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EXPERIENCE

Employment **Software Systems Engineer** October 1981 to present
Autonomous Undersea Systems Institute, PO Box 86, Old Concord Turnpike, Lee, NH, 03824. Technical lead in design, implementation, and maintenance of software systems to support autonomous underwater vehicle (AUV) research.

Projects **Solar AUV Software Architecture** Jan 2003 to present
Design and implementation of embedded software for Solar powered AUV. Includes development environment support tools and documentation.

Cooperative Behaviors May 1996 to present
Multi year ONR grant (N00014-96-1-5009) to design a Common Command Language (CCL) for fleets of autonomous systems.

Basic AUV Behaviors May 1994 to May 1997
Lead in three year NSF grant (BES-9222146) to design a basic AUV behavior suite.

Multiple AUV Simulation Harness Summer 1993 to present
Designed and implemented multiple AUV testing and simulation server. System simulates medium sized fleets of heterogenous AUVs interacting with their environment and each other.

Multi-Processor AUV Computer System Summer 1988 to 1995
Designed, implemented, and coordinated VME based Multi-Processor (MVMP) computer system for AUV; 1-5 CPUs, 10 serial ports, SCSI optical disk interface, integrated pSOS, pRISM, pROBE modules; system control and boot software; MVMP programming environment: applications code philosophy, libraries, support tools and documentation manual. Transporting same to VxWorks.

Multiprocess Simulation Winter 1985 to Summer 1993
Designed and implemented multiprocess simulation of AUV. System simulates multiple AUVs traversing a shared world; used for AUV development, testing, and demonstrations.

World Model for AUV Spring 1988 to Winter 1989
Designed and implemented world model prototype; augments vehicle route planner (see below) providing internal representation of the AUV's perceived world. Based on quadrees.

Dual Blackboard Vehicle Route Planner (MS Thesis) Spring 1985 to Summer 1987
Masters Thesis; adaptation of Hayes-Roth dual blackboard architecture for control to the AUV route planning domain and subsequent implementation on Lambda LISP machine.

Design of Layered Vehicle Control Architecture Spring 1984 to present
Participant in the design of a generic architecture for layered, time ordered vehicle control.

Runtime environments for AUV low level systems Spring 1982 to present
Design, implementation, and maintenance of systems and applications software for embedded systems, which provide sensor and effector management as well as higher level functions for working AUVs.

Magnetic Bubble Memory File System Autumn 1981 to Summer 1983
File management operating system for stand alone MBM data recorder. Used to record AUV data for post mission analysis.

Publications Authored seven papers, one masters thesis; co-authored 30 papers.
Systems Linux, Solaris, SunOs, UNOS; QNX, VxWorks, pSOS, custom embedded OS; DOS, Windows 2000/XP

Languages C, LISP; \LaTeX , nroff.

Interests Multiple agent systems, autonomous embedded systems, simulation, artificial intelligence and symbolic programming techniques applied to real world problems, systems programming, networking.

EDUCATION

Master of Science in Computer Science, University of New Hampshire, 1987; Thesis title: An Autonomous Vehicle Supervisor Module Using the Blackboard Control Architecture.

Bachelor of Science in Botany, University of New Hampshire, 1978

Junior Year Abroad Program: University of Salzburg, Austria 1976-1977.

Honor Societies: Phi Beta Kappa, Phi Sigma.

RELATED PUBLICATIONS

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

Solar-Powered Autonomous Underwater Vehicle Development. Benton, Charles, Kenney, James, Nitzel, Robert, Blidberg, D. Richard, and Chappell, Steven G. In *Proceedings of the Thirteenth International Symposium on Unmanned Untethered Submersible Technology*, August, 2003.

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

An environment for high-level multiple AUV simulation and communication. Chappell, Steven G. and Komerska, Rick J. In *Proceedings of Underwater Intervention 2001*. Doyle Publishing Company, 2001.

Cooperative AUV development concept (CADCON) - an environment for high-level multiple AUV simulation. Chappell, Steven G., Komerska, Rick J., Peng, Liang, and Lu, Yingchun. In *Eleventh International Symposium on Unmanned Untethered Submersible Technology*, August 1999, Durham, NH. Autonomous Undersea Systems Institute, 86 Old Concord Turnpike, Lee, NH 03824, 1999, pages 112–120.

Progress in the development and evaluation of a standard AUV command and monitoring language. Komerska, Rick J., Blidberg, D. Richard, Chappell, Steven G., and Peng, Liang. In *Eleventh International Symposium on Unmanned Untethered Submersible Technology*, August 1999, Durham, NH, 1999, pages 554–560.

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

Cooperative behavior in an autonomous oceanographic sampling network: MAUV project update. Chappell, Steven G., Turner, Roy M., Turner, Elise H., and Grunden, Charles. In *Tenth International Symposium on Unmanned Untethered Submersible Technology*, September 1997, Durham, NH. Autonomous Undersea Systems Institute, 86 Old Concord Turnpike, Lee, NH 03824, 1999, pages 375–384.

OTHER PUBLICATIONS

Acoustic communication between two autonomous underwater vehicles: A generic behavior. Blidberg, D. Richard, Jalbert, James C., Chappell, Steven G., Turner, Roy M., Turner, Elise H., Pietryka, Paul, and Duchesney, John. In *Proceedings of the IARP 2nd Workshop on Mobile Robots for Subsea Environments*, pages 81–94, May 3–4, 1994, Monterey, CA. International Advanced Robotics Programme, IARP/Monterey Bay Aquarium Research Institute, 160 Central Avenue, Pacific Grove, CA, 93950.

Using common LISP in the EAVE autonomous underwater vehicle. Bowen, Paul C., Chappell, Steven G., and Gonzalez, Roger. *IEEE Journal of Ocean Engineering*, 15(3):221–227, 1990.

The EAVE AUV program at the Marine Systems Engineering Laboratory. Blidberg, D. Richard, Chappell, Steven G., Jalbert, James C., Turner, Roy M., Sedor, Gerald, and Eaton, Peggy. In *Proceedings of the IARP 1st Workshop on Mobile Robots for Subsea Environments*, pages 33–42, October 1990, Monterey, CA. International Advanced Robotics Programme, IARP/Monterey Bay Aquarium Research Institute, 160 Central Avenue, Pacific Grove, CA, 93950.

Artificial intelligence - definition and practice. Simmons, Asa B. and Chappell, Steven G. *IEEE Journal of Ocean Engineering*, 13(2):14–42, 1988.

Guidance and control architecture for the EAVE vehicle. Blidberg, D. Richard and Chappell, Steven G. *IEEE Journal of Ocean Engineering*, OE-11(4):449–461, 1986.