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Dr. Reilly is a summa cum laude graduate of Georgetown University, with a B.S. in physics. He received his M.S. and Ph.D. degrees in physics at Brown University, doing research in the field of neural networks. His thesis was entitled "A Neural Model for Category Learning." From 1980 to 1983, Dr. Reilly was a postdoctoral research fellow and assistant professor at the Center for Neural Science at Brown. In 1983, he joined Nestor, Inc., as its first employee and vice president of research and development. Dr. Reilly was instrumental in establishing Nestor's research and development office, and under his direction, the company has developed an adaptive pattern recognition technology based upon neural network principles - applying that system to problems in character recognition, speech recognition, object recognition, and risk assessment in financial services.

ADAPTIVE PATTERN RECOGNITION USING A MULTINEURAL NETWORK LEARNING SYSTEM

Abstract

A learning system composed of multiple neural networks and present examples of its application to problems in adaptive pattern recognition is discussed. The system makes use of multiple restricted Coulomb energy (RCE) networks that are powerful pattern classification subsystems, able to dynamically learn to separate nonlinearly-separable pattern classes in feature space, as well as to estimate class probabilities in nonseparable portions of the feature space. A controller integrates the responses of these various multiple neural networks to produce an overall system response. Additionally, the controller determines the training signals directed to the various component networks of the system to ensure that networks train to make the decisions for which they are best suited. Results of applying the system to problems in character recognition, industrial parts inspection, and decision support for risk analysis will be reviewed.