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Mr. Myers is a graduate of the Massachusetts Institute of Technology, and of Purdue University and is the manager of Neural Network Programs at TRW MEAD Rancho Carmel Artificial Neural System Center. He is a communications systems engineer with both digital and analog processing experience in military communications, digital avionics, integrated aircraft antenna systems, radar, and sixth-generation computing (artificial neural systems). He has had international marketing experience with both General Electric Information Services and the (former) Singer Business Machines Division, and speaks several foreign languages including Russian, German, Swedish, and French. In the past 5 years, he has received six patents for signal processing inventions in the areas of waveform demodulation, synchronization, and adaptive interference cancellation, and has presented numerous technical papers. Mr. Myers organized and set up the first computer time-sharing link between the United States and the U.S.S.R. He was appointed by the Assistant Secretary of Commerce to serve a term on the Computer Systems Technical Advisory Committee of the Office of Export Administration, having a charter to develop U.S. export licensing policy guidelines for the sale and/or transfer of advanced technology to foreign entities, including the Eastern bloc.

A HYBRID CONNECTIONIST/AI ARCHITECTURE FOR REFLEXIVE, REFLECTIVE, AND EXPLORATORY SYSTEMS

Abstract

Implementing autonomous systems capable of operation in both familiar and unfamiliar environments is a goal being hotly pursued in many communities, both military and commercial. This presentation discusses an autonomous system philosophy and architecture which combines both trainable and non-trainable artificial neural network elements for both mapping and dynamic system simulation, with rule-based decision-directed structures. The architecture presented should manifest interesting behavior characteristics, including the ability to handle an unbounded dimensional environment, the ability to provide rapid reflex response as well to enable reflecting and planning actions, and the ability to execute generic exploratory behaviors designed to enhance knowledge of the environment when it is ambiguous. A methodology for embedding both discrete rules and apprentice learning in the system is used to initialize the autonomous system. It is hoped that this presentation will help air some of the issues faced by neural network designers attempting to merge connectionist and rule-based technologies.

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