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Computer Vision
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Conceptual Design: Facial Features

For my semester project, I will build a model that identifies facial features from an image of a face. Some examples of facial features that may be detected include hair color, eye color, whether the subject has a mustache, and if the subject is wearing glasses.

The datasets required for this project are images of faces so that the facial features may be identified. The IMDB-WIKI dataset features more than 500,000 images of people, including a dataset of images cropped to display just the subject's face. This dataset will be very useful because of the cropping, and additionally because there is enough content to split into training, validation, and final test subsets. I do not believe that the dataset provides metadata for each subject other than age and gender, so I will have to provide that metadata myself for enough images as necessary.

To detect hair color, I will need to identify the subject's head and look above the edge. For detecting eye color, I will need to locate the subject's eyes and their iris. For detecting a mustache, I will need to identify the subject's mouth and nose and examine the space in between. To detect glasses, I will need to identify the subject's eyes and nose, then look for the outline of glasses, potentially by examining the image in binary and classifying edges.

Link to IMDB-WIKI dataset: <https://data.vision.ee.ethz.ch/cvl/rrothe/imdb-wiki/>