HOPFIELD MODEL FOR SHORTEST PATH COMPUTATION AND ROUTING IN ATM NETWORK

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MASTER OF COMPUTER SCIENCE

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by

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ABSTRACT

This research focuses on the application of Hopfield neural network and Boltzmann machine in solving the shortest path routing problem in the ATM network environment. Hopfield neural network and Boltzmann machine are two types of neural network which are commonly used for solving optimization problem such as the shortest path routing problem.

The objectives of this research are to construct a Hopfield neural network and a Boltzmann machine for solving the shortest path routing problem in the ATM network. Both of these two types of neural network are built based on a chosen example of an ATM network. The Private Network-Node Interface (PNNI) network is a type of ATM network in which the shortest path routing mechanism can be used.

Simulation of the shortest path computation for an ATM network is done for both the Hopfield neural network and the Boltzmann machine.