

# Machine Problem 3

- Applying PCA and FDA to digital recognition
  - First, apply PCA (method B) and FDA to get a lower-dimensional feature representation
    - Choose the dimensionality of subspace for PCA
    - Set the number of transforms to 9 for FDA
  - Use KNN in MP1 to the obtained feature by PCA and FDA, report the performance
    - Repeat three protocols in MP1 to tune K
  - Repeat Naive Bayes in MP2
    - This time, you do not need to tune  $\alpha$ ; use MLE instead
  - Bonus credit: apply PCA (method A) to classify digit images.
  - Due: 11:59~~am~~, October 16

# A Good Structure of Machine Problem Reports

- Background
  - What's the objective of this machine problem? Algorithms, the problems to solve
  - How do you implement? Programming language, library used, source code referenced
- Experiment setting
  - Training and test sets
  - The protocol you have used
- Results
  - How performance (accuracy/computing time) changes with different settings/parameters?
- Most Important part: what you have learned?