TITLE: Detection of Mulitple face Images in Group Photos

Deep Learning Model Used: res10_300x300_ssd_iter_140000.caffemodel
Face detector based on SSD framework (Single Shot MultiBox Detector), using a reduced ResNet-10 model.

Reference: A. Gallagher, T. Chen, �Understanding Groups of Images of People,� IEEE Conference on *Computer Vision and Pattern Recognition,* 2009.

Database used: Fam2a (A subset)

No.of Photos used for Testing model: 754

The results are given in the table

TOTAL NO. OF PHOTOS	TOTAL IMAGES IN ALL PHOTOS	FACES CORRECTLY DETECTED (TP)	FACES NOT DETECTED (FN)	FALSE DETECTION (FP)	NOT FACES NOT DETECTED (TN)
754	1967	1931	36	175	0

CONFUSION MATRIX

		ACTUAL	
		FACES	**NOT FACES**
PREDICTED	**FACES**	1931 (TP)	175 (FP)
	NOT FACES	36 (FN)	0 (TN)

Performance Metrics

Accuracy %	90.15
Precision %	91.69
Recall or Sensitivty %	98.17
Specificity %	0
F1 Score	94.82

DETECTION OF MULTIPLE IMAGES USING RES10 DNN CAFFE MODEL

BASED ON ANALYSIS OF RESULTS THE FOLLOWING POINTS ARE IDENTIFIED:

- Images are under well controlled illumination conditions. (Mostly outdoor environments)
- Brown and white Dogs faces are detected.
- Shirts patterns are detected.
- The photo images are also detected.
- Black dogs are not detected
- Babies of more than 3 months age are detected.
- Babies with eyes closed are not detected
- Babies in sleeping position are not detected