Using Hitting-Time Interdecile Differences to Identify Brain Networks with Path-Like Features

Submission ID 3000322

Submission Type Poster

Topic Neuroscience

Status Submitted

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SUBMISSION DETAILS

Presentation Type Either Poster or Oral Presentation

Presentation Abstract Summary The hierarchical processing in the human brain can be studied using graph theoretic models.
We identify path-graph-like components by utilizing higher-order distribution characteristics of hitting time distribution of random graph models. Hitting time to a node increases as the connectivity of the node to the rest of the network decreases. We use interdecile difference to characterize the skewness for the hitting time distribution. In human functional magnetic resonance imaging (fMRI) data, interdecile difference of the hitting time distribution is greater during task than resting state data. Interdecile difference of the hitting time distribution is also greater for schizophrenia and bipolar populations than neurotypical controls. Our findings suggest that hitting time can be used to
characterize the connectivity and centrality of brain regions.

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Keywords

Keywords
fMRI; connectivity; graph measures; hitting time