Creating Classifiers for the Identification of Subject Covariates in Brain Graph Data

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1 Summary

We have met all goals to-date: We have working classifiers that when presented with both weighted and binary brain graph data of males and females, are able to accurately classify novel brain graphs ~68% of the time. A linear classifier generally works best; however, we have also grouped an ensemble of classifiers in MATLAB that vote on which class data belongs, and this is correct between 64 - 70% of the time. We have begun feature extraction to determine which network features are most prominent each classifier's decision. We have extracted a particular connection that the linear deemed most important, that Monica will research for further discussion, and will features for the other classifiers by Monday.

2 Updated Goals

We wound up implementing more classifiers than we actually expected; curiosity got the better of us, and once we got one to work (a linear classifier) we tested more to see which worked best (and this wound up being the linear classifier most often). We had working code on Wednesday, before our soft Thursday deadline, and are on track to complete the goals listed in our proposal. We still have to cross-validate our classifiers, which we will do this weekend, refining our program and hopefully applying it to non-binary covariates.

3 Updated Timeline

Our timeline remains unchanged; we will have refined code by the end of the weekend and a complete poster by next Friday.