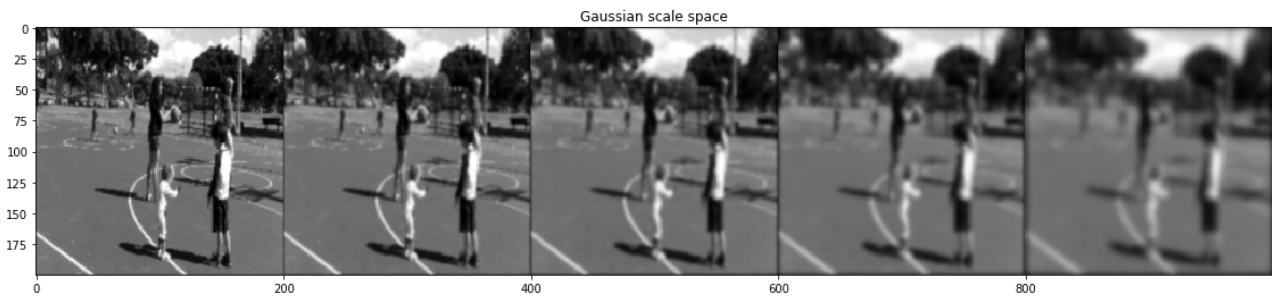# 3D – CV Assignment 2 | Submitted by S. Vinu Sankar, 16110143
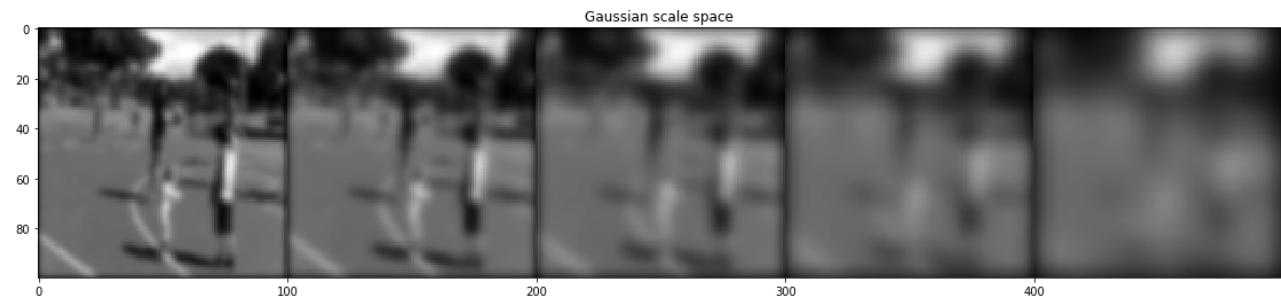
a) Scale spaces

Gaussian: scales in increasing oreder of Sigma

Octave 1

Octave 2

Octave 3

Octave 4

DoG Scale Space:
Octave 1

Octave 2

Octave 3

Octave 4

b) Keypoint detection, taking 26 neighbors (2 images per octave)
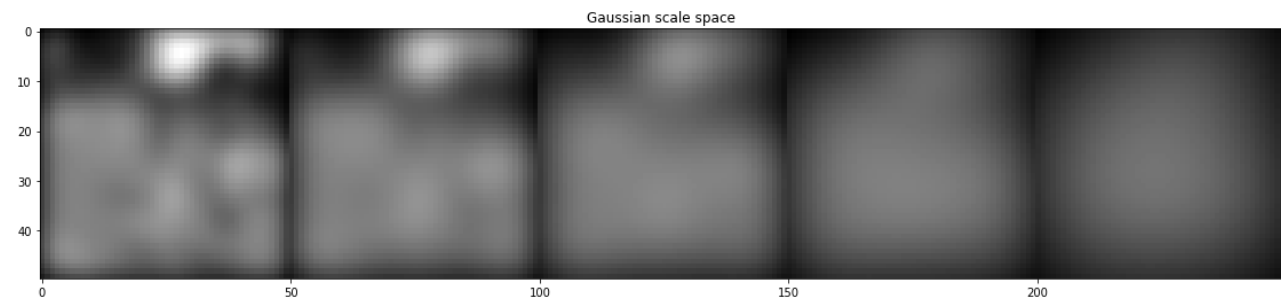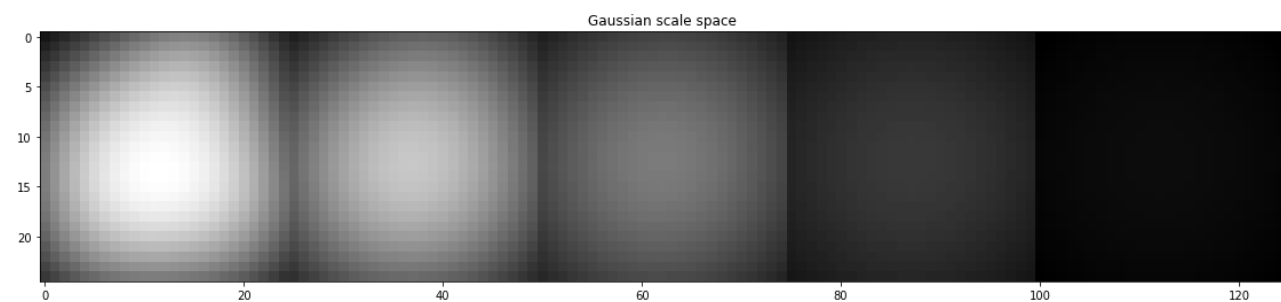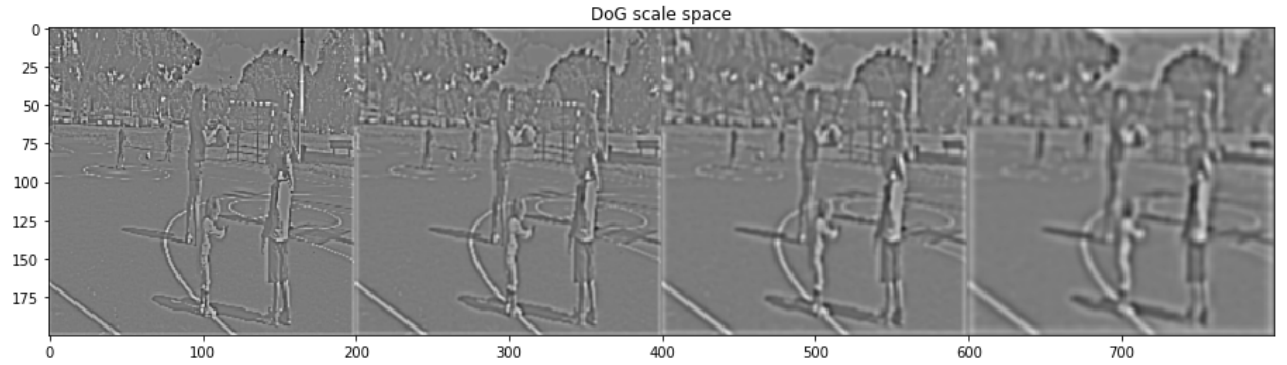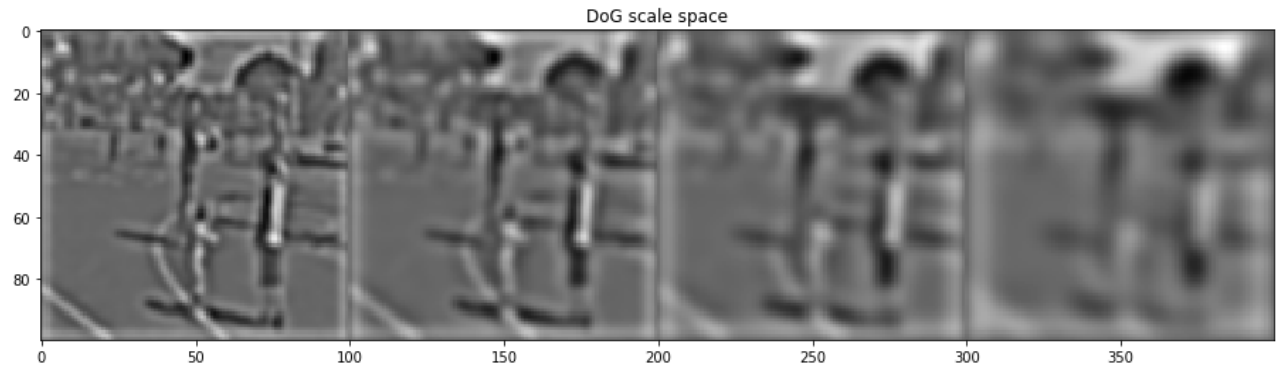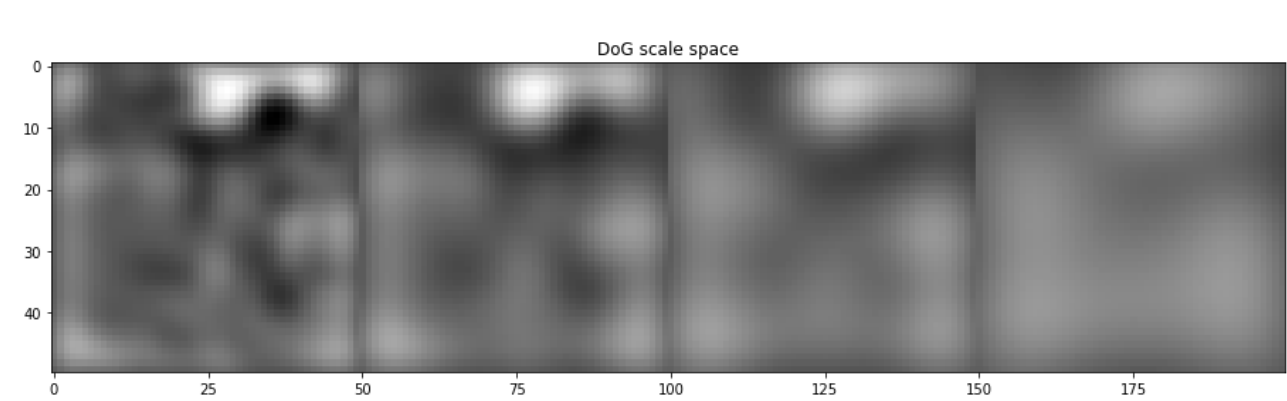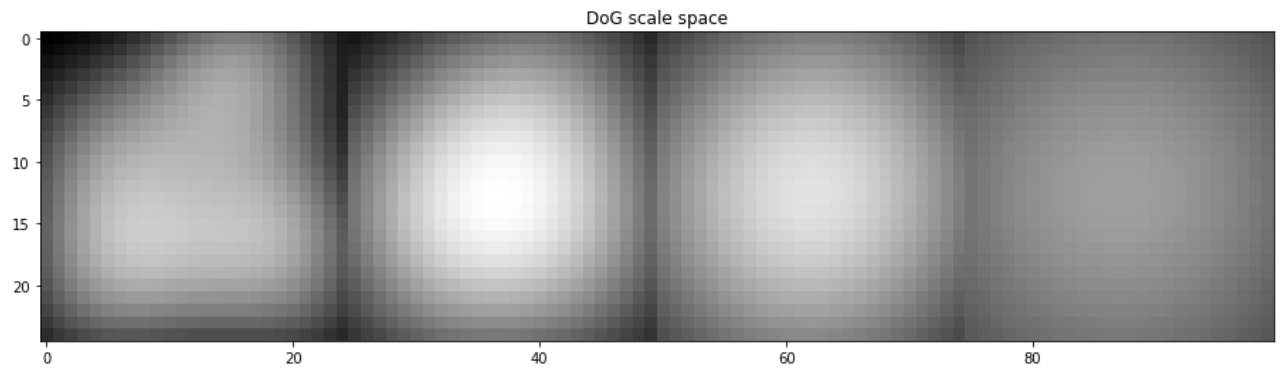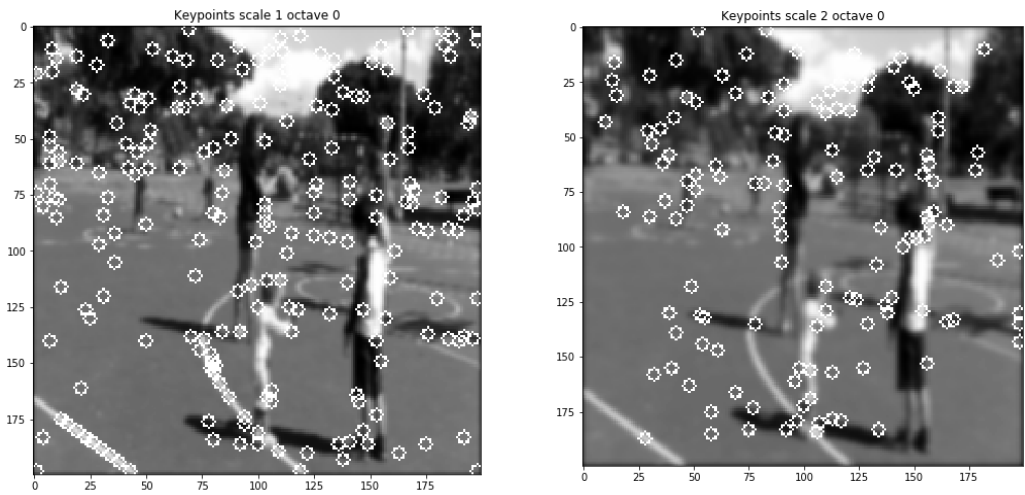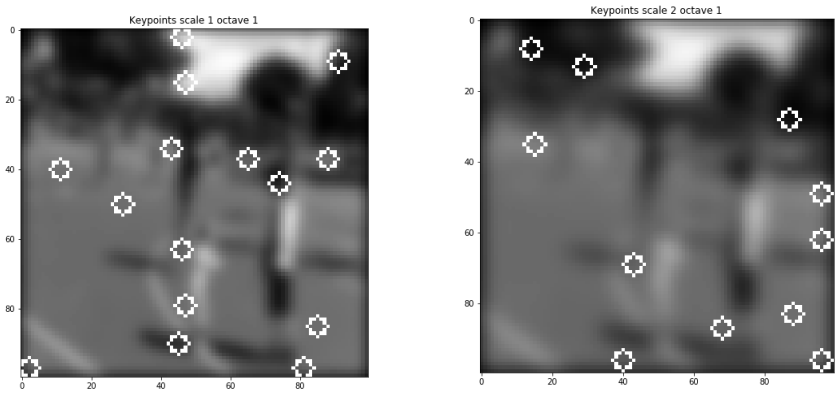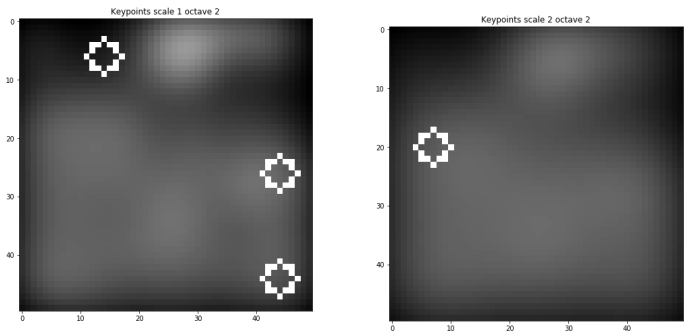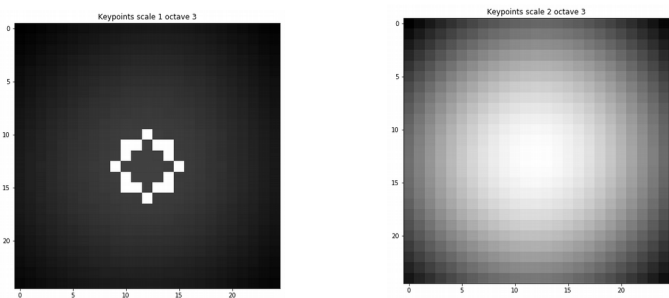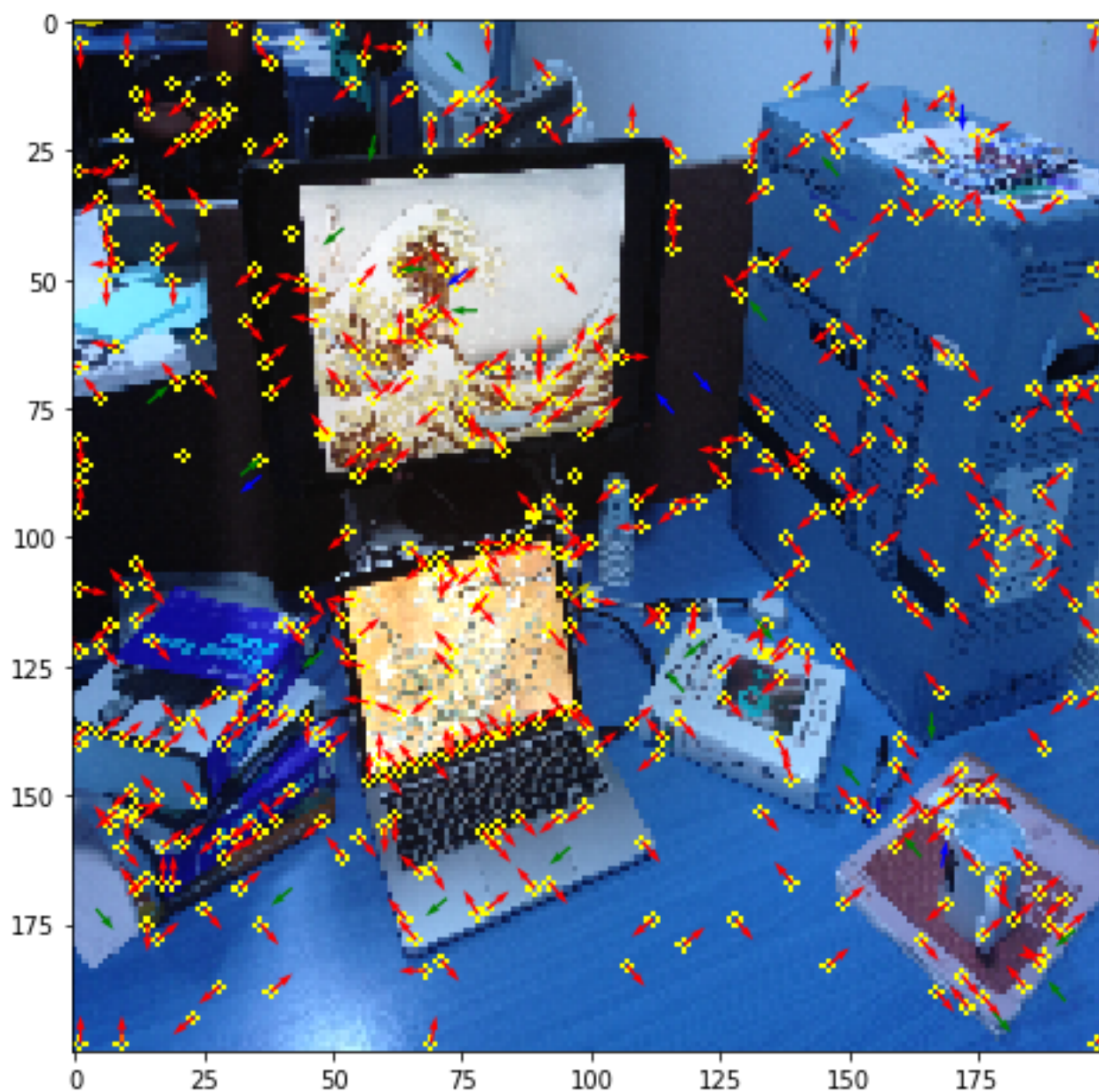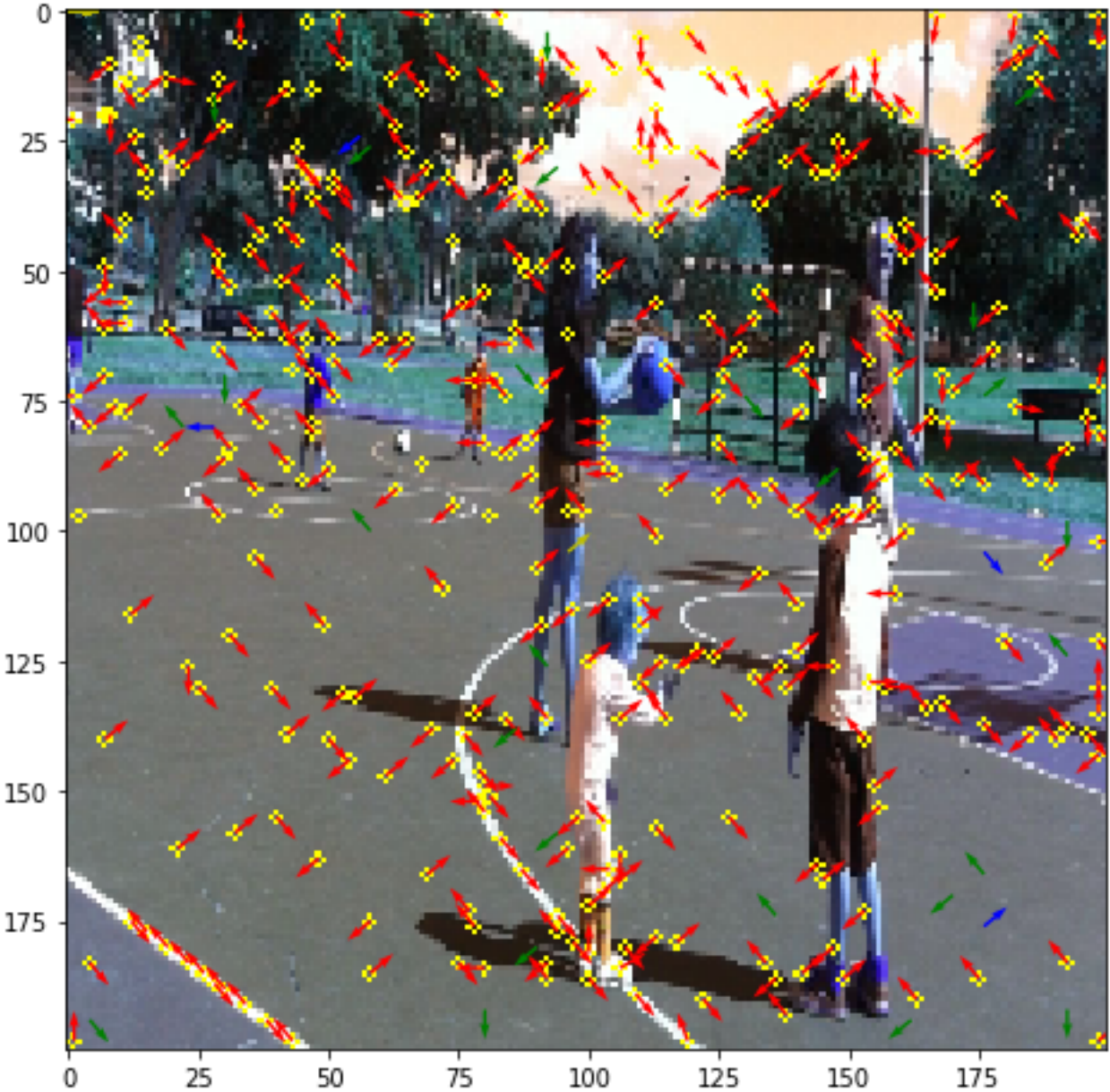Octave 1

Octave 2

Octave 3

Octave 4

c)Orientation assignment

For image 3_1.jpg resized to 200x200

For image IMG0_001.jpg resized to 200x200

d)Descriptor is printed when the program is run, or see ReadMe.txt

One sample descriptor for a single keypoint

[0.00000000e+00 2.04748913e-02 1.71979584e-04 0.00000000e+00
 0.00000000e+00 1.96016426e-02 3.39889258e-04 0.00000000e+00
 0.00000000e+00 1.73191747e-03 1.05814166e-03 1.47321662e-03
 2.64534471e-03 7.81657420e-02 0.00000000e+00 0.00000000e+00
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00
 4.65049632e-02 8.01265848e-02 0.00000000e+00 0.00000000e+00
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00
 1.91177412e-02 4.63435850e-02 0.00000000e+00 0.00000000e+00
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00
 0.00000000e+00 1.65596760e-01 0.00000000e+00 0.00000000e+00
 1.11522668e-01 0.00000000e+00 7.70032578e-02 0.00000000e+00
 8.91053270e-02 2.00000000e-01 0.00000000e+00 8.38484737e-02
 0.00000000e+00 0.00000000e+00 1.53844851e-01 1.10834629e-01
 8.34508048e-02 2.00000000e-01 2.00000000e-01 7.38550408e-02
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00
 0.00000000e+00 2.15631892e-02 2.36722357e-02 7.88484320e-03
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00
 0.00000000e+00 9.54192147e-02 1.94032084e-02 2.04078107e-03
 7.96236457e-02 7.12633632e-02 2.00000000e-01 1.00248620e-01
 1.43032992e-01 9.96167398e-02 1.11695886e-01 0.00000000e+00
 7.43682077e-02 2.00000000e-01 0.00000000e+00 7.47869846e-02
 7.55043140e-02 1.14710782e-01 1.49812272e-01 2.28843569e-03
 8.48626806e-02 2.07789629e-02 0.00000000e+00 0.00000000e+00
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00
 4.83162231e-02 3.37974611e-02 0.00000000e+00 0.00000000e+00
 0.00000000e+00 0.00000000e+00 0.00000000e+00 3.86339392e-03
 3.82832901e-03 5.22763104e-02 0.00000000e+00 0.00000000e+00
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00
 4.47623731e-04 1.00282779e-01 0.00000000e+00 0.00000000e+00
 0.00000000e+00 0.00000000e+00 0.00000000e+00 0.00000000e+00
 0.00000000e+00 6.99889443e-03 1.34219316e-04 3.92120064e-05
 1.50650864e-04 1.42392599e-04 0.00000000e+00 5.90071893e-05]

e) Matching