① Autism

a. Preprocess Data

- Connectome: extracted using sparse inverse covariance on parcellated regions

X:	y:
Autistic Brains	Normal Brains

Connectome Math:

$\hat{K}$ = precision matrix

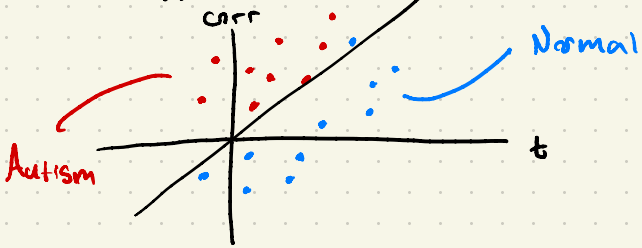
$\min_K \left(tr(SK) - \log\det(K) + \alpha \|K\|_1 \right)$

S: sample covariance

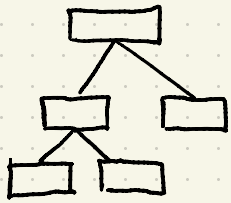
Hyperparam

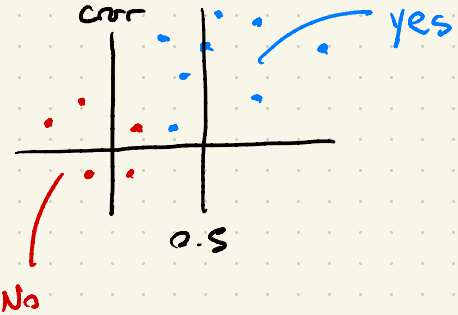
b. Model

- Support Vector Machine



- XgBoost (Gradient Boosted Decision Tree)





There Exists Math Here but it looks like:

$$\mathcal{J}(\phi) = \sum_i l(\hat{y}_i, y_i) + \sum_K \Omega(f_K) \quad \text{where}$$

$$\Omega(f) = \gamma T + \frac{1}{2}\lambda \|w\|^2$$

so too long may write later