

The process of newly acquired information integrating into an already established memory trace is referred to as 'memory reconsolidation.' This fairly new research topic has implications in therapeutic strategies in for PTSD, phobias, and other anxiety orders by manipulating shock memories. The Hopfield network, with its attractor properties, is a widely used representation of the hippocampus. Memories can be updated and retrieved using new information which are located in the hippocampus. We created an attractor network by using the updated binary Hopfield model, which is more biologically sound than its spin counterpart; we are able to neglect any mirrored attractors and implement 'cues' in order to recover the memory and associate it with other stimuli. This synaptic connectivity model employs thresholds to measure the firing rate and connectivity of the neurons while diminishing spurious memories. This model can be achieved by assuming that the connections between neurons are updated according to Hebbian Learning Rules, which states that neurons that are activated simultaneously will wire together. Our project builds on associate memory to establish a memory and retrieve it using a small clue of patterns of neurons using an incomplete 'cue.' These cues are believed to be cortical afferents that convey relevant environmental information to the hippocampus. Based on the cue, the network is designed to start at an initial state and then evolve into a steady state, the stored memory. We determine the capacity of the network to absorb additional memory patterns by computing the number of stable patterns retrieved.