Group Proposal

Group 1
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The problem we chose for the final project is the classification of face images to identify age, gender, and ethnicity. We select this problem because we are interested in facial recognition. Besides, facial recognition can apply in many fields and have more realistic meanings like identifying the criminal.

The dataset age, gender, and ethnicity (face dataset) come from the Kaggle, which includes 20000+ images and is large enough to train a deep network. For this final project, we will use CNN (Convolutional Neural Network) to build our model based on the precedent of CRF10 and Fashion MNIST recognition. Also, CNN is the primary method adopted in face recognition, which can significantly improve the image recognition rate. Since we are just using the general ideal of CNN, we decided to use a standard form of the network, which is enough for us.

For choosing the framework, we are going to use Keras to implement CNN. We choose Keras because Keras is more readable and concise compared to other frameworks. Besides, it is easier to export models and does not have to transfer data between the CPU and GPU. Thus, it is more efficient and more convenient. When evaluating the performance, we will check our loss value, Cohen's Kappa score, and macro-averaged F1-score to improve the network's performance. In addition, we choose accuracy for the metric.

Rough schedule:

04/05 -- 04/11: Write the proposal and Do the data processing.
04/12 -- 04/18: Build and train the model for Age, Gender, and Ethnicity Prediction Separately.
04/19 -- 04/25: Complete the reports and Prepare the final presentation.