**Gender Classification**

**PROGRESS REPORT**

**Artificial Intelligence**

**CS-E**

**1. 17L-4010 (E)**

**2. 17L-4154 (E)**

**3. 17L-4238 (E)**

**4. 17L-6326 (E)**

**Method:**

The Convolutional Neural Network is to be used for gender classification based on facial. It offers a reduced complexity in design. With the help of a subsampling layer, the processing layers reduce to as low as four.

Other than this, we have decided to use decision trees as well which divides the area into subparts once it identifies the lines. Division is done until a pure and efficient output isn’t generated or our requirement criteria are not met. To not forget, the concept of impurity, entropy, and information gain is to be used. Information gain basically is the best option available to be selected, chosen at every step. Information gain 0 represents that no division of the in order working set is to be done. Also, the information gain at any step is the difference in the weighted average times’ entropy of children of feature and the entropy of the current state.

We will then compare the results obtained from both the methods and analyze them according to their accuracy, time consumption by each model.

Initially, we assume that CNN will give much better accuracy on our chosen dataset as compared to the decision tree classifier. Nevertheless, our final prediction will be based on a deep analysis of both classifier results using different graphical tools such as charts and tables.

Thus, an in-depth comparison will help us draw a final conclusion and will allow us to approve or disapprove our initial prediction.

**Dataset:**

The dataset we are going to use for this project is “Gender Classification Dataset (Male Female Image Dataset)”. This dataset contains 46,000 images( 23,000 for each class) for training the model and 11,000 5500 images of each class(men and women) for testing the model. The dataset is taken from the following link:

“[Gender Classification Dataset](https://www.kaggle.com/cashutosh/gender-classification-dataset)”

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**Available Code and Work:**

There are various notebooks and codes available on the internet for the gender classification using CNN or Decision tree learning. For face detection, we will use the DNN face Detector. These notebooks include **Gender Classification - Decision Tree, Gender Classification Via Python Using Scikit.**

## **Notebook/Code References**

1. <https://www.kaggle.com/cashutosh/gender-classification-dataset>
2. <https://towardsdatascience.com/how-to-build-a-gender-classifier-in-python-using-scikit-learn-13c7bb502f2e>
3. <https://www.kaggle.com/casper06/gender-classification-decision-tree>