PS3

Scott Powers
spowers36@gatech.edu

1A:

M

$$\begin{bmatrix} 0.4583 & -0.2947 & -0.0140 & 0.0040 \\ -0.0509 & -0.0546 & -0.5411 & -0.0524 \\ 0.1090 & 0.1783 & -0.0443 & 0.5968 \end{bmatrix}$$

Calculated point

$$\begin{bmatrix} 0.1419 & -0.4518 \end{bmatrix}$$

Residual

0.0016

1B:

k=8

Residuals

1.0301 1.1928 1.8517 2.0472 1.0177 2.0366 13.6037 2.5186 2.7278 2.4268

M

$$\begin{bmatrix} -0.0069 & 0.0040 & 0.0013 & 0.8263 \\ -0.0015 & -0.0010 & 0.0072 & 0.5632 \\ -0.0000 & -0.0000 & 0.0000 & 0.0034 \end{bmatrix}$$

k=12

Residuals

1.2997 1.2070 0.7972 2.0452 6.8618 1.1661 1.5144 1.0776 1.3566
1.2477

M

0.0069 -0.0039 -0.0014 -0.8296
0.0015 0.0010 -0.0072 -0.5583
0.0000 0.0000 -0.0000 -0.0034

k=16

Residuals

0.8937 1.0937 0.9965 0.9209 1.1293 1.4363 1.1287 1.3426 0.7926
1.6116

M

0.0069 -0.0040 -0.0014 -0.8269
0.0015 0.0010 -0.0073 -0.5623
0.0000 0.0000 -0.0000 -0.0034

Overall the performance increases slightly as more training data is provided to construct M from. The sample size is still fairly small compared to the size of the data set and performance is much worse than when using the full set of points. Looking at more replicates would probably be better here as well; 10 seems like a fairly low number for good performance.

1C

303.0962
307.1766
30.4190

2A

0.0006 0.0032 -0.9372
0.0000 0.0017 -0.3489
0.0000 0.0000 -0.0004

2B

0.0006	0.0032	-0.9372
0.0000	0.0017	-0.3489
-0.0000	0.0000	-0.0004

It seems like this was suppose to change after setting the last column of D to 0s but it seems like it really didn't.