vehicles: Current Activities and Research Opportunities", Robotics and Autonomous Systems, 7:139-150, 1991.

Blidberg, D.R., "Autonomous Underwater Vehicles: A Tool for the Ocean (With a Summary of the Marine Systems Engineering Laboratory's Activities at the University of New Hampshire)", AUVS Unmanned Systems Magazine, Spring 1991, Vol. 9, No. 2.

Blidberg, D.R., "Autonomous Underwater Vehicles: Current Activities and Research Opportunities", presented at the IAS-2 Conference, December 1989, Amsterdam, the Netherlands. Accepted for publication in a Special Issue of the Journal on Robotics and

Autonomous Systems, summer 1990

Blidberg, D.R. and Chappell, S.G., "Guidance and Control Architecture for the EAVE Vehicle," IEEE Journal of Oceanic Engineering, October 1986, Volume OE-11, Number 4, ISSN 0364-9059.

Blidberg, D.R., "Development Status of Tetherless, Unmanned Submersibles", Ocean Industry, March 1985, pp 100-102.

Blidberg, D.R., Robinson, R.C., "Knowledge-Based Guidance and Control of Long Range Autonomous Submersibles", Unmanned Systems, Spring 1984, vol. 2, no. 4, pp. 23-27.

Blidberg, D.R., "An Underwater Automaton Employing Distributed Microcomputers," Proceedings of the Second International Computer Engineering Conference & Exhibit, Vol 2., August 1982.(Also published in Unmanned Systems, vol. 1, no. 3, Winter 1983 issue, pp. 23-27.)

Westneat, A.S., Blidberg, D.R. and Corell, R.W., "Unmanned, Untethered Underwater Vehicles," Presented at International Conference on Underwater Operations & Techniques, December 6-8, 1982, Paris, France.(Also published in Unmanned Systems, vol 1, no. 3, Winter 1983 issue, pp. 8-13 under title of Advances in Unmanned, Untethered Underwater Vehicles.)

Blidberg, D.R., Corell, R.W., and Westneat, A. S., "Probable Ice Thickness of the Arctic Ocean," Coastal Engineering, 5, 1981, pg. 159-169.

#### **Conference Proceedings:**

D. Richard Blidberg, Jadiraj Hombal, Arthur Sanderson. "A Non-Parametric Iterative Algorithm for Adaptive Sampling and Robotic Vehicle Path Planning" In the proceedings of IEEE IROS conference Beijing, China, October, 2006

Denise M. Crimmins, Christopher T. Patty, Michael A. Beliard, John Baker, James C. Jalbert, Rick J. Komerska, Steven G. Chappell, D. Richard Blidberg. "Long-Endurance Test Results of the Solar-Powered AUV System" In Proceedings of the MTS/IEEE Oceans 2006 Conference, September 2006.

D. Richard Blidberg, Sai Mupparapu, Radim Bartos, Arthur Sanderson. "Highly Accurate Temporal & Spatial Mapping of Coastal Regions Using Cooperating Long Endurance AUVs" In proceedings of IWUR/IARP Workshop Genoa, Italy November 2005.

Charles Benton, Matthew Haag, Robert Nitzel, D. Richard Blidberg, Steven G. Chappell, and Sai S. Mupparapu. "Advancements Within the AUSNet (Autonomous Undersea Systems Network) Protocol". In Proceedings of the Fourteenth International Symposium on Unmanned Untethered Submersible Technology, August, 2005.

Steven G. Chappell, Sai S. Mupparapu, Rick J. Komerska, and D. Richard Blidberg. "SAUV II High Level Software Architecture". In Proceedings of the Fourteenth International Symposium on Unmanned Untethered Submersible Technology, August, 2005.

Christiane N. Duarte, Gerald R. Martel, Christine Buzzell, Denise Crimmins, Rick J. Komerska, Sai S. Mupparapu, Steven G. Chappell, D. Richard Blidberg, and Robert Nitzel. "A Common Control Language to Support Multiple Cooperating AUVs". In Proceedings of the Fourteenth International Symposium on Unmanned Untethered Submersible Technology, August, 2005.

D. Richard Blidberg, Sai Mupparapu, Steven Chappell, Richard Komerska, James Jalbert, Robert Nitzel "The SAUV II (Solar Powered AUV) Test Results 2004" Oceans Conference, Brest, France June 2005

Blidberg, D.R, Chappell, S.G, Jalbert, J, 2004: "Long Endurance Sampling of the Ocean with Solar Powered AUVs" In the Proceedings of the IFAC Symposium on Intelligent Autonomous Vehicles, Lisbon, Portugal July 2004.

Sai S. Mupparapu, Steven G. Chappell, Rick J. Komerska, D. Richard Blidberg, Robert Nitzel, Charles Benton, Dan O. Popa, and Arther S. Sanderson. "Autonomous Monitoring and Control (ASMAC) - An AUV Fleet Controller". In IEEE/OES AUV2004: A Workshop on Multiple Autonomous Underwater Vehicle Operations, Sebasco Estates, Maine, June, 2004.

Charles Benton, James Kenny, Robert Nitzel, D. Richard Blidberg, Steven G. Chappell, Sai S. Mupparapu "Autonomous Undersea Systems Network (AUSNET) - Protocols to Support Ad-Hoc AUV Communications". In IEEE/OES AUV2004: A Workshop on Multiple Autonomous Underwater Vehicle Operations, Sebasco Estates, Maine, June, 2004.

Dan O. Popa, Arther S. Sanderson, Rick J. Komerska, Sai S. Mupparapu, D. Richard Blidberg, Steven G. Chappell. "Adaptive Sampling Algorithms for Multiple Autonomous Underwater Vehicles". In IEEE/OES AUV2004: A Workshop on Multiple Autonomous Underwater Vehicle Operations, Sebasco Estates, Maine, June, 2004.

Charles Benton, James Kenney, Robert Nitzel, D. Richard Blidberg, and Steven G. Chappell. "Autonomous Undersea Systems Network (AUSNET) - Protocols to Support Ad Hoc AUV Communications". In Proceedings of the Thirteenth International Symposium on Unmanned Untethered Submersible Technology, August, 2003.

James Jalbert, John Baker, John Duchesney, Paul Pietryka, William Dalton, D.R. Blidberg, Steven G. Chappell, Robert Nitzel, and Ken Holappa. "Solar-Powered Autonomous Underwater Vehicle Development". In Proceedings of the Thirteenth International Symposium on Unmanned Untethered Submersible Technology, August, 2003.

Charles Benton, James Kenney, Steven G. Chappell and D. Richard Blidberg. "Autonomous Undersea Systems Network (AUSNET): Development Status Update". In Proceedings of Oceans 02, October 2002.

Robert Nitzel, Chuck Benton, Steven G. Chappell and D. Richard Blidberg. "Exploiting Dynamic Source Routing to Enable Undersea Networking Over and Ad-Hoc Toplogy". In Underwater Technology '02, Tokyo Japan, April, 2002.

Blidberg, D.R, Spindel, R.C., 2001: "Sensors and Sensing Technologies for Autonomous Ocean Sampling," In the Proceedings of the International Workshop on Underwater Robotics for Sea Exploitation and Environmental Monitoring IARP 2001, Brazil, October 2001

Nitzel, R., Benton, C., Chappell, S.G, Blidberg, D.R, 2001:, "Autonomous Undersea Systems Network (AUSNet)," In the Proceedings of the 12<sup>th</sup> International Symposium on Unmanned Untethered Submersible Technology, Durham, NH, August 2001.

Ageev, M.D., Gornak, V.E.,Khmelkov, D.B, Scherbatyuk, A.Ph., Vaulin, Ju.V. and Blidberg, D.R., 2001: "Mission Control System for Solar AUV and Results of the Vehicle Long Time Operation Trials," In the Proceedings of the 12<sup>th</sup> International Symposium on Unmanned Untethered Submersible Technology, Durham, NH, August 2001.

Blidberg, D.R, "The Development of Autonomous Underwater Vehicles (AUV); A Brief Summary" ICRA Conference, Seoul Korea, May 21-25, 2001.

Karl, D.M., Blidberg, D.R. "Autonomous Biogeochemical Measurements within the Hawaii Ocean Time-series (HOT) Program" Proceedings of the International Workshop on Autonomous Measurements of Biogeochemical Parameters in the Ocean, Honolulu, HI February 20-22, 2001

Blidberg, D.R., Ageev, Mikhail, D. "Results of the Evaluation and Testing of the SAUV and its Subsystems" Proceedings of the 11<sup>th</sup> International Symposium on Unmanned Untethered Submersible Technology, Durham, NH, August 22-25, 1999.

Komerska, Rick J., Blidberg, D. Richard, Chappell, Steven G., and Peng, Liang. "Progress in the development and evaluation of a standard AUV command and monitoring language." In Eleventh International Symposium on Unmanned Untethered Submersible Technology, pages 554-560, August, Durham, NH. Autonomous Undersea Systems Institute, 86 Old Concord Turnpike, Lee, NH 03824, 1999.

Blidberg, D.R., Jalbert, J.C., Ageev, Mikhail, D, "Experimental Results; The AUSI/IMTP Solar Powered AUV Project" MTS Oceans Community Conference, Baltimore, MD, November 16-19.

Blidberg, D.R., Asper, V., Patch, D., Brutzman, D., Aponick, T., "The Autonomous Underwater Systems Consortium (AUSC)" MTS Oceans Community Conference, Baltimore, MD, November 16-19.

Blidberg, D.R., Asper, V., Patch, D., Brutzman, D., Aponick, T., "The Autonomous Underwater Systems Consortium (AUSC)", Unmanned Underwater Vehicle Showcase, Southampton, UK, Sept. 2-4, 1998

Blidberg, D.R., Jalbert, James, Ageev, Mikhail D., "Current Progress in the Development of a Solar Powered Autonomous Underwater Vehicle (AUV)", UT '98, April 15-17, 1998.

Blidberg, D.R., Jalbert, J. & Ageev, M, "A Solar Powered Autonomous Underwater Vehicle System" International Advanced Robotics

Program (IARP) April 17-19, 1998.

Blidberg, D.R., Jalbert, James C., Ageev, Mikhail & James, Darwin. "Solar Autonomous Underwater Vehicle (AUV) System" May 1997, 3rd International Symposium on Performance Enhancement for Marine Applications, pp. 129-139

Blidberg, D.R., Jalbert, James C., Ageev, Mikhail & James, Darwin. "Solar Powered Autonomous Underwater Vehicle (AUV) Sampling Systems for the 21<sup>st</sup> Century" May 1997, Oceanology International '97 Pacific Rim

Blidberg, D.R., Jalbert, James C., and Ageev, Mikhail. "Solar Powered Autonomous Vehicles (AUVs) The Potential for a Low Cost, Long Endurance, Sampling Systems for the 21<sup>st</sup> Century" June 1997 Association for Unmanned Vehicle Systems International.

Blidberg, D. Richard, Jalbert, James C., James, Darwin and Ageev, Mikhail D., "Some Design Considerations for a Solar Powered AUV; Energy Management and its Impact on Operational Characteristics" Proceedings of the 10<sup>th</sup> International Symposium on Unmanned Untethered Submersible Technology, pp. 50-59.

Blidberg, D. Richard, Jalbert, James C., and Ageev, Mikhail D., "A Solar Autonomous Underwater Vehicle System" Oct. 97 Proceedings of Oceans '97 MTS/IEEE

Jalbert, James C., Kashin, Sergei, Blidberg, D.R., "Design Concepts for an Undulatory AUV" April 1997, 3<sup>rd</sup> International Symposium on Performance Enhancement for Marine Applications, pp. 117-128

Jalbert, James C., Irazoqui-Pastor, Pedro, Miles, Seth., James, Darwin, Blidberg, D. Richard, and Ageev, Mikhail D., "AUV Technology Evaluation and Development Project" Proceedings of the 10<sup>th</sup> International Symposium on Unmanned Untethered Submersible Technology, pp. 75-87.

Turner, R.M., Turner, E.H, Blidberg, D.R., 1996. Organization and Reorganization of Autonomous Oceanographic Sampling Networks. Proceedings of the '96 IEEE Symposium on Autonomous Underwater Vehicle Technology, Monterey CA: 407-413.

Blidberg, D., Jalbert, J., Chappell, S., Pietryka, P. (Datasonics), and Duchesne, J. (Datasonics). 1994. Acoustic Communication Between Two Autonomous Underwater Vehicles. Proceedings of the 1994 Symposium on Autonomous Underwater Vehicle Technology, Cambridge MA, July.

Turner, R.M., Chappell, S.G., and Jalbert, J.C., Blidberg, D.R., 1993. Generic Behaviors: An approach to modularity in intelligent systems control. 8th International Symposium on Unmanned Untethered Submersible Technology, Durham NH: 106-117.

R. Blidberg, "The Impact of Communication Strategy on the Cooperative Behavior of Multiple Autonomous Underwater Vehicles (AUVs)", Proceedings of the 6th International Symposium on Unmanned Untethered Submersible Technology, pg. 331, June 1989.

Blidberg, D.R. and Albus, J.S., "A Control System Architecture for Multiple Autonomous Undersea Vehicles (MAUV)," Proceedings of the 5th International Symposium on Unmanned Untethered Submersible Technology, pp 444, June 1987.

"Proceedings of the 5th International Symposium on Unmanned Untethered Submersible Technology," Marine Systems Engineering Laboratory, University of New Hampshire, June 1987.

Blidberg, D. R., and Corell, R. W., "A Hierarchical Knowledge-Based System for the Guidance and Control of an Unmanned Untethered Submersible", Proceedings of the 4th International Symposium on Unmanned Untethered Submersible Technology, pp 297, June 1985.

Blidberg, D.R., "Time Ordered Architecture for Knowledge-Based Guidance of an Unmanned Untethered Submersible," presented at OCEANS '84 Conference, Washington, DC, September, 1984.

Blidberg, D.R., "EAVE-East - An Untethered Submersible Vehicle", presented at AUVS Conference, Washington, DC, August 1, 1984.

Blidberg, D.R., "A Potential Untethered ROV for Ocean Science", Presented at NOAA Undersea Research Conference, Groton, CT, May, 1984.

Corell, R.W., Blidberg, D.R., Westneat, A.S., "An Assessment of Robotic Systems Technology for Research in the Ocean Sciences", Proceedings of OCEANS '83 Conference, San Francisco, CA, September, 1983, vol. 1, pp. 8-10.

Blidberg, D. R., Westneat, A. S., and Corell, R. W., "An Examination of the Application of Expert Systems in Unmanned Untethered Submersibles", Proceedings of OCEANS '83 Conference, San Francisco, September, 1983, vol. 1, pp. 111-114.

"Proceedings of the Third International Symposium on Unmanned Untethered Submersible Technology", Marine Systems Engineering Laboratory, University of New Hampshire, June, 1983.

Blidberg, D. R., Westneat, A. S., and Corell, R. W., "Expert Systems, A Tool for Autonomous Underwater Vehicles," Presented at the Trends and Applications Conference, National Bureau of Standards, May, 1983.

Westneat, A.S., Blidberg, D.R., and Corell, R.W., "Assessment of Technologies in Unmanned, Untethered Autonomous Submersibles," ROV '83 Conference Proceedings, pp 267-271, March 1983.

"Proceedings of the Second International Symposium on Unmanned Untethered Submersible Technology," Marine Systems Engineering Laboratory, University of New Hampshire, September, 1981.

Glynn, J., Blidberg, D. R., "The UNH EAVE-East Vehicle," OCEANS 81 Conference Record, Vol. 1, 1981, pg. 104-108.

Currier, R. E. and Blidberg, D. R., "An Acoustic Sub-Sea Navigation System," OCEANS 81 Conference Record, Vol. 2, 1981, pg. 1175-1179.

Blidberg, D. R. "Computer Systems for Autonomous Vehicles," OCEANS 81 Conference Record, Vol. 1, 1981, pg. 83-87.

"Proceedings of the First International Symposium on Unmanned Untethered Submersible Technology," Marine Systems Engineering Laboratory, May, 1980.

Blidberg, D.R. and Westneat, A.S., "An Unmanned Untethered Inspection Vehicle," Proceedings of Marine Technology Society Conference, 1979.

Blidberg, D.R., Pierson, C.B., Westneat, A.S., Corell, R.W., "ADOM Ice Drilling Systems Review," Proceedings of the Fifth International Conference on Port and Ocean Engineering under Arctic Conditions, August 1979.

Blidberg, D.R., Allmendinger, E.E., Sideris, N., "Development of an Unmanned, Free-Swimming, Self-Controlled Vehicle," Offshore Technology Conference, 1978.

### **Technical Reports:**

Komerska, Rick J., Chappell, Steven G., Peng, Liang, and Blidberg, D. Richard. "Generic behaviors as an interface for communication, command and monitoring between AUVs. Technical Report 9904-01, Autonomous Undersea Systems Institute, 86 Old Concord Turnpike, Lee, NH 03824, 1999.

Cooperative Distributed Problem Solving for Controlling Semi-Autonomous and Autonomous Oceanographic Sampling Networks, Oct. 97, Annual Progress Report under ONR grant no. N00014-96-1-5009

Solar Powered Autonomous Undersea Vehicles; Sampling Systems for the 21<sup>st</sup> Century, Oct. 31, Annual Progress Report under ONR grant no. N00014-97-1-0155

Proof of Concept Investigation: Autonomous Underwater Vehicle in Hazardous Mission Conditions-Final Report. MSEL Report #93-02, prepared under contract #N00174-92-C-0115.

"Proof of Concept Investigation: Autonomous Underwater Vehicle in Hazardous Mission Conditions - Final Report", MSEL Report No. 93-01 prepared under contract #N00174-92-C-0115, March 1993.

"Report of An Interdisciplinary Workshop to Assess the Scientific Needs for a Long Range Autonomous Underwater Vehicle, October

18-19, 1991", sponsored by National Science Foundation, conducted by Marine Systems Engineering Laboratory.

"Multi-Sensor Autonomous Underwater Vehicle Search System - Interim Report January 1990 - January 1991", MSEL Report #91-03 prepared under grant #NA90AA-D-SG510.

"Magnetometer Search System with V-Fin Controlled Depressor", MSEL Report #90-09 prepared under grant #NA90AA-D-SG-510, May 1991.

"Systems/Subsystems Investigation for a Multi-Sensor Autonomous Underwater Vehicle Search System", MSEL Report #90-01, prepared under Sea Grant contract #NA89AA-D-SG020 under the direction of the Naval Explosive Ordnance Disposal Technology Center, December 1989.

"Phase I - Final Report on ONR-COMMS", MSEL Report #90-08, by D. Blidberg and R. Turner.

"A Preliminary Design Study for a Deep Ocean Autonomous Vehicle (DOAVE)", prepared under NOAA contract #NA89AA-D-UR113, by Dick Blidberg and T. Glenn, MSEL Report #90-07, December 1989.

"Transporting Portable Common Lisp to Operate in the EAVE Autonomous Underwater Vehicle", MSEL Report #89-10 prepared under contract #EID-8818406 for the National Science Foundation, Dec. 1989.

"Final Report on Development of an Intelligent World Model for the EAVE Vehicle", MSEL Report #89-09 prepared under contract #N66604-89-C-6775 for the Naval Underwater Systems Center, November 1989.

"Workshop Results from the U.S./France Cooperative Program in Ocean Systems Technology (Materials in the Ocean)", 13-15 April 1988, prepared under National Science Foundation Contract #ENG- 8717248, March 1989.

"Semi-Automated Magnetometer Program Progress Memo #89-03", covering the period Oct. 1, 1987 - Sept.30, 1988, prepared under Sea Grant contract #NA86AA-D-SG047 with the guidance of the Naval EOD Technology Center, March 1989.

"Workshop Results from the United States/France Cooperative Program in Ocean Systems Technology (Autonomous Underwater Vehicles & Robotics) October 26-28, 1987", prepared under Contract #ENG- 8717248, September 1988.

"Semi-Automated Magnetometer Program, October 1, 1986 - September 30, 1987" prepared under Contract #NA86AA-D-SG047, MSEL Report #88-04, January 1988.

"A Cooperative Research Project on Intelligent Control for Multiple Autonomous Undersea Vehicles, July 1, 1986 - October 31, 1987" prepared under Cooperative Agreement No. 70NANB6H0634, MSEL Report #88- 03, January 1988.

"Final Report: Air Deployed Oceanographic Mooring (ADOM)," Marine Systems Engineering Laboratory, University of New Hampshire, September 30, 1987.

"Semi-Automatic Magnetometer and Inshore Pilot Program Progress Memorandum," October 1, 1985 - September 30, 1986, MSEL Progress Memo #87-01, prepared under Contract #NA86AA-D-SG047, November 1986.

"Phase I Report on Inshore Pilot (A Prototype for Inshore Pilot Navigation, Search and Recovery)", Marine Systems Engineering Laboratory Report No. 86-03, prepared under contract #NA81AA-D-00035, October, 1985.

"EAVE-East Cavitation Cleaner Feasibility Demonstration" Marine Systems Engineering Laboratory, Internal Technical Report #86-02, prepared under contract #N6092-84-K-0064, September 1985.

"Magnetic Search System (Phase I Report)," Marine Systems Engineering Laboratory, University of New Hampshire Report No. UNH MP-TR-SG-84-9, Prepared under Sea Grant Contract #NA81AA-D-00035, September 1984.

"Technology Development for Unmanned Untethered Submersible Vehicle Systems", Final Report, November 1, 1980 - October 31, 1982, Marine Systems Engineering Laboratory, University of New Hampshire, prepared under contract #14-08-0001-18636, December, 1983.

"Final Report on EAVE System Modifications for Operational Evaluation in Hostile Environments", Marine Systems Engineering Laboratory, University of New Hampshire, prepared under U.S. Army contract No. DACA89-82-0006, December, 1983.

"Research and Engineering Design of a Microcomputer Controlled Unmanned Free Swimming Vehicle Technical Report," Marine Systems Engineering Laboratory, October 31, 1980.

"Air Deployed Oceanographic Mooring (ADOM) Final Report," Marine Systems Engineering Laboratory, March 1, 1979-February 28, 1980.

"The Engineering Design and Development of a Microcomputer Controlled Unmanned Free Swimming Vehicle Technical Report," Marine Systems Engineering Laboratory, December 1, 1979.

"Air Deployed Oceanographic Mooring (ADOM) Final Report," Marine Systems Engineering Laboratory, March 1, 1978-February 28, 1979.