

Machine Problem 2

- Applying the Naïve Gaussian Bayes classifier on MNIST.
 - Use two solutions (MLE/MAP) to estimate prior distribution $P(Y)$
 - Estimate the independent Gaussian density for each dimension of feature vector
 - Report error rates with three test protocol, you need to tune α_d for $d=0,\dots,9$
 - Test/training
 - Test/validation/training
 - 5-fold/10-fold cross-validation
 - Tune $\alpha_d = 1\%, 2\%, 4\%, 8\%, 16\%$ of training examples.
 - Compare your result with KNN, which is better? Why?
 - KNN lost correlations between different features (pixels in MNIST case)?
 - Do you observe over fitting? Do $\{\alpha_d\}$ help to reduce over fitting?

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- Due in three weeks (11:59am, before Thursday's class, Sep 18)
- Submit to cap5610ucf@gmail.com.
- Report, and source code