Abstract

The hippocampus is essential to our ability to navigate our environment. Rodent research on the underlying hippocampal code has revealed specialized place, grid, and head direction cells. Recent studies showed that humans employ a similar memory network to encode spatial representations in hippocampal regions. In this study we used recurrent neural networks to decode the trajectories of participants navigating a virtual environment from functional magnetic resonance imaging (fMRI) data. Encoding models were implemented trying to encode evoked blood-oxygenation-level-dependent (BOLD) responses from location feature sequences. Subsequently, decoding models were trained to predict the location sequence from BOLD responses. Although the models fell short in achieving sufficient performance, the study provides useful insights to improve future approaches to decode trajectories from fMRI data.