Storage Capacity Results for Decomposed Structures of Generalizing RAM Nodes

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Abstract

This paper presents novel storage capacity results for decomposed structures using generalizing RAM nodes [1].

Two storage capacity results are derived:

- a) K_{α} - the number of number of random input patterns stored in a systems that are guaranteed not to overwrite each other and thus produce errors at output,*
- b) K_{ω} - the maximum number of selected patterns trained into the system that can be correctly retrieved.*

Both storage capacity results can be improved by introducing the Overwrite Rule [4] into the system. The method involves making a distinction between RAM locations whose contents have been overwritten and other locations that have been trained only once. It uses the notion that any location that has its contents set more than once becomes less significant at Sigma Unit level. Results for decomposed systems using the Overwrite Rule are also presented.

References

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