Overview

Comparative Graph Model is a facial recognition algorithm that takes images of a person and uses them to train a classifier. It is based on the idea of constructing a graph from the training data for each face. The algorithm looks at the collection of features within each image, along with the roles of the individual features, and uses this information to train a classifier. Features are the input of the graph and the classifier is the output of the graph. The goal is to train a classifier that is able to accurately recognize a person from their face.

The main advantages of this algorithm are:

- Robustness: The algorithm is able to recognize faces even if they are partially occluded or if there are variations in lighting or pose.
- Efficiency: The algorithm is able to recognize faces quickly and efficiently.
- Accuracy: The algorithm is able to recognize faces accurately.

Future Work

Future work for the Comparative Graph Model includes improvements in the following areas:

- Training Set: Future work will focus on improving the quality of the training set.
- Feature Map: Future work will focus on improving the feature map.
- Algorithm: Future work will focus on improving the algorithm.

Experimental Results

Comparative Graph Model needs a tolerable distance threshold and an amount of images to match within this threshold. For the algorithm to have an optimum configuration for accuracy, there are some requirements that need to be met. For facial recognition, we have tested the tolerable distance threshold and the amount of images within a certain distance. This has given us an overview of what the optimal values for each parameter could be. Each tolerable distance threshold and the number of images within a certain distance was tested at 0%, 25%, and 50%. This resulted in a different optimal point for each parameter. The optimal point was found to be 25% for the tolerable distance threshold and 50% for the number of images within a certain distance.

As seen in the diagram, the Z parameter directly affects how the optimal value is found. As the Z parameter becomes more restrictive, the optimal point is shifted. This behavior allows for a larger range of values that can be used for facial recognition.

The algorithm can be used to improve facial recognition systems by increasing their accuracy and efficiency. The algorithm can also be used to improve other systems, such as facial recognition systems for security purposes, by increasing their accuracy and efficiency.