




Dr. Alan Breitler
President, EagleRidge Technologies, Inc.
Associate Professor, University of Maryland
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Biography:

Abstract: The prediction of reliability of multiple-component systems is increasing in importance, both in military and civilian systems, as systems become more complex and more difficult to analyze and assess for reliability. While a neural network has been shown to predict the reliability of certain systems consisting of components in series and parallel, there are additional aspects and relationships between components that must be considered if a more generalized approach to the prediction of system reliability using an artificial neural network (ANN) is to be useful.

This paper explores the validity of a method to solve the classical neural network prediction (i.e., classification) meta-problem using a series of different neural network architectures to provide a preliminary solution to a bit prediction problem, and then using the outputs of the different architectures as inputs to another neural network to provide a more highly correlated solution.



Speaker Biography: Alan L. Breitler is the President of EagleRidge Technologies, Inc., an Adjunct Professor of Computer Science at the Florida Institute of Technology and at the University of Maryland, a seminar instructor, and an author.

Dr. Breitler graduated in 1960 from Florida State University with a degree in physics. After serving 3 years on active duty with the US Army as a guided missile maintenance officer, he earned the M.Ed. degree from George Washington University and in 1966 joined the Montgomery College (Takoma Park, Maryland Campus) Physics Department, served as Coordinator of the Computer Science program, and earned a Ph.D. in Education (1975) from Catholic University in Washington, DC. After 10 years with Montgomery College, he became a federal government employee and served with several federal agencies, including an appointment as Associate Professor of Computer Science at the US Coast Guard Academy in New London, Connecticut where he developed a model to determine search effectiveness in ocean currents. In 1981, he was assigned to the Office of the Secretary of Transportation as a computer specialist, and spent 13 years working with the Federal Aviation Administration on the acquisition of computer systems, analysis of air traffic in the National Airspace System, and development of models of airspace utilization and the Comprehensive Operations and Delay Analysis System (CODAS).

He also served as Adjunct Professor of Computer Science at George Washington University (1981-1986) teaching graduate courses in systems analysis and at the University of Maryland (1988-1994), where he developed and taught the undergraduate course sequence in UNIX and Advanced C/UNIX. He retired from the federal government in 1994 and joined the Research Staff of the Center for Naval Analyses, participating in several US Navy exercises aboard ships and aircraft, and serving as a field representative to Air Test and Evaluation Squadron at Naval Air Station Patuxent River, Maryland, where he developed a simulation used to improve ASW searches by sonar dipping helicopters. He joined the Computer Science faculty of the Florida Institute of Technology as an Adjunct Professor in 1998. He retired from the Center for Naval Analyses in 2001 and continued working as a private consultant. In 2004, he was appointed President of EagleRidge Technologies, Inc. In 2006, he was inducted into the Phi Kappa Phi National Honor Society and earned an MS in Information Technology from the University of Maryland.

Dr. Breitler's seminar instruction includes presentations of "VV&A for Models and Simulations" at the International Test and Evaluation Modeling and Simulation Conference in Las Cruces, New Mexico and at ITEA headquarters in Fairfax, Virginia. His recent publications include "Verification of Neural Network-derived Software", ITEA Journal, January, 2005 and "Determining the Reliability of Complex Systems Using Neural Networks", AIAA Conference Proceedings, Nashville, Tennessee, December 2005, and "An Alternative Approach to Improvement of Neural Network Performance" at the Artificial Neural Network in Engineering Conference (ANNIE) in St. Louis, November, 2006.

Dr. Breitler lives in Silver Spring, Maryland with his wife, Elaine, a speech pathologist. They have 2 children and 5 grandchildren

