

Abstract Submitted
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Neural mechanism to construct a future timeline KARTHIK SHANKAR, Boston University — Computing the set of possible future states is an important cognitive feature that aids in planning toward a goal. The brain must perform this computation swiftly, and more importantly without destroying the current state of memory. Here we propose a neural mechanism that periodically modifies the synaptic weights in a mathematically principled way to achieve the construction of the future timeline. Preliminary evidence of synaptic modifications in synchrony with the theta rhythm suggests that this mechanism could take place in the Hippocampus. The hypothesis also predicts that the time cells observed in the Hippocampus should exhibit phase precession with respect to the theta rhythm as the future timeline is cognitively constructed.

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