SAMPLE FILTRATION IMAGES AND BARCODES:

1. Height: (1,0)

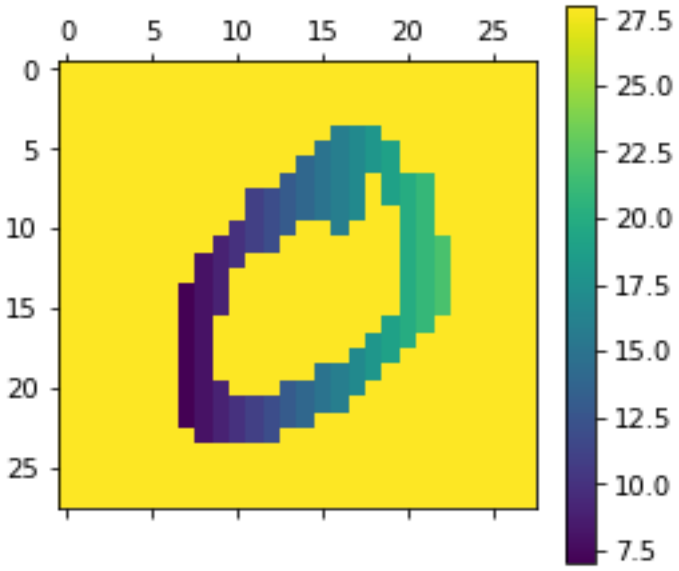
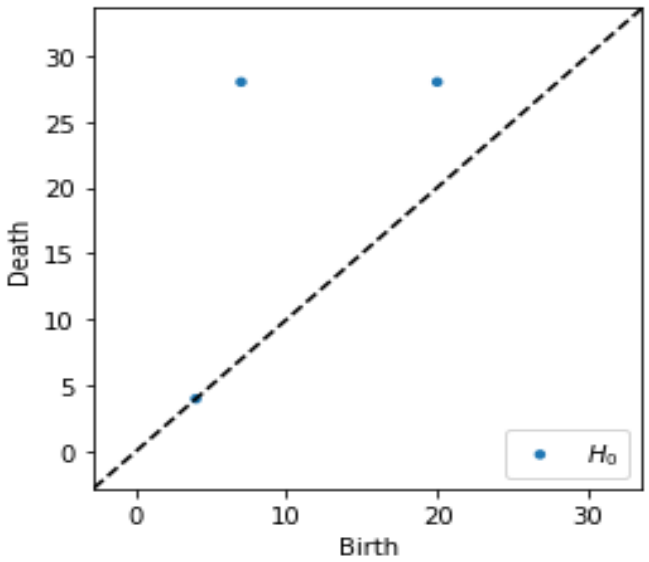
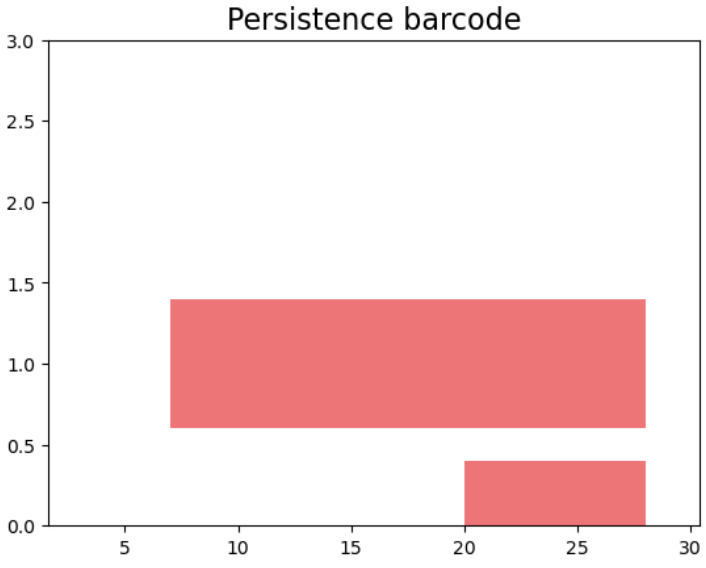


Diagram and barcode plots using persim and gudhi show points of all dimensions as dimension 0



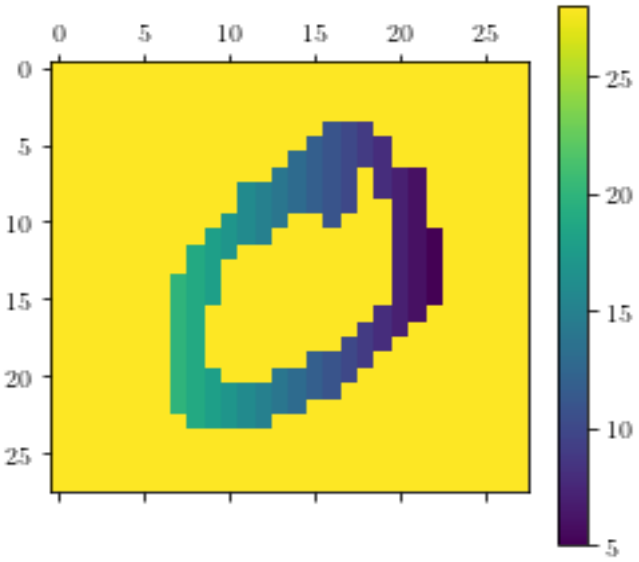


[7., 28., 0.]

[4., 4., 0.]

[20., 28., 1.]

2. Height (-1,0)

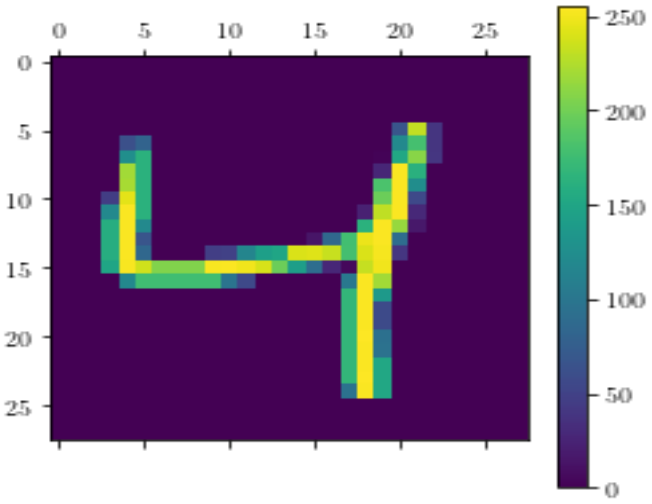


[[5., 28., 0.],

[4., 4., 0.],

[19., 28., 1.]]

3. Grayscale



[[0., 255., 0.],

[0., 0., 0.],

[0., 0., 0.],

[0., 255., 1.],

[172., 253., 1.],

[190., 253., 1.],

[225., 253., 1.],

[242., 253., 1.],

[252., 253., 1.],

[0., 0., 1.],

[0., 0., 1.],

[0., 0., 1.],

[0., 0., 1.],

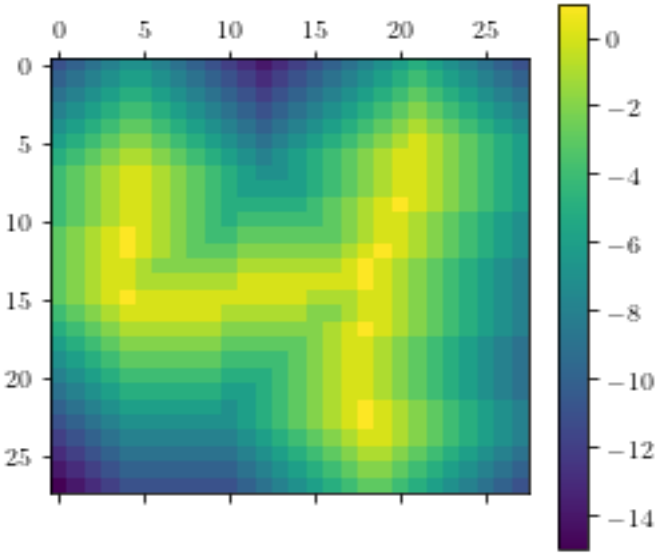
[0., 0., 1.],

[0., 0., 1.],

[0., 0., 1.],

[0., 0., 1.]])

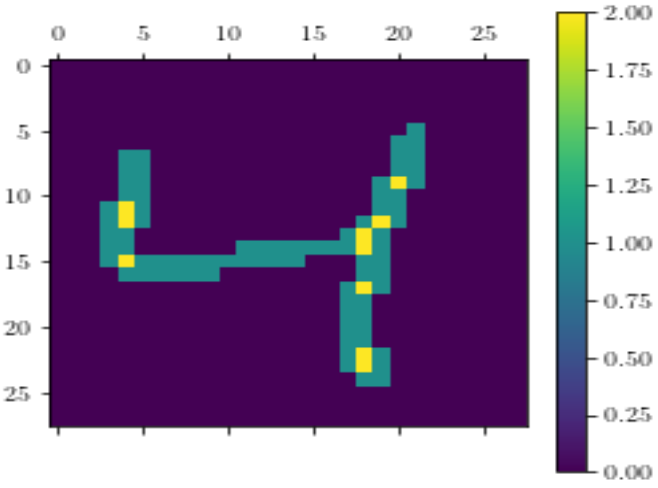
4. Dilation



([[0., 19., 0.],

[0., 0., 1.]])

5. Erosion



[[0., 3., 0.],

[0., 0., 0.],

[0., 2., 1.],

[1., 2., 1.],

[1., 2., 1.],

[1., 2., 1.],

[1., 2., 1.],

[1., 2., 1.],

[1., 2., 1.],

[0., 0., 1.],

[0., 0., 1.],

[0., 0., 1.],

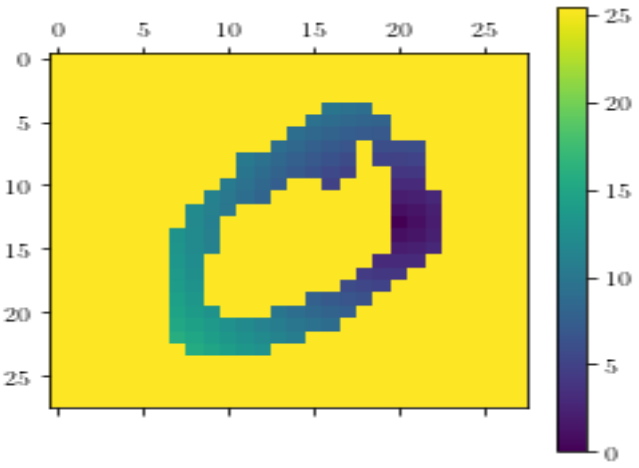
[0., 0., 1.],

[0., 0., 1.],

[0., 0., 1.],

[0., 0., 1.]

6. Radial (13,13)



[[2.23606798, 20.79898987, 0.],

[6.32455532, 8.54400375, 0.],

[6.40312424, 6.70820393, 0.],

[7. , 7.28010989, 0.],

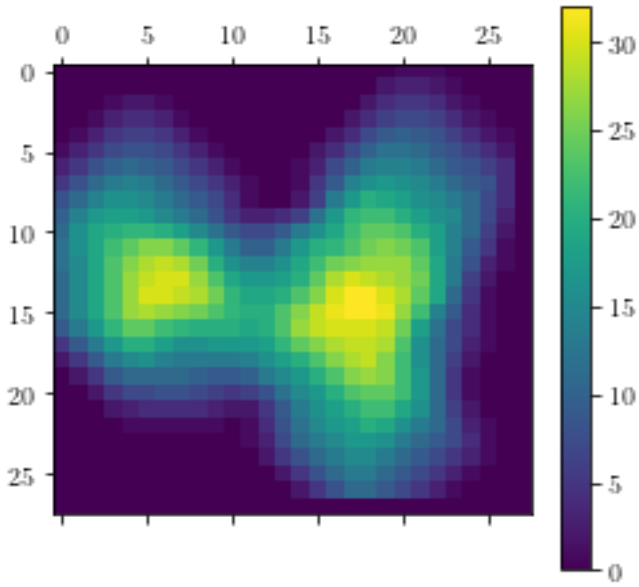
[7.81024968, 8.06225775, 0.],

[4.24264069, 4.47213595, 0.],

[7. , 7.07106781, 0.],

[8.60232527, 20.79898987, 1.]])

7. Density: 6



[0., 48., 0.],

[0., 9., 0.],

[0., 2., 0.],

[0., 1., 0.],

[0., 0., 0.],

[12., 33., 1.],

[20., 30., 1.],

[9., 9., 1.],

[9., 9., 1.],

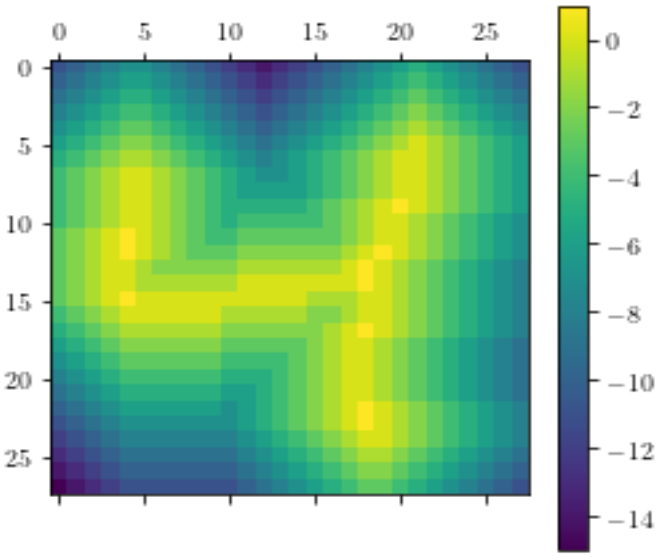
[9., 9., 1.],

[9., 9., 1.],

[9., 9., 1.],

[9., 9., 1.]])

8. Signed Distance



[-15., 2., 0.],

[-14., -3., 0.],

[-11., -5., 0.],

[-11., -6., 0.],

[-11., -7., 0.],

[-9., -8., 0.],

[-19., -19., 0.],

[-3., 1., 1.],

[0., 1., 1.],

[0., 1., 1.],

[0., 1., 1.],

[0., 1., 1.],

[0., 1., 1.],

[0., 1., 1.],

[-4., -4., 1.],

[-4., -4., 1.],

[-4., -4., 1.],

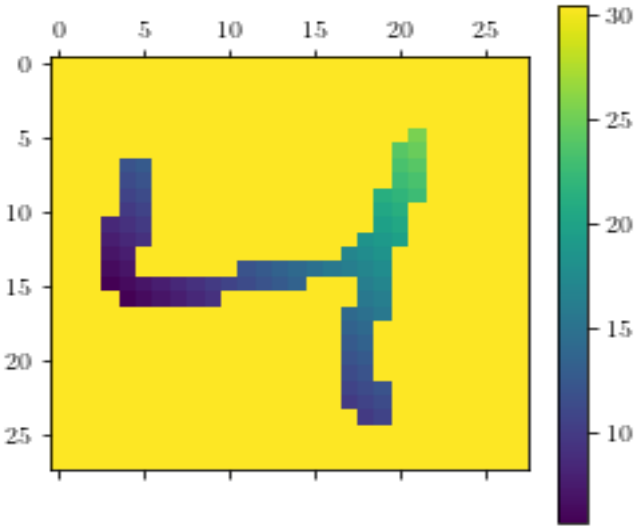
[-4., -4., 1.],

[-4., -4., 1.],

[-4., -4., 1.],

[-4., -4., 1.]]

9. Line 1: : x – y = 20



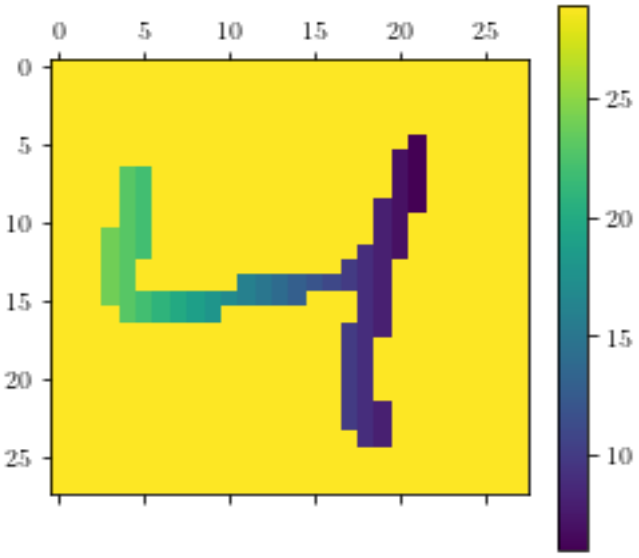
[5.65685425, 31.87005769, 0.],

[9.89949494, 16.26345597, 0.],

[0. , 0. , 0.],

[22.627417 , 22.627417 , 1.]])

10. Line: 2 y = 27



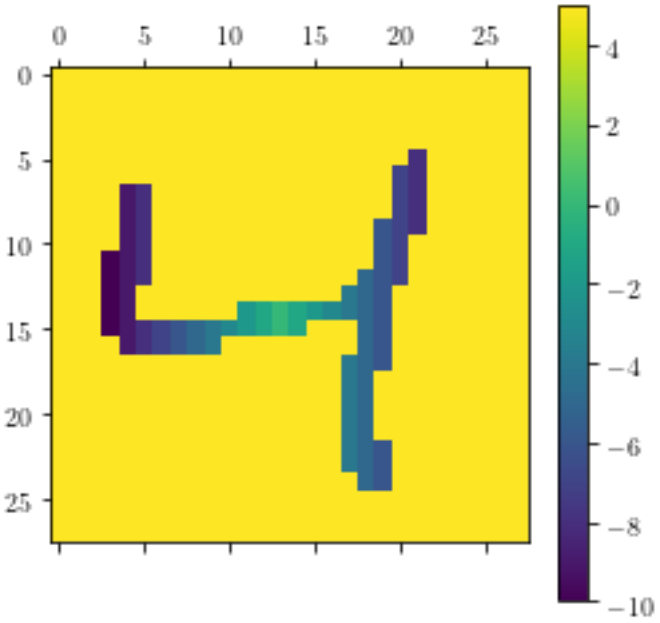
[[6., 29., 0.],

[8., 9., 0.],

[22., 23., 0.],

[19., 19., 1.]])

11. Line: 3; y =13 and negative of distance



[[-10., 5., 0.],

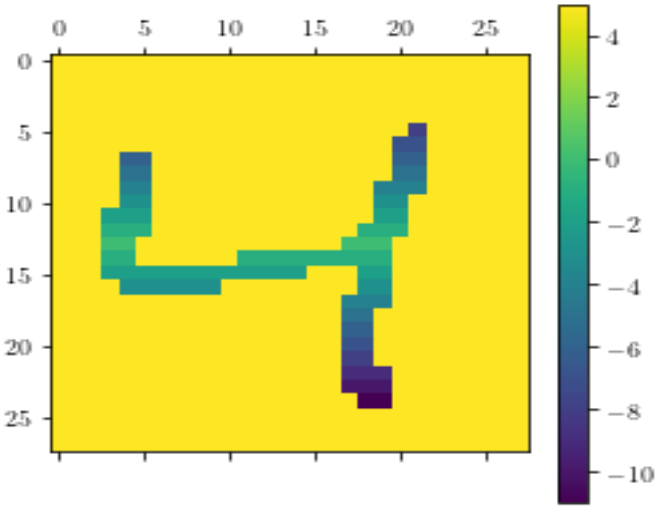
[-8., 0., 0.],

[-6., -5., 0.],

[-10., -10., 0.],

[0., 0., 1.]])

12. Line 4: x =13 and negative of distance



[[-11., 5., 0.],

[-8., 0., 0.],

[-6., 0., 0.],

[-3., -1., 0.],

[0., 0., 1.]])

13. Conjugate Grayscale