



Thesis Defense

Computer Science Master's Program

“Sequential Memory Generation for Cognitive Models”

By Eben Sherwood

Abstract:

Understanding the process of memory formation in neural systems is of great interest in the field of neuroscience. Valiant's Neuroidal Model poses a plausible theory for how memories are created within a computational context. Previously, the algorithm JOIN has been used to show how the brain could perform conjunctive and disjunctive coding to store memories. A limitation of JOIN is that it does not consider the coding of temporal information in a meaningful manner. We propose SeqMem, a similar algorithmic primitive that is designed to encode a series of items within a random graph model. We investigate the feasibility of SeqMem empirically by observing its stability and effects on capacity in our model. We intend to provide value in the use of SeqMem and similar procedures to further develop a neurobiologically plausible theory of mind. Our goal here is to inspire further work in scaling our methods to function at a human-level magnitude of computation.

Date: Wednesday, June 12th, 2024

Time: 2:00 PM – 4:00 PM

Location: 14-232b

Zoom: <https://us05web.zoom.us/j/82296209060?pwd=8wFp6krm6wEBYvpTivUsXJqqKbt9lZ.1>

Committee: Dr. Rwebangira, Dr. Frishberg, and Dr. Ventura

