Age Detection with CNN and Feature Extraction

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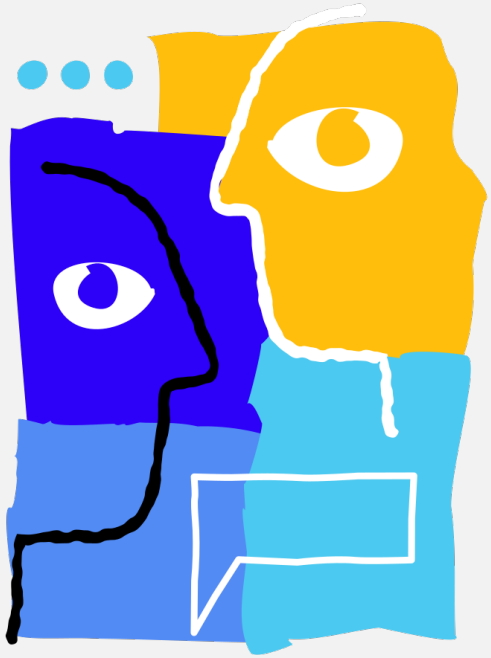
212 – ICS 483: Computer Vision



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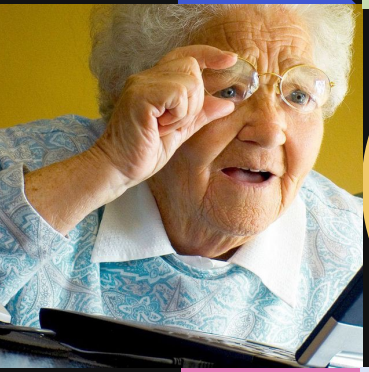
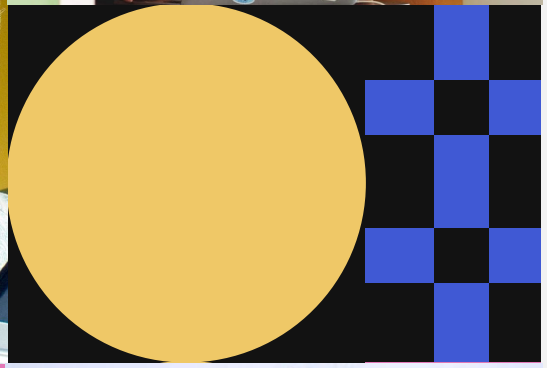




INTRO-DUCTION

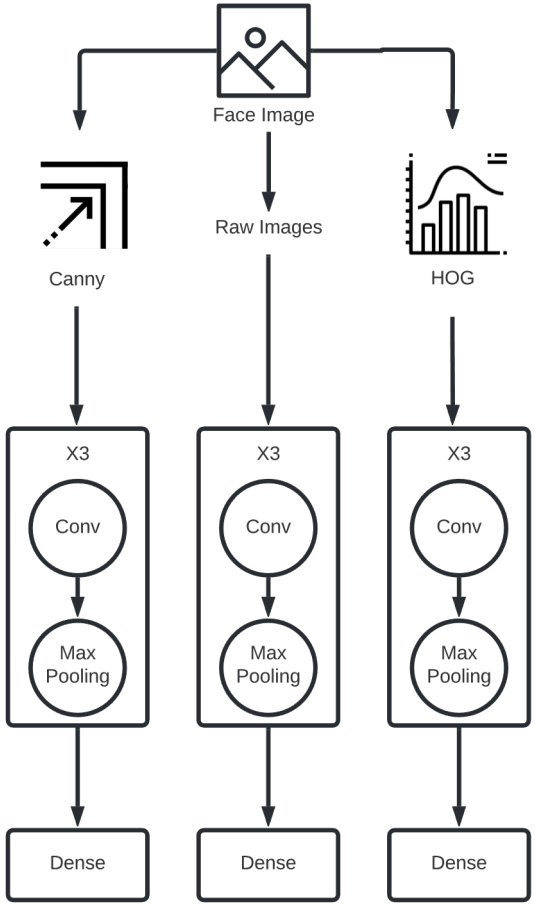
- Why age detection?
- Elderly and children
- Better presentation
- Age specific ADS
- Health monitoring

SELECTED SOLUTION

Convolutional Neural Network (CNN)

- With feature extraction
  - HOG descriptor
  - Canny edge detector
- Without feature extraction

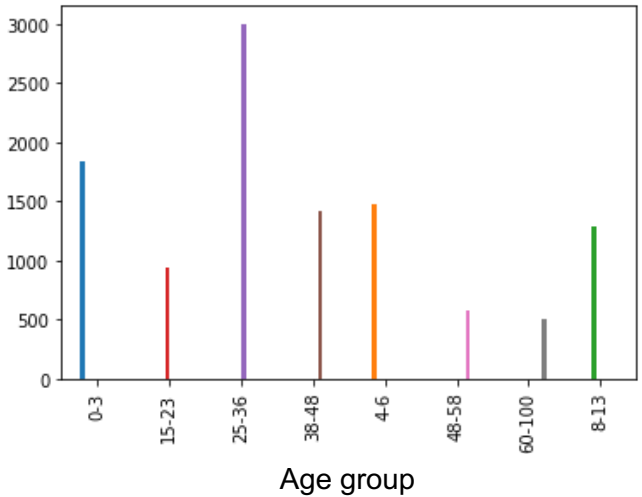
SOLUTION PIPELINE



THE DATASET

Adience Unfiltered Faces for Gender and Age Classification Dataset

- 11030 images
- 8 Age groups (0-2, 4-6, 8-13, 15-20, 25-32, 38-43, 48-53, 60-)



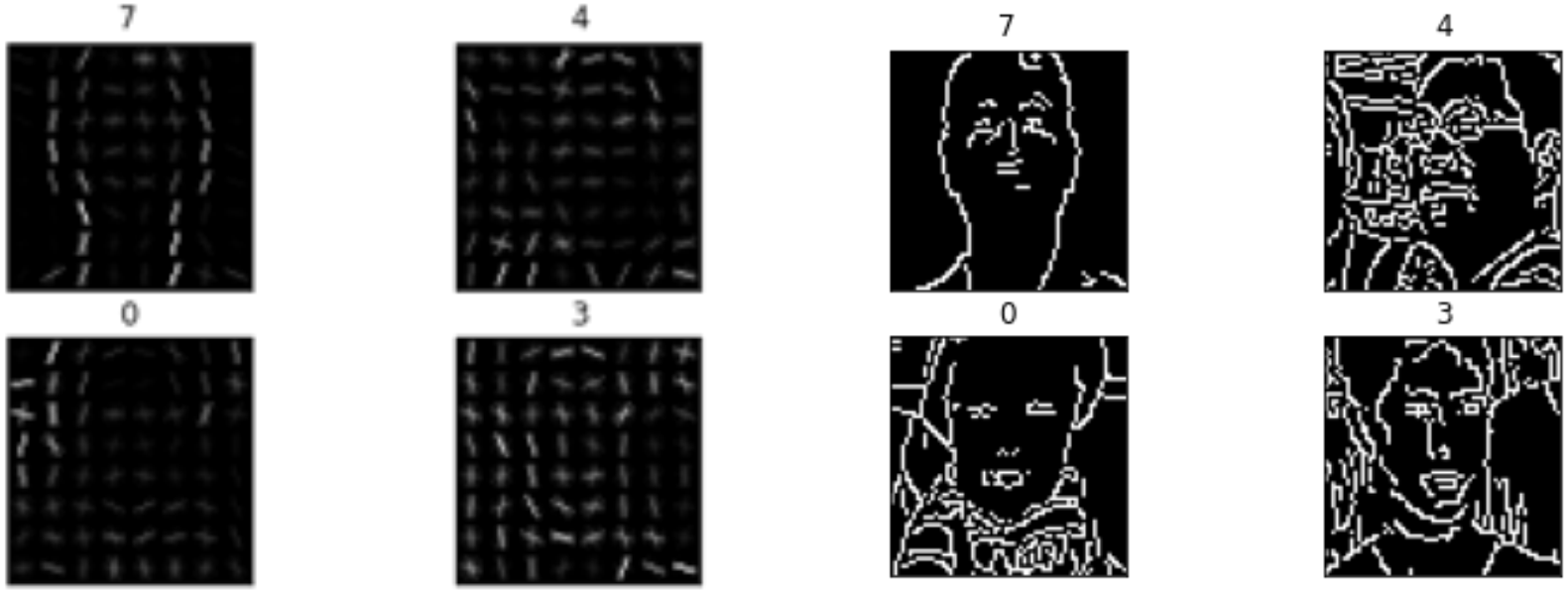
STEP 1: PREPROCESSING

Raw Images

Gray Images

Blur Images

STEP 2: FEATURE EXTRACTION



HOG

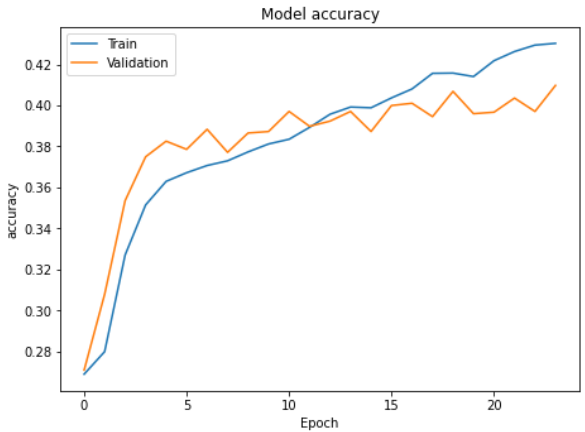
Canny

STEP 3: MODELING

- 3 Different inputs
  - raw images
  - images w/HOG descriptor
  - images w/ Canny edge detector
- CNN
- Layers: x3 (Conv / Pooling) + Dense
- Maximize accuracy

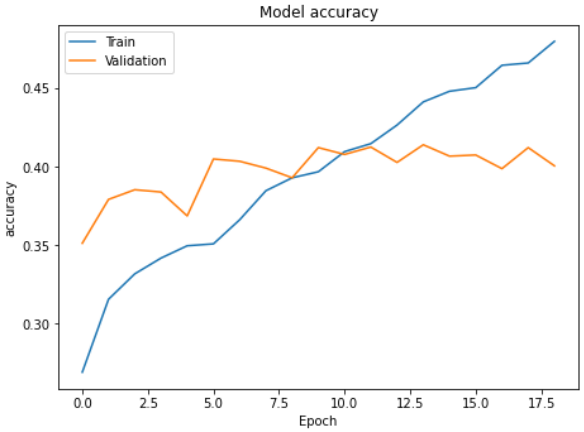
STEP 4: TESTING AND RESULTS

HOG



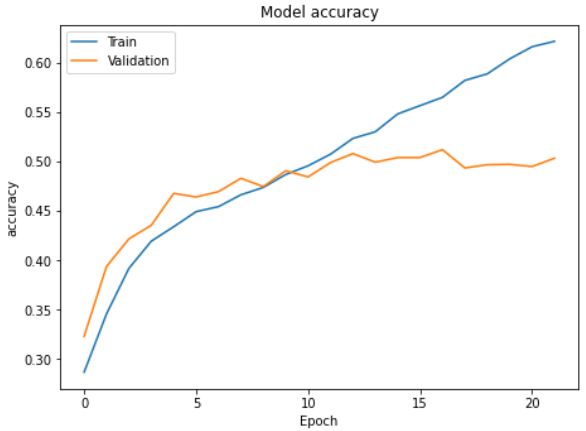
Val accuracy
41%

Canny



Val accuracy
40%

Raw images



Val accuracy
50%

SAMPLE OUTPUT

HOG

5 - 6
0 - 3

5 - 6
0 - 3

Canny

5 - 6
0 - 3

5 - 6
0 - 3

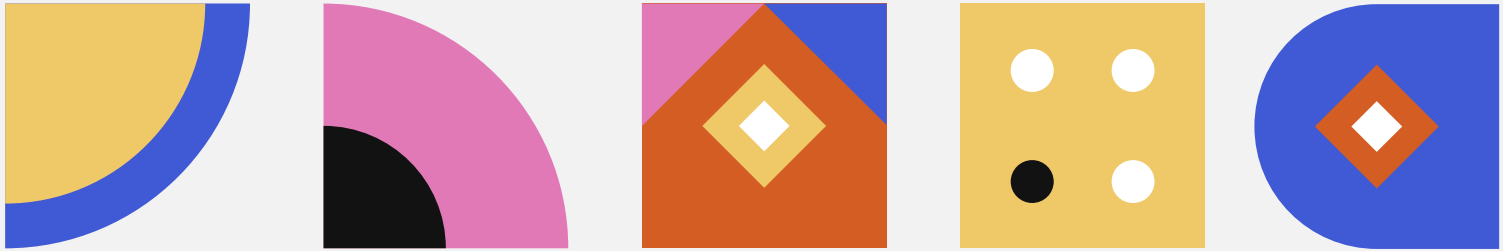
Raw images

5 - 6
0 - 3

5 - 6
0 - 3

LIVE DEMO

THANK YOU



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