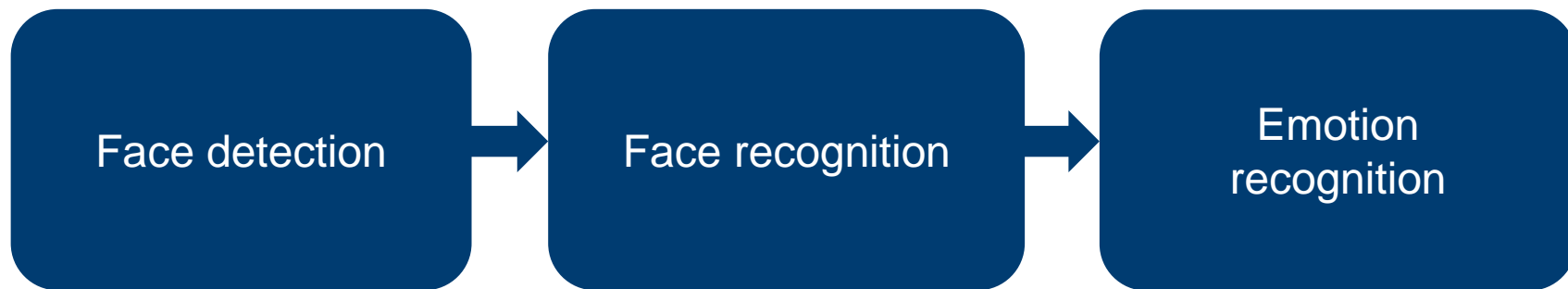




Magic story about neural networks

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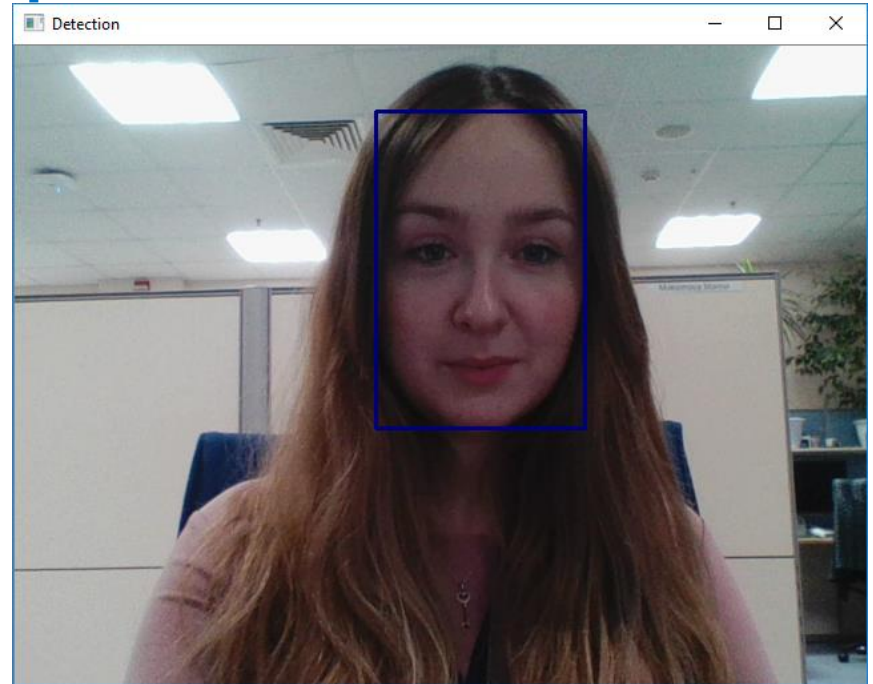
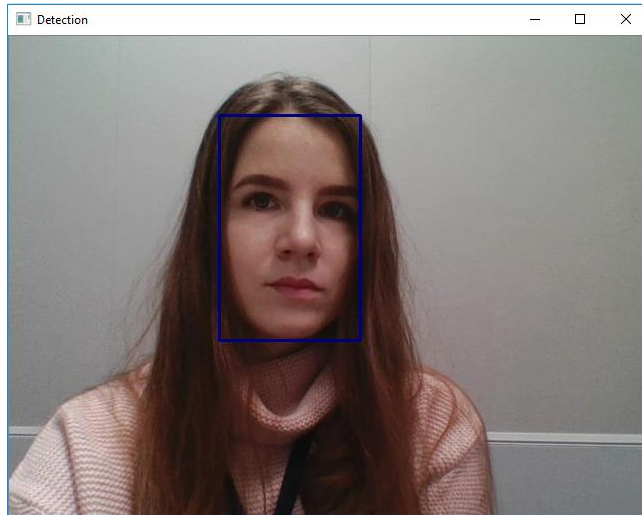
Project pipeline



Face detection

Input : BGR image, values in range [0, 255]

Output: Blob of bounding boxes



Face recognition

Input: 96x96 RGB image normalized to [0, 1]

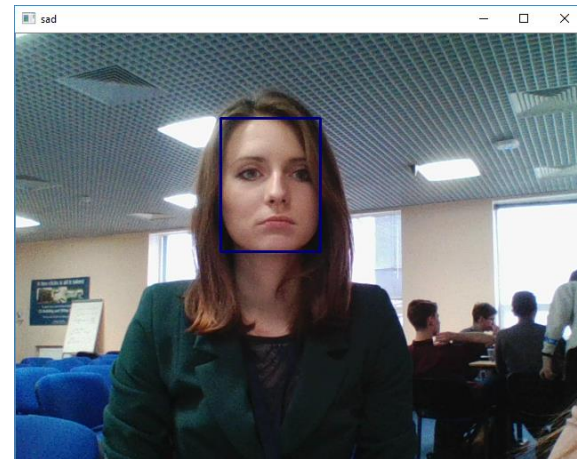
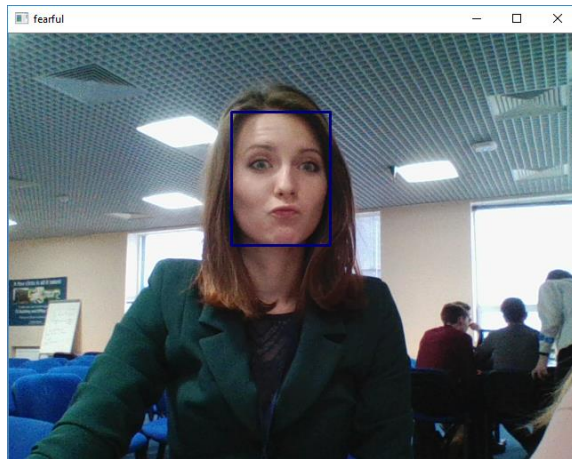
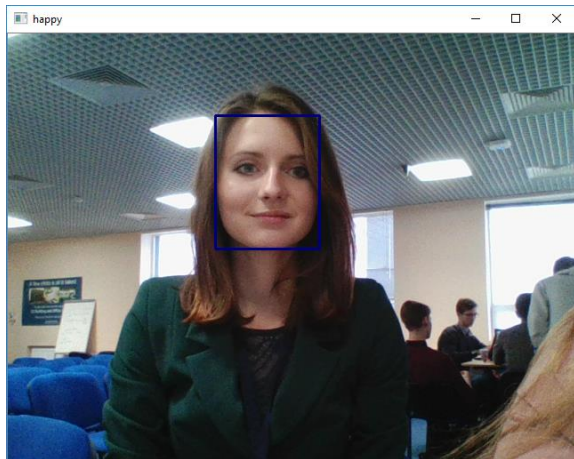
Output: 1x128 embedding vector

```
[[ -5.63729219e-02  1.42502919e-01 -7.89790824e-02  7.03698248e-02
   6.68256427e-04  6.34580925e-02 -3.91386449e-02 -4.85124849e-02
   6.46766275e-02  3.42250243e-02  7.27968216e-02  2.64977235e-02
   5.91810197e-02  3.70476171e-02 -3.55776548e-02  4.36361134e-02
   9.89112332e-02  3.32580991e-02 -8.14608261e-02  1.34112716e-01
  -6.55957032e-04 -1.51194334e-01  6.93916902e-02  2.27117896e-01
  -3.30143794e-02 -1.17155343e-01 -5.37361503e-02 -2.40041148e-02
   3.46805155e-02  1.28136156e-02  9.91037935e-02  6.62454665e-02
   5.81426546e-02  4.41670641e-02 -1.21231638e-01  1.78970024e-01
   2.51388717e-02  9.50230360e-02 -1.81111410e-01  6.22274354e-02
  -7.26697175e-03  1.79090202e-02  1.98943587e-03 -6.03924058e-02
  -1.98903345e-02 -5.48902489e-02  1.44201681e-01  2.09246241e-02
  -2.35322379e-02  1.11176141e-01  1.80722354e-03 -5.03256405e-03
  -8.67031664e-02 -2.64351480e-02  1.07218042e-01  1.14403985e-01
  -5.71484342e-02  7.59113654e-02  8.32524672e-02 -4.80253920e-02
  -1.84766993e-01  3.74648273e-02  7.36098439e-02 -2.71179527e-01
   6.73722848e-02  2.83329398e-03  3.95436324e-02 -5.14248721e-02
  -1.87290728e-01  1.32525951e-01 -5.37019875e-03  6.78703636e-02
  -5.08714244e-02  1.19253404e-01  1.24926515e-01  7.74501031e-03
```

Emotion recognition

Input 48x48 grayscale face image, values in range [0. 1]

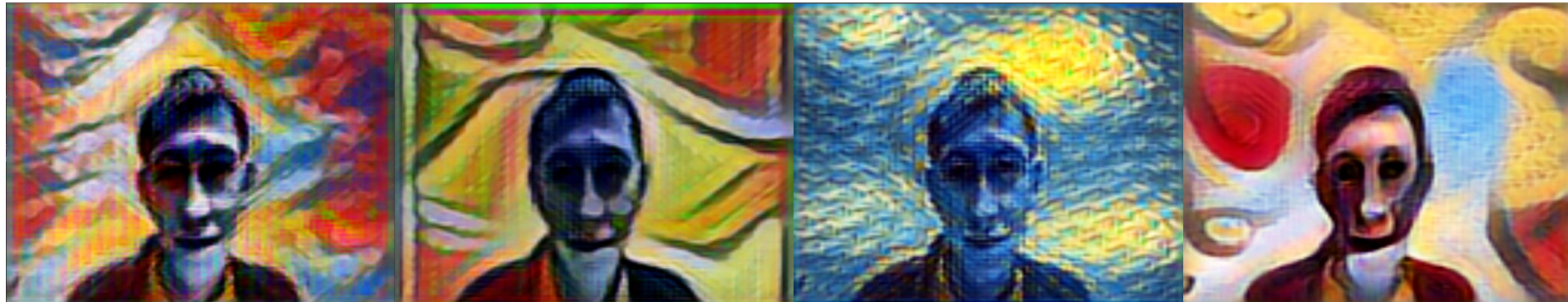
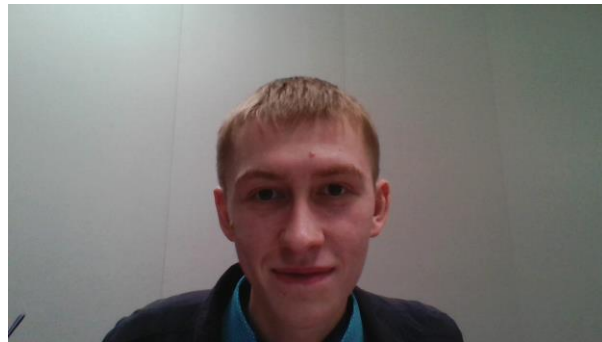
Output: 1x7 vector of emotions “confidences”: angry, disgusted, fearful, happy, sad, surprised, neutral



Style transfer

Input: BGR image, values in range [0, 255]

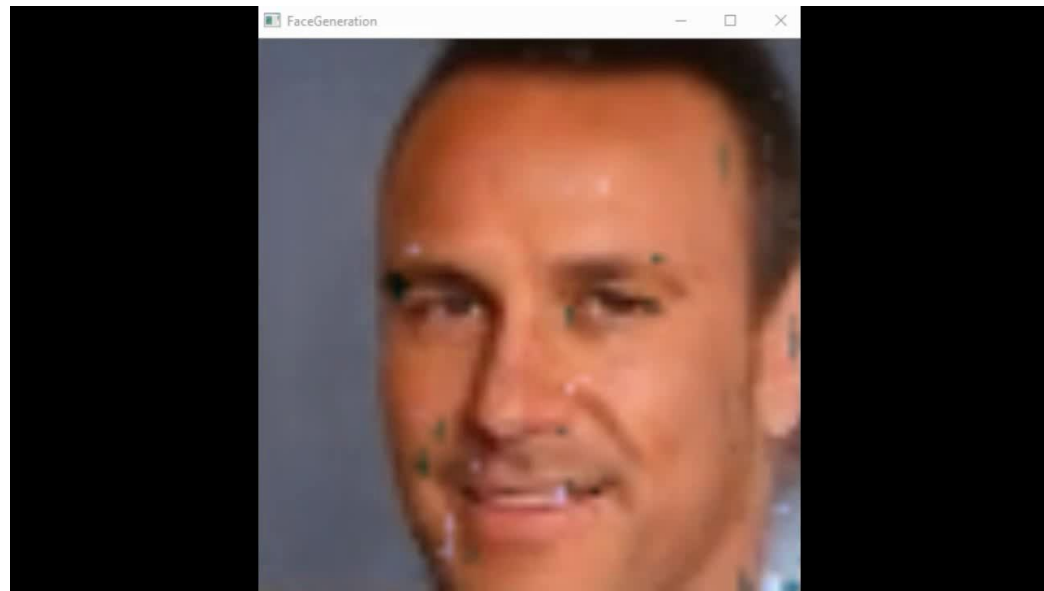
Output: Stylized planar BGR image



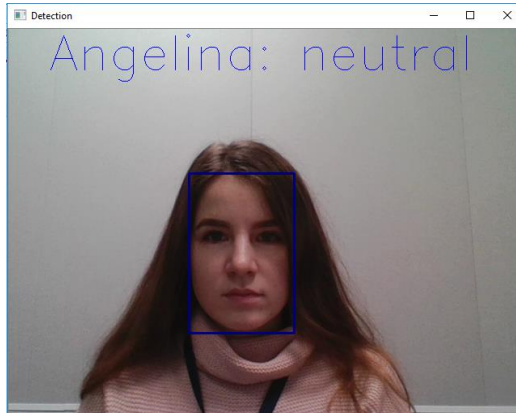
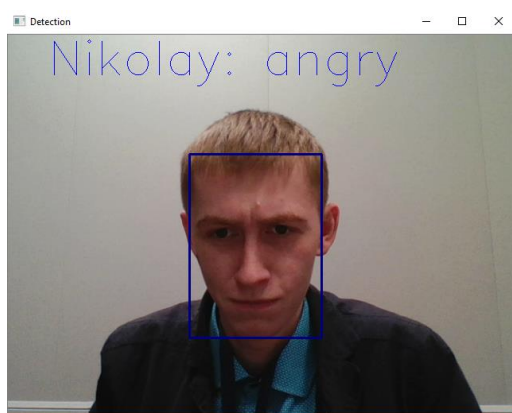
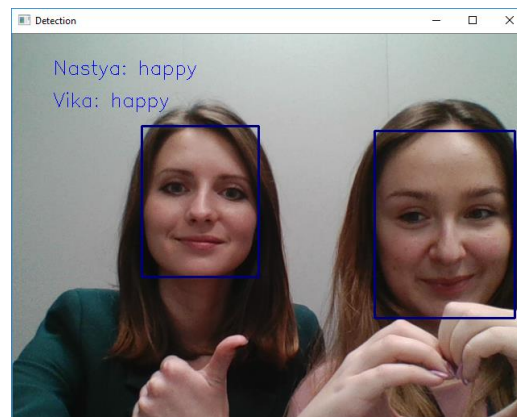
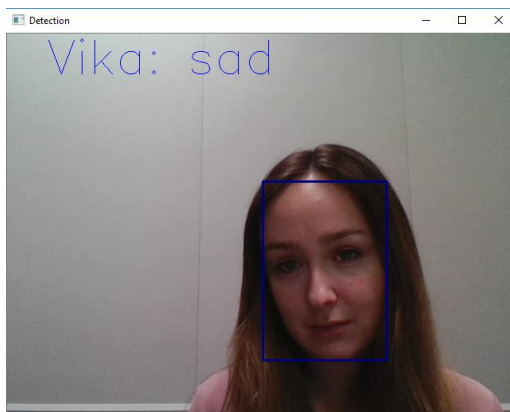
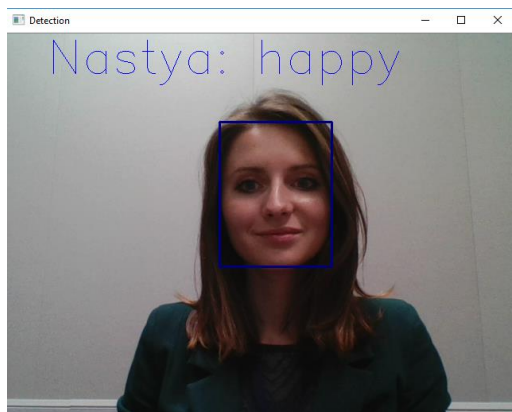
Face generation

Input: 1x64 uniform $[-1, 1]$ noise

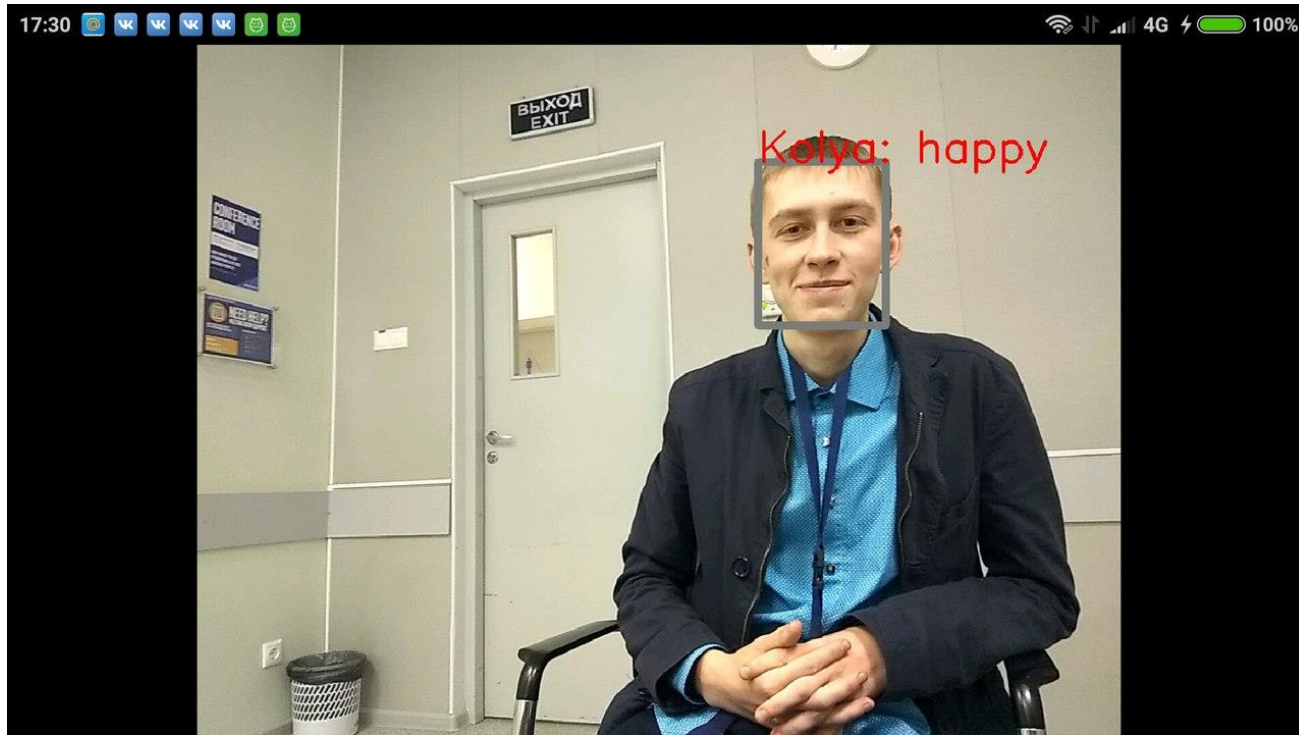
Output: Planar RGB image, values in range $[-1, 1]$



Face detection + Face recognition + Emotion recognition



Android implementation (Face detection + Face recognition + Emotion recognition)



Thank you for attention!