

Performance Measures for Associative Memories that Learn and Forget

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Abstract:

Recently, many modifications to the McCulloch/Pitts model have been proposed where both learning and forgetting occur. Given that the network

never saturates (ceases to function effectively due to an overload of information), the learning updates can continue indefinitely. For

these networks, we need to introduce performance measures in addition to the information capacity to evaluate the different networks.

We mathematically define quantities such as the plasticity of a network, the efficacy of an information vector, and the probability

of network saturation. From these quantities we analytically compare different networks.