

Heritability of the Human Connectome: A Connectotyping Study

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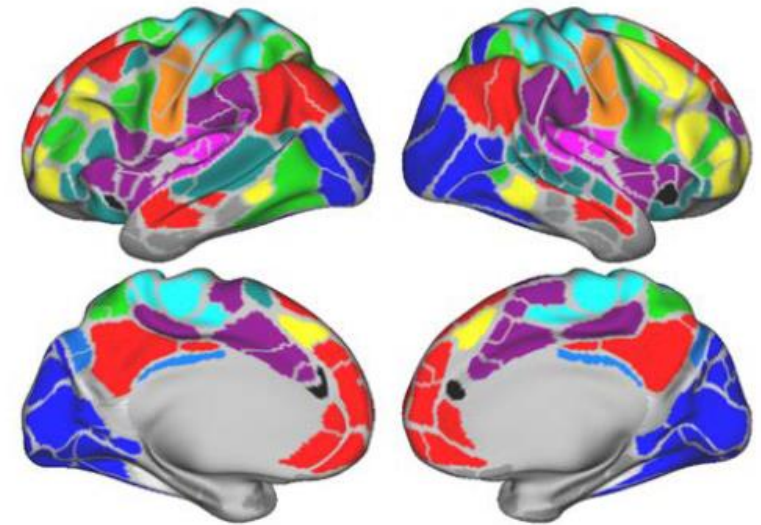
Introduction To Connectomics

Opportunity and Challenge

- rs-fMRI measurements are very fast
- Previous work showed that there's a specific set of connections that can be used to classify an individual adult
- Strong evidence for genetic/environmental influences
- Mixed evidence for heritability

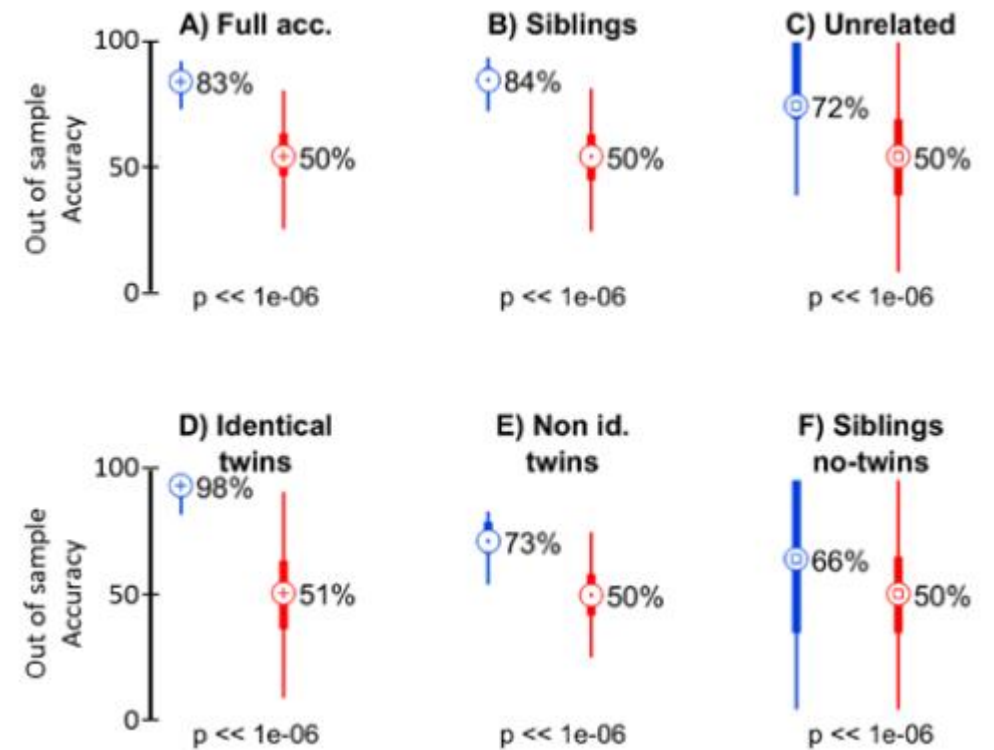
Action

- Analyzed children and adults to determine if the connectotype is heritable/familial
 - Followed children over a 1-2 year span to see if development changes
- Used SVMs and ANOVAs on connectotypes to distinguish siblings from unrelated pairs
- Included anatomical features to reflect anatomical variation
- Checked heritability using traditional statistical methods



Resolution

- Can use connectotypes to identify children over time and distinguish siblings from unrelated pairs
- Connection clusters show modest heritability
- Developed new approach to predict family status



Feedback/Future Work

- Mostly building off previous work – didn't talk explicitly about opportunity/challenge
- Could've been more concise
- Training the SVM on adults, predicting siblings in youth