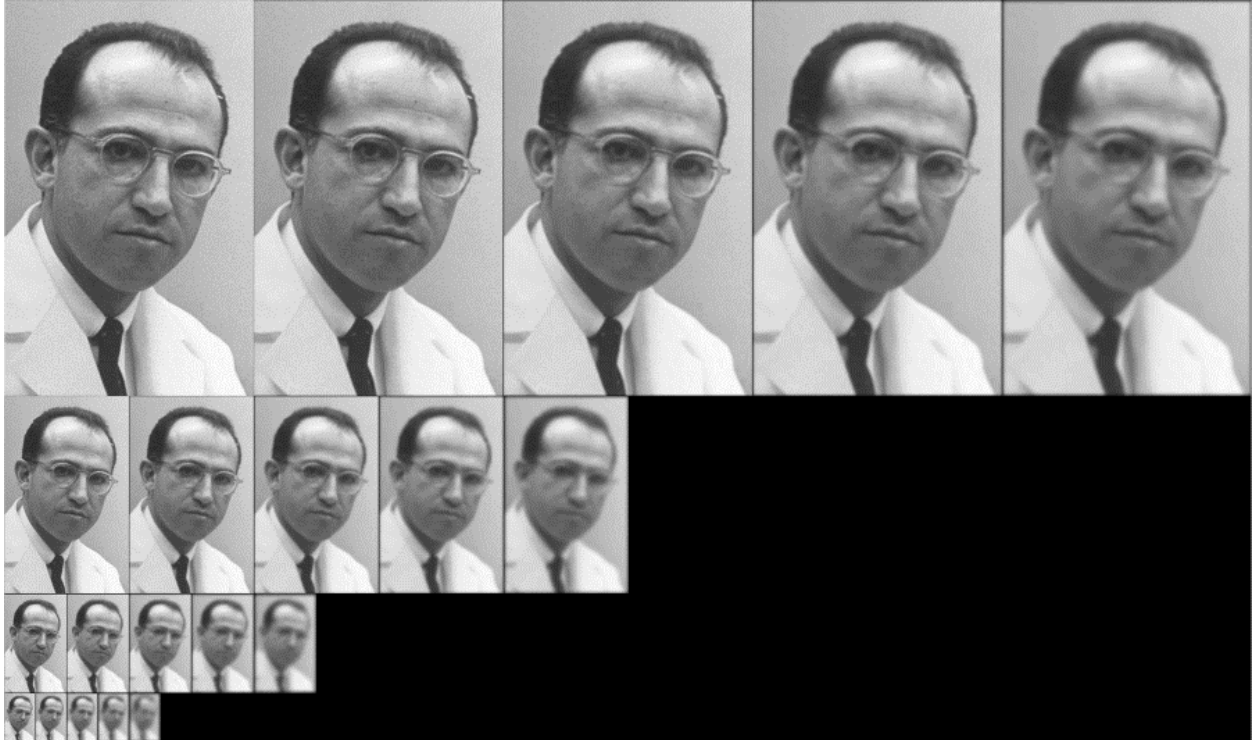# Atul Jha
110350053
CSE 527 Homework 2

1.

Step 1:

Gaussian Pyramid

DOG Pyramid

DOG Extrema

Keypoints after removing low contrast extrema

Keypoints after removing edge points using principal curvature filtering

Final keypoints

Step 3:

Final keypoints

Affine Matrix:

0.5000	-0.8660	100.0000
0.8660	0.5000	200.0000
0	0	1.000000

Step 6:

Affine Matrix Calculated

0.4998	-0.8632	99.79960
0.8652	0.5026	199.8163
0	0	1.000000

2.

Original

Reference

Aligned

Fused

Affine Matrix:

0.7832	-0.8220	92.8190
0.7152	0.7324	-26.7111
0	0	1.00000

3.
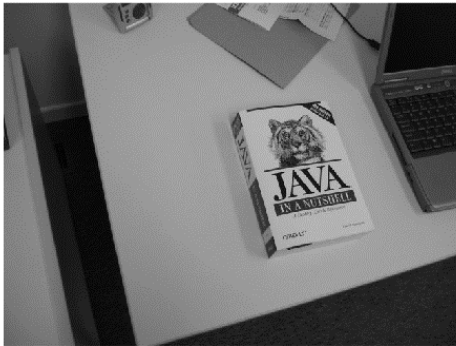
Object Image

Aligned Image

Fused Image

Affine Matrix:

-1.1490	0.0828	756.5938
0.1624	-1.2792	467.0977
0	0	1.000000

Object Image

Aligned Image

Fused Image

Affine Matrix:

-1.3065	0.2254	563.3894
-0.1793	-1.5063	661.9360
0	0	1.000000

Object Image
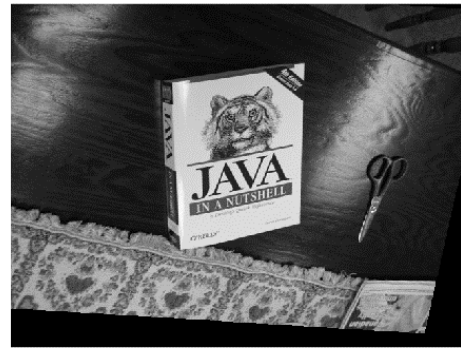
Aligned Image

Fused Image

Affine Matrix:

-0.9229	-0.2070	631.3198
0.0636	-1.0480	447.5176
0	0	1.000000
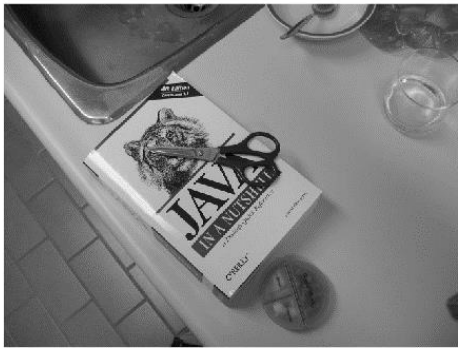
Object Image

Aligned Image

Fused Image

Affine Matrix:

-0.7131	0.5081	359.2872
-0.5131	-0.8564	586.1217
0	0	1.0000

Object Image

Aligned Image

Fused Image

Affine Matrix:

1.5047	-0.0042	32.4012
-0.0924	1.3642	-39.1067
0	0	1.00000

Object Image

Aligned Image

Fused Image

Affine Matrix:

0.6826	0.5472	-13.06050
-0.4761	0.7004	256.0867
0	0	1.000000
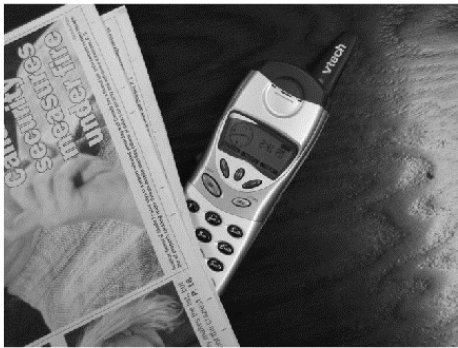
Object Image

Aligned Image

Fused Image

Affine Matrix:

0.7430	0.4516	-27.0637
-0.4122	0.7684	192.2528
0	0	1.000000

Object Image

Aligned Image

Fused Image

Affine Matrix:

0.7801	0.6036	-70.8192
-0.4969	0.8581	236.0779
0	0	1.000000