ECEN 649 Project Report

Implementing Viola-Jones Algorithm

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1. Extract Haar Features

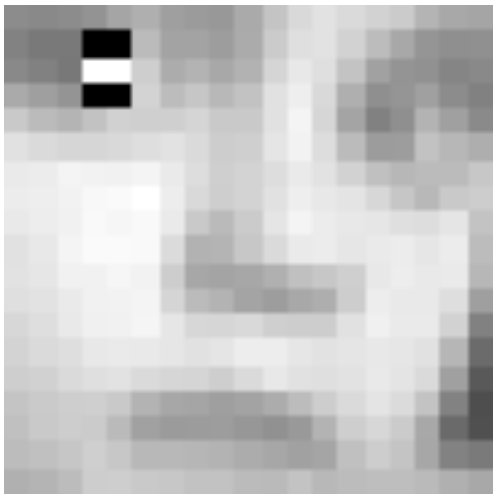
   The total number of Haar Features is: 26168.
   There are 7440 type 1 (two vertical) features.
   There are 7440 type 2 (two horizontal) features.
   There are 3844 type 3 (three horizontal) features.
   There are 3844 type 4 (three vertical) features.
   There are 3600 type 5 (four) features.

2. Build Your Adaboost Detector

   It is strange that total accuracy remains 0 for all rounds, I'm working on debugging.

   Adaboost rounds: 1
   Feature number 0:
   Type: (1, 3)
   Position: (3, 1)
   Width: 2
   Height: 3
   Threshold: 0.000000
   Training accuracy: 0.009204

   Total accuracy: 0.000000 (0/2473)
   False Positive: 0.000000 (0/2001)
   False Negative: 0.002119 (1/472)

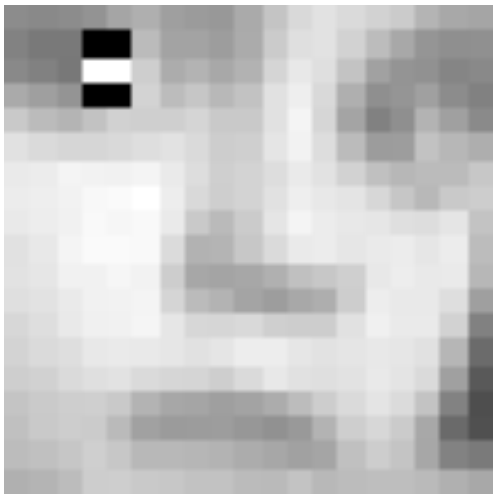


Adaboost rounds: 3
Feature number 0:
Type: (1, 3)
Position: (3, 1)
Width: 2
Height: 3
Threshold: 0.000000
Training accuracy: 0.009204

Feature number 1:
Type: (1, 3)
Position: (4, 2)
Width: 1
Height: 3
Threshold: 0.000000
Training accuracy: 0.007603

Feature number 2:
Type: (1, 3)
Position: (4, 0)
Width: 1
Height: 3
Threshold: 0.000000
Training accuracy: 0.006403

Total accuracy: 0.000000 (0/2473)
False Positive: 0.000000 (0/2001)
False Negative: 0.002119 (1/472)



Adaboost rounds: 5
Feature number 0:
Type: (1, 3)
Position: (3, 1)
Width: 2
Height: 3
Threshold: 0.000000
Training accuracy: 0.009204

Feature number 1:
Type: (1, 3)
Position: (4, 2)
Width: 1
Height: 3
Threshold: 0.000000
Training accuracy: 0.007603

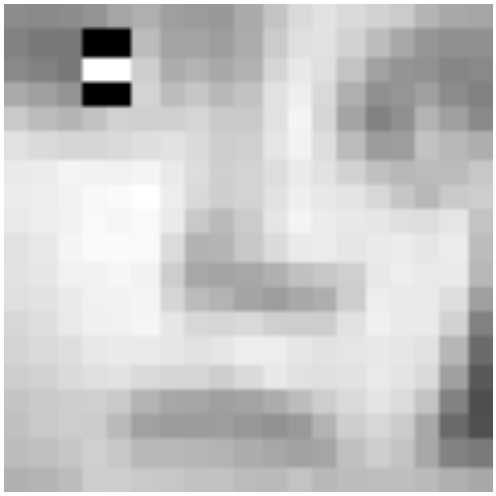
Feature number 2:
Type: (1, 3)
Position: (4, 0)
Width: 1
Height: 3
Threshold: 0.000000
Training accuracy: 0.006403

Feature number 3:
Type: (1, 3)
Position: (14, 1)

Width: 2
Height: 3
Threshold: 0.000000
Training accuracy: 0.006002

Feature number 4:
Type: (1, 3)
Position: (14, 3)
Width: 1
Height: 3
Threshold: 0.000000
Training accuracy: 0.002001

Total accuracy: 0.000000 (0/2473)
False Positive: 0.000000 (0/2001)
False Negative: 0.002119 (1/472)



Adaboost rounds: 10
Feature number 0:
Type: (1, 3)
Position: (3, 1)
Width: 2
Height: 3
Threshold: 0.000000
Training accuracy: 0.009204

Feature number 1:
Type: (1, 3)
Position: (4, 2)

Width: 1
Height: 3
Threshold: 0.000000
Training accuracy: 0.007603

Feature number 2:
Type: (1, 3)
Position: (4, 0)
Width: 1
Height: 3
Threshold: 0.000000
Training accuracy: 0.006403

Feature number 3:
Type: (1, 3)
Position: (14, 1)
Width: 2
Height: 3
Threshold: 0.000000
Training accuracy: 0.006002

Feature number 4:
Type: (1, 3)
Position: (14, 3)
Width: 1
Height: 3
Threshold: 0.000000
Training accuracy: 0.002001

Feature number 5:
Type: (1, 3)
Position: (3, 2)
Width: 2
Height: 3
Threshold: 0.000000
Training accuracy: 0.005602

Feature number 6:
Type: (1, 3)
Position: (3, 3)
Width: 1

Height: 3
Threshold: 0.000000
Training accuracy: 0.001200

Feature number 7:
Type: (3, 1)
Position: (0, 16)
Width: 3
Height: 3
Threshold: 0.000000
Training accuracy: 0.000800

Feature number 8:
Type: (1, 3)
Position: (14, 1)
Width: 1
Height: 3
Threshold: 0.000000
Training accuracy: 0.004802

Feature number 9:
Type: (1, 3)
Position: (3, 0)
Width: 1
Height: 3
Threshold: 0.000000
Training accuracy: 0.002401

Total accuracy: 0.000000 (0/2473)
False Positive: 0.000000 (0/2001)
False Negative: 0.002119 (1/472)

3. Adjust the threshold