ADHD Project

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Progress

- All the methods tried so far gave poor results.
  - KCC, FC maps, concordance maps, frequency analysis, standard deviation, etc.
  - 50~60%
- Best result is produced by the BOW approach by Berkan
  - Find “key” time series via k-means
  - Make a histogram for each brain
  - SVM
- New direction: use BOW on different features

New Direction

- 1.Instead of using all voxels in the brain to cluster timeseries, only use those with a high concordance value
  - Method of measuring concordance: raw data vs. binary slope data
  - Normalize data or not?
- 2. Try with those with a low concordance value
- 3. Include/exclude spatial information
- Do any of these features complement each other?

Results

- Preliminary results with K1=30, K2=150
- TS not normalized, spatial info included, slope-based concordance

	All voxels	Concordant voxels	Discordant voxels
Accuracy(%)	60	52	57

- Still testing on other variations

Complementary?

- Can we combine different methods to produce better results?
  - In the process of collecting data
  - Results so far don't complement each other well

Classifier 1	Classifier 2	Classifier 3	Diagnosis
ADHD	Normal	ADHD	**ADHD**
ADHD	Normal	Normal	**Normal**

- With current results, combining the classifier will give 58% accuracy

Next

- Finish up experiments to see if any of the classifiers complement each other
- Is the location of the clusters important? How important is the spatial info?
- Combine BOW and FC approach: use FC networks as histogram bins.