Microelectronic Implementations of Connectionist Neural Networks

Authors:

Stuart Mackie, Hans Graf, Daniel Schwartz, John Denker

Abstract:

In this paper we discuss why special purpose chips are needed for useful implementations of connectionist neural

networks in such

applications as pattern recognition and classification. Three chip designs are described: a hybrid digital/analog

programmable connection matrix, an analog connection

matrix with adjustable connection strengths, and a digital pipe lined best-match chip. The common feature of the designs

is the

distribution of arithmetic processing power amongst the data storage to minimize data movement.