Data Gatherer
PaF dataset

- Made the Prince and Friends dataset
  - 20 examples of each gesture
    - Zorro
    - S Shape
    - Stab
    - Slash
Using that data

- The code for the Rubin Classifier works
Using that data

- The code for the Rubin Classifier works and compiles
  - The covariance matrix is singular

\[
w_{\hat{c}j} = \sum_{i=1}^{F} (\Sigma^{-1})_{ij} \bar{f}_{\hat{c}i} \quad 1 \leq j \leq F
\]

\[
w_{\hat{c}0} = -\frac{1}{2} \sum_{i=1}^{F} w_{\hat{c}i} \bar{f}_{\hat{c}i}
\]

“Specifying Gestures by Examples” by D. Rubine
Features

- What causes the matrix to be singular?

\[
\Sigma\hat{c}_{ij} = \sum_{e=0}^{E_{\hat{c}}-1} (f \hat{c}_{ei} - \bar{f} \hat{c}_i)(f \hat{c}_{ej} - \bar{f} \hat{c}_j)
\]

- Try new features
Summary of the week

- Attempted to prove antipodal technique mathematically
- Moved all antipodal matlab code to C#
  - Learned C#
  - About ~1000 lines code written
- Wrote the classifier
Future

- Classify some gestures
- Prove the antipodal technique mathematically
Questions?

Arm courtesy of Jon Harter