ADHD fMRI Classification

Week 9

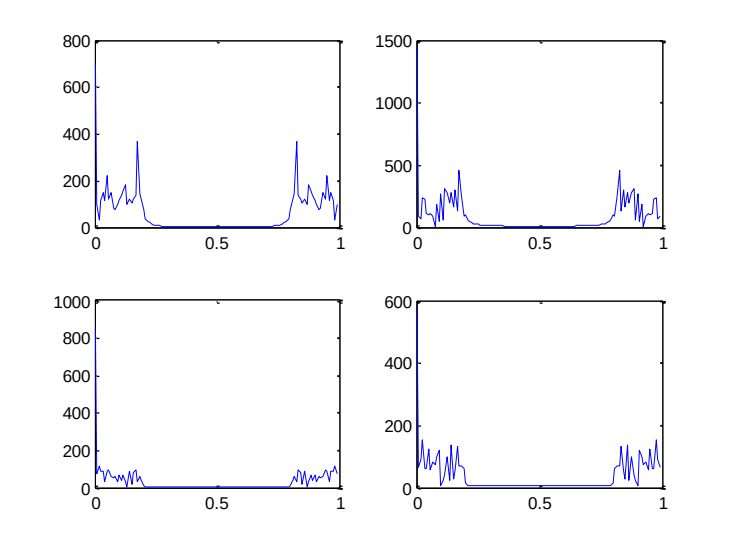
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Experiment 1

- Average time series of concordant clusters
- Performed Linear Discriminant Analysis on the average time series
  - 54%
- Added cluster size and center location
  - 56%

Experiment 2

- Frequency analysis
  - Using Discrete Frequency Transform, convert the average time series of each cluster into its frequency domain



Experiment 2

- Train classifier using the frequency vectors
- Each patient contributes multiple vectors
- ~700 negative samples, ~200 positive samples for training data
- Given test brain, tally how many of its multiple FT vectors were classified as ADHD
  - If ADHD count > normal count, classify as ADHD
- 60%

What's Next

- Study failed classifications
  - E.g. Maybe the threshold for positive diagnosis should be defined not as >0.5*numVotes, but >0.4*numVotes
- Add more features: cluster location, cluster size
- Instead of using clusters with cc value >constant (thus resulting in different # of clusters for each brain), use top n clusters
- Use the method on the common dataset