

The Recall Performance of Multiple Associative Memories - a Comparison of Thresholding Strategies

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Abstract: The associative network presents a practical and efficient means for the storage and retrieval of data. Although the recall abilities of single-layer associative memories have been well researched[3], little investigation of a similar nature has been done on multi-layer associative memories. An earlier theoretical analysis of recall abilities of single-layer associative networks is extended here to provide a more accurate formulation of empirical results and simulation results are presented in support of this analysis. The recall performance of the advanced distributed associative memory (ADAM) is shown to deliver significantly better recall performance than multi-layer associative memories using Willshaw thresholding at all layers. Intermediate layer parameters that would yield optimum recall performance are investigated and shown to compare favourably with values suggested by information-theoretic derivations.

Keywords: Associative memory, recall performance, neural networks.

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