

Dual-Network Memory Model for Temporal Sequences

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Abstract : In neural networks, when new patterns are learned by a network, they radically interfere with previously stored patterns. This drawback is called catastrophic forgetting. We have already proposed a biologically inspired dual-network memory model which can much reduce this forgetting for static patterns. In this model, information is first stored in the hippocampal network, and thereafter, it is transferred to the neocortical network using pseudo patterns. Because, temporal sequence learning is more important than static pattern learning in the real world, in this study, we improve our conventional dual-network memory model so that it can deal with temporal sequences without catastrophic forgetting. The computer simulation results show the effectiveness of the proposed dual-network memory model.

Keywords : catastrophic forgetting, dual-network, temporal sequences, hippocampal

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