**Durham College**

**Artificial Intelligence Analysis, Design and Implementation**

**Capstone Term II - AIDI 2005 – 01**

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**Facial Attendance Management System**

**Group-12 Members: -**

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**Quality Assurance**

**Model evaluation Report: -**

* Training data is carefully selected with different views from 70\_ to 70 degree. This work can improve accuracy in practical systems because it is difficult for users to keep their faces
* in a correct position.
* Therefore, by choosing faces with view variations, the model learns to generalize from training data. The training set includes 5 identities (people), in which, each identity consists of 10 images with various poses.
* This results in the training set of 15 images totally. The training accuracy and validating accuracy of SVM classifier is 100% and 99.22% respectively.
* We try to implement multi-class SVM by using API of sklearn library, the training accuracy of 100% and the validating accuracy of 99.36% are slightly the same in comparison with the above SVM model.
* After training classifier, we train to get the best threshold to determine “unknown” student face.
* We divide threshold in range of 0 to 1 and then select a maximum value which makes model achieves the best accuracy. Particularly, the model ignores people who have the scores being lower than a threshold, and we combine the training subset and the validating subset for training threshold.
* Our dataset of students is collected once a semester, so training threshold with only training subset cause overfitting and difficult recognizing for reality system. As a result, threshold for students’ images is 0.18825. Testing accuracy with threshold achieves 96.48% on the testing set.
* In practical environment, we test on 5 identities, there are 4 easily recognized identities and 1 identity who are not recognized continuously. The effect of different illumination leads the probabilities of the testing anchor are lower than a threshold, so training data have to cover many real-life cases to create the best classifier.