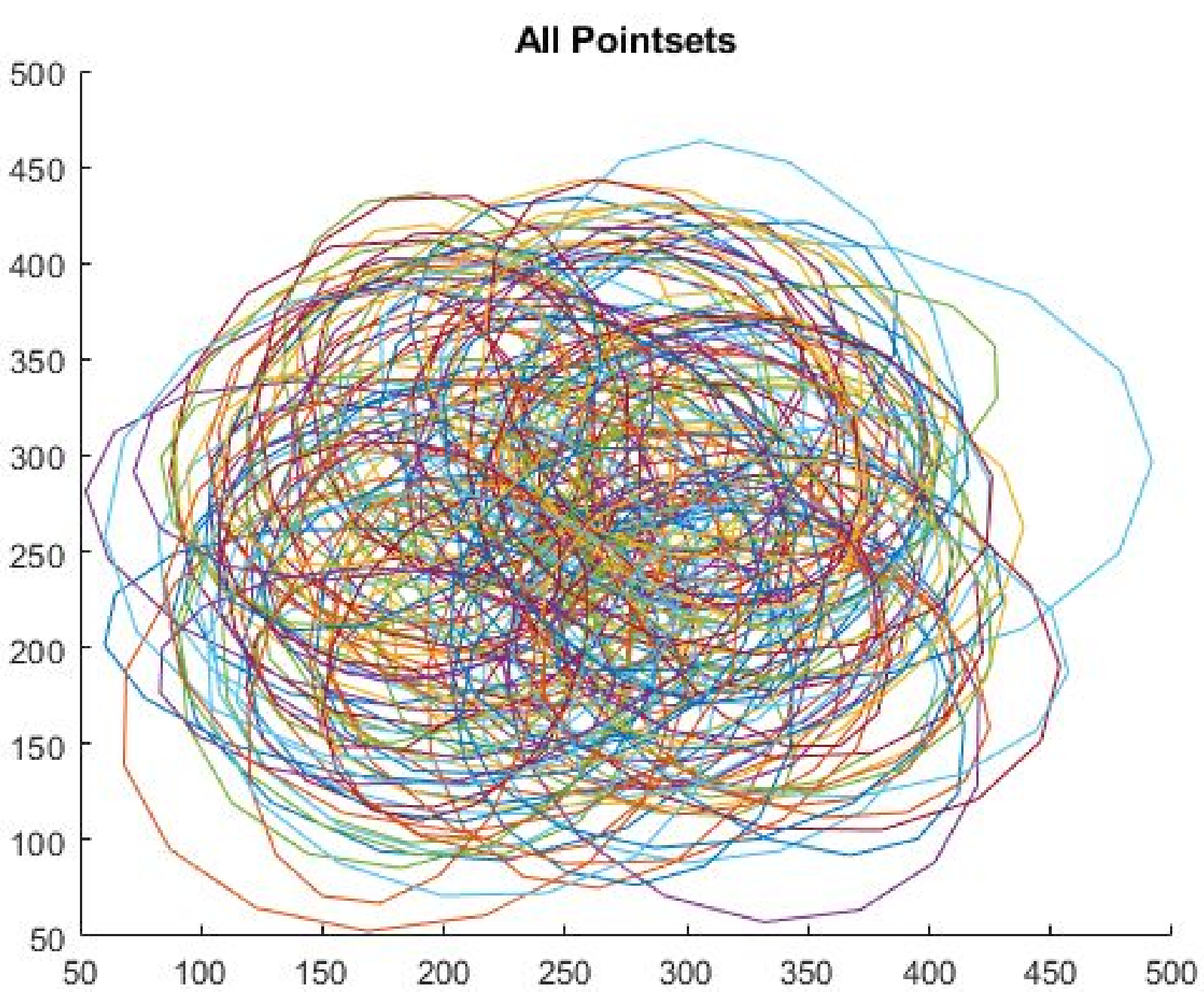
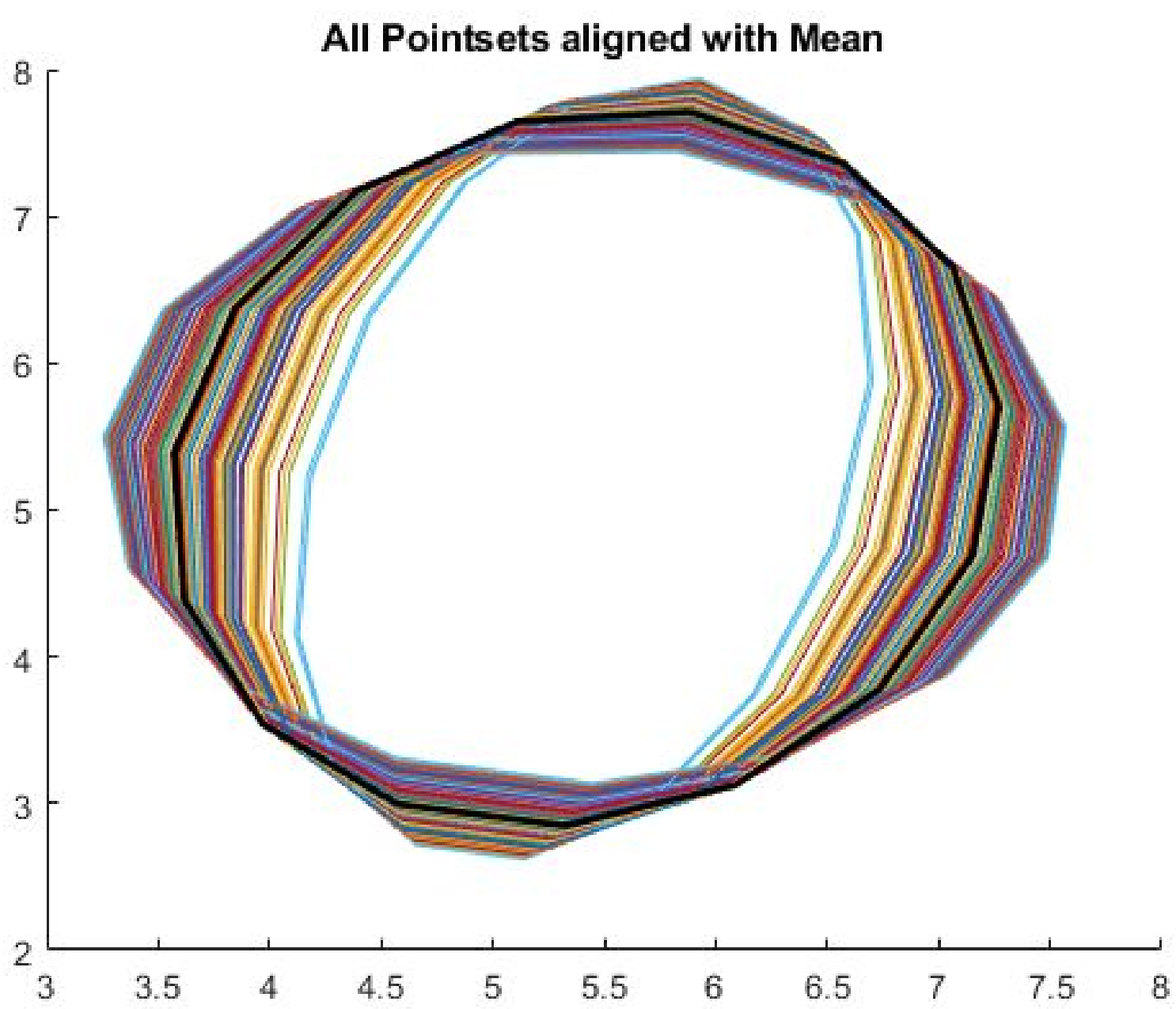
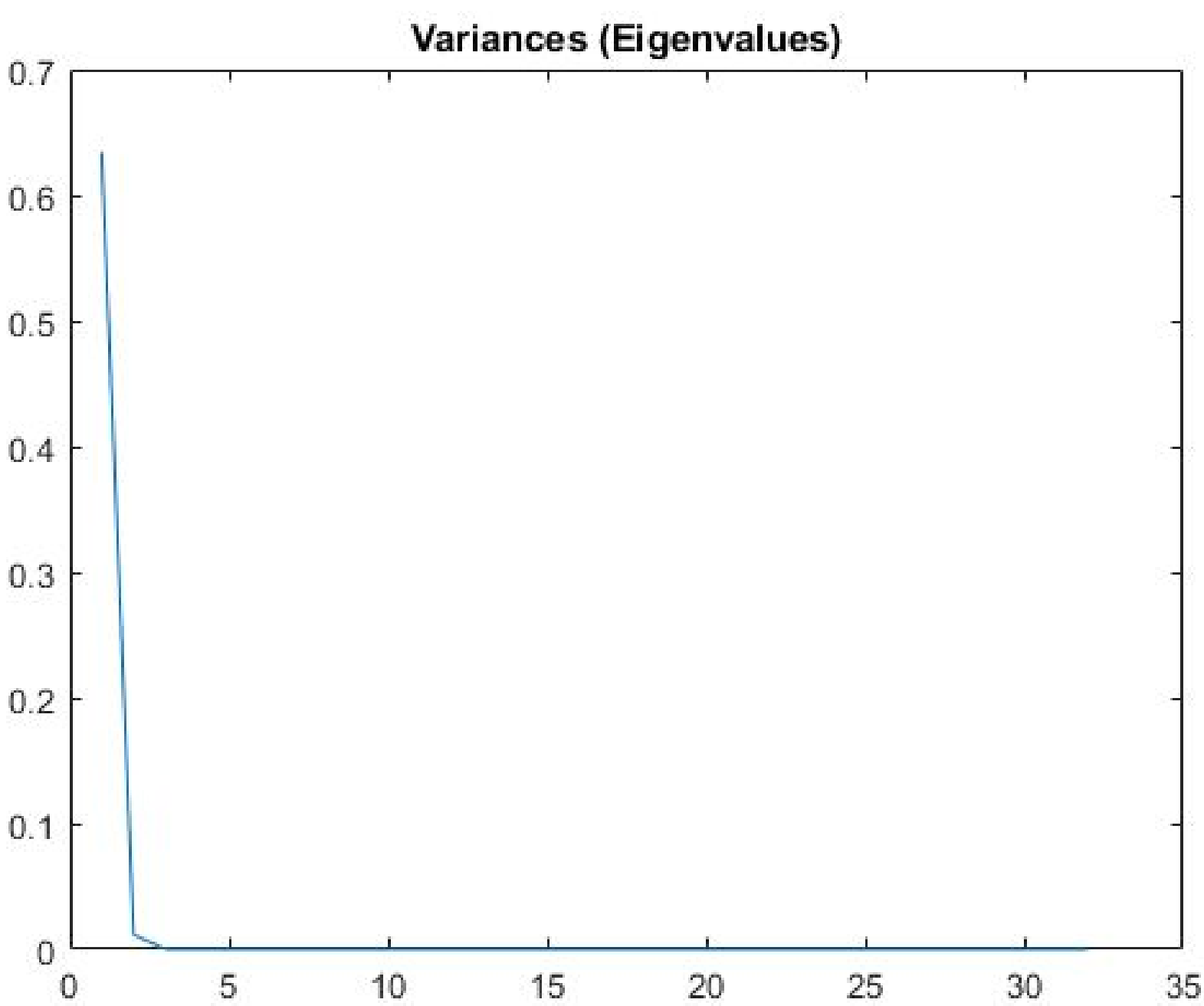
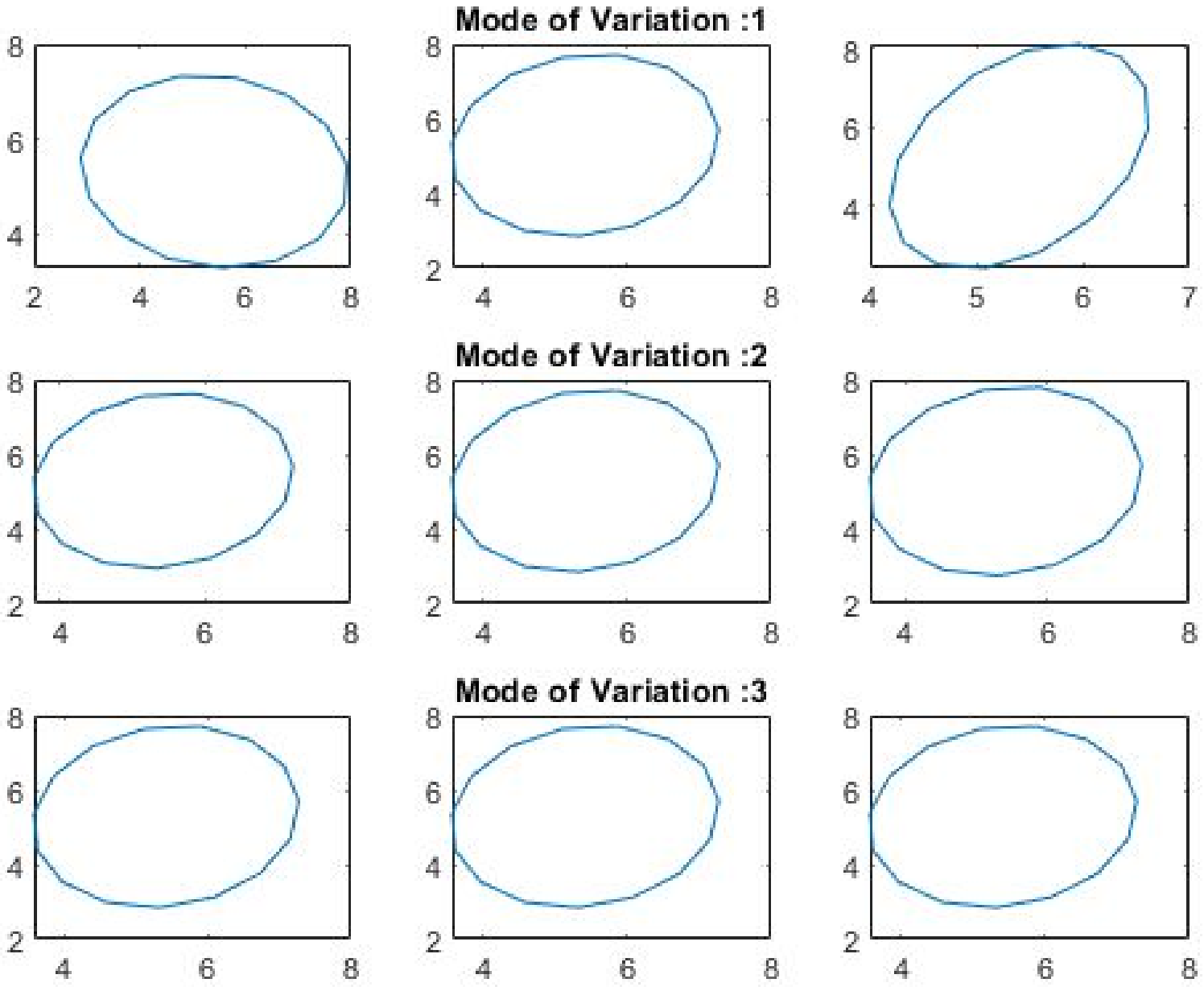
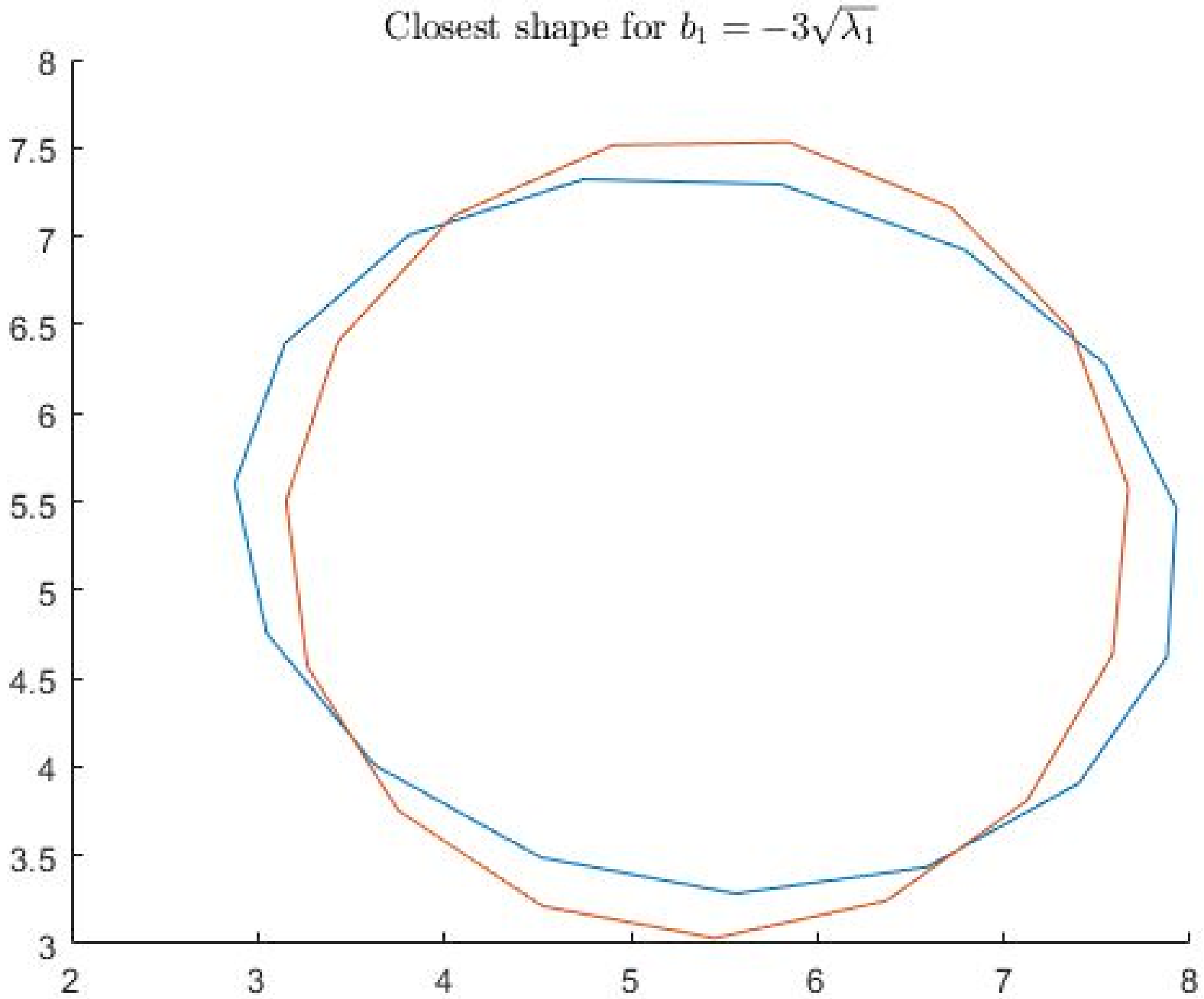
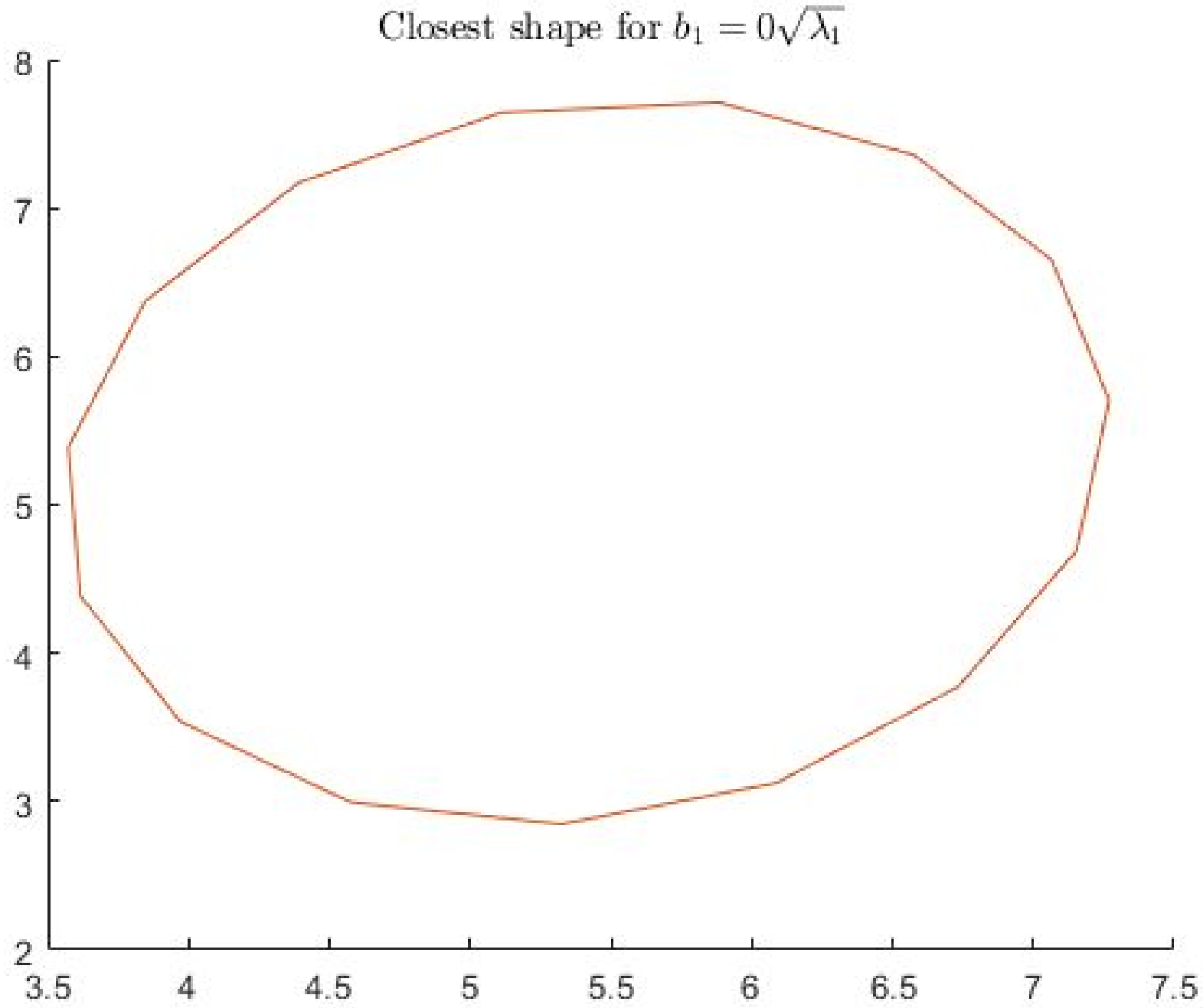

All Pointsets
500
450
400
350
300
250
200
150
100
50
50
100
150
200
250
300
350
400
450
500

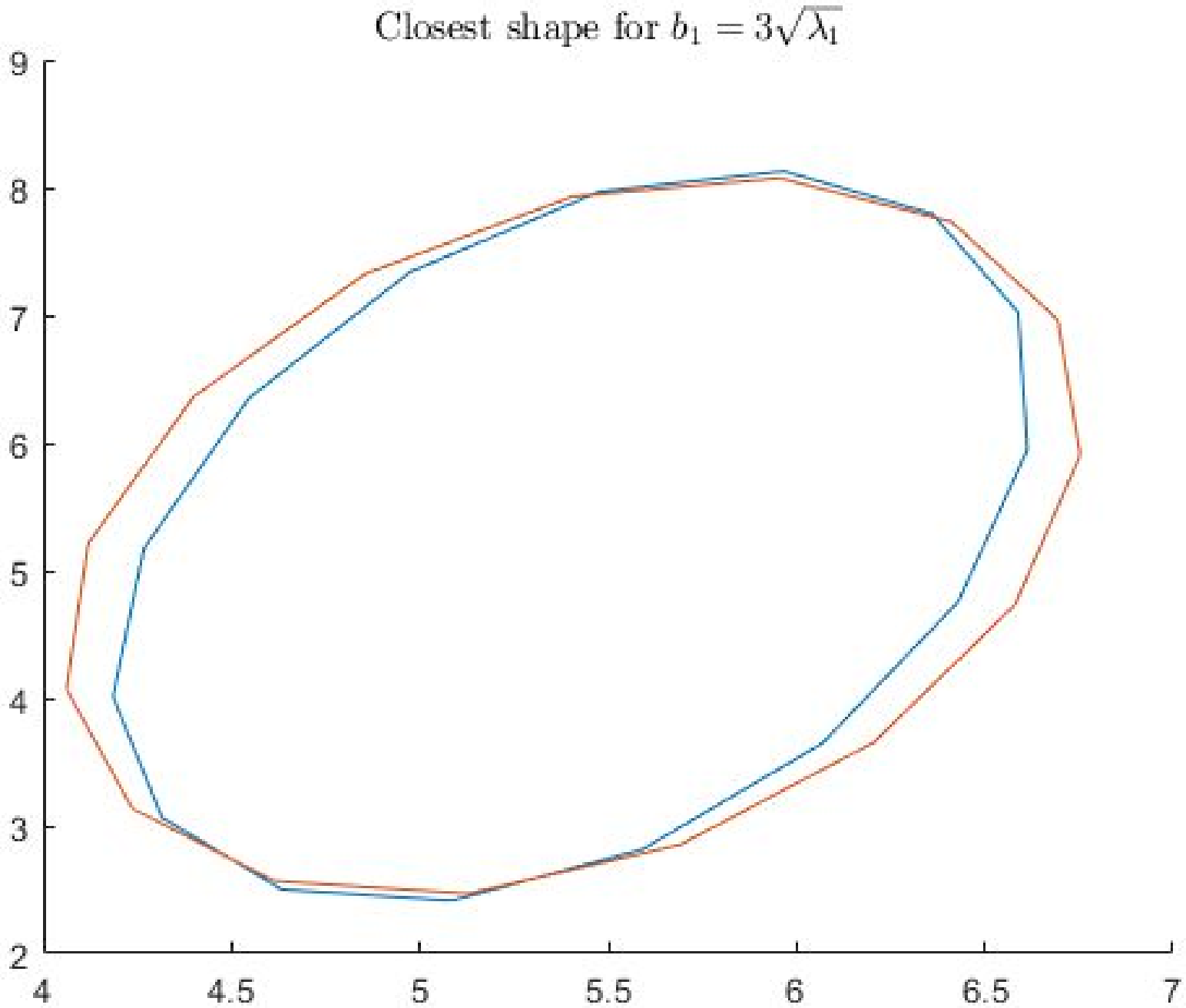

All Pointsets aligned with Mean
8
7
6
5
4
3
2
3
3.5
4
4.5
5
5.5
6
6.5
7
7.5
8

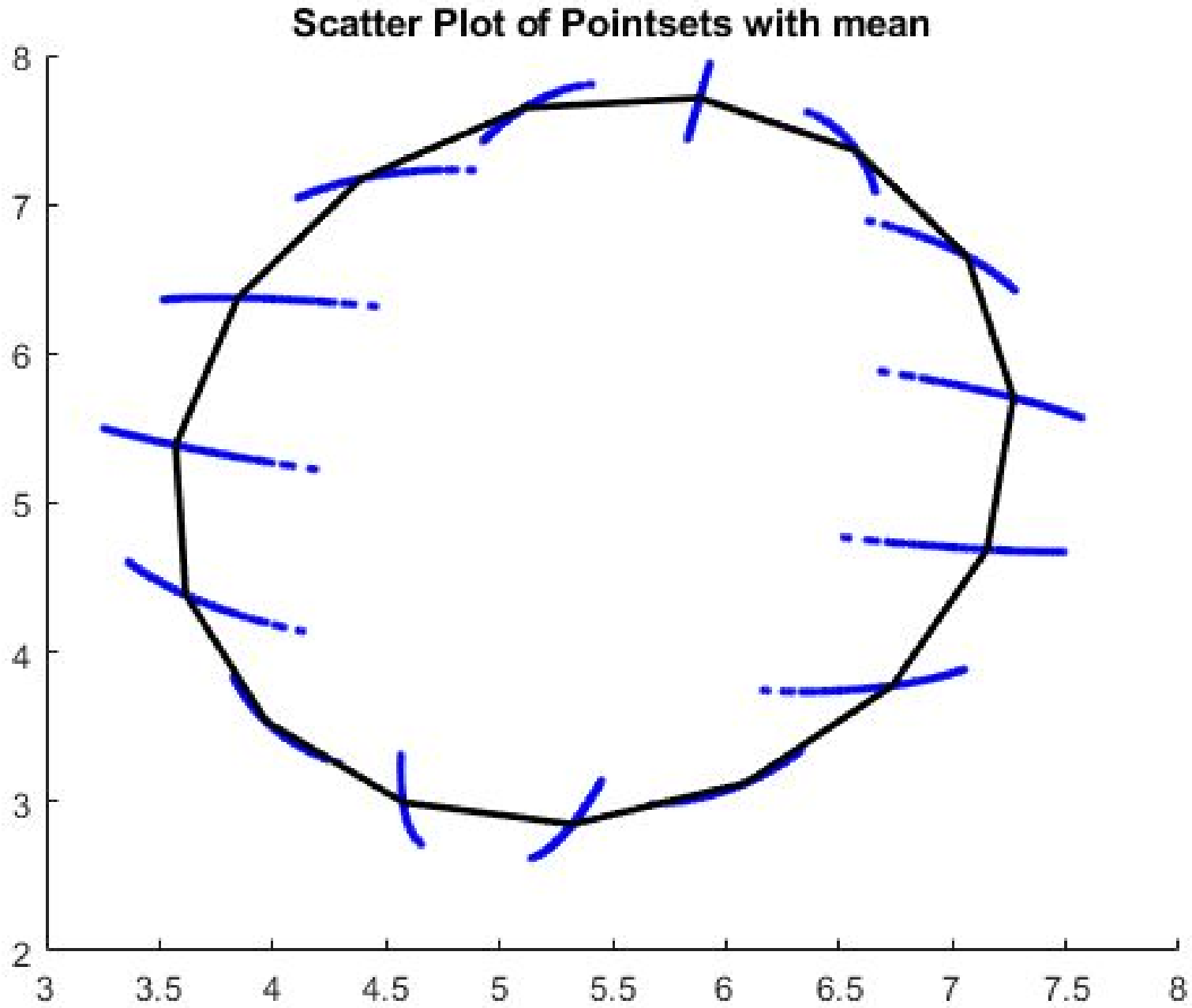

Variances (Eigenvalues)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
5
10
15
20
25
30
35


Mode of Variation :1
Mode of Variation :2
Mode of Variation :3


Closest shape for $b_1 = -3\sqrt{\lambda_1}$
8
7.5
7
6.5
6
5.5
5
4.5
4
3.5
3
2
3
4
5
6
7
8


Closest shape for $b_1 = 0\sqrt{\lambda_1}$
8
7
6
5
4
3
2
3.5
4
4.5
5
5.5
6
6.5
7
7.5


Closest shape for $b_1 = 3\sqrt{\lambda_1}$
9
8
7
6
5
4
3
2
4
4.5
5
5.5
6
6.5
7


Scatter Plot of Pointsets with mean
8
7
6
5
4
3
2
3
3.5
4
4.5
5
5.5
6
6.5
7
7.5
8

Reference to the results folder :
myMainScript_01.png : All Pointsets : Page 1
myMainScript_02.png : All Pointsets aligned with Mean : Page 2
myMainScript_03.png : Variances (Eigenvalues) : Page 3
myMainScript_04.png : Modes of Variation : Along first 3 modes of variation : Page 4
myMainScript_05.png : ClosestShape_1 : Closest to Mean -3 sqrt(lambda) v : Page 5
myMainScript_06.png : ClosestShape_2 : Closest to Mean : Page 6
myMainScript_07.png : ClosestShape_3 : Closest to Mean +3 sqrt(lambda) v : Page 7
myMainScript_08.png : Scatter Plot of Pointsets with Mean : Page 8
Each .mat file contains one variable image which can be shown using imshow.

We observe in the variances plot (page 3) that only 2 eigenvalues of the covariance matrix are significant, rest all approach 0. This is expected as the shapes are ellipses, which have only 2 modes of variation; the major and the minor axes.

In the modes of variation plot (page 4) we can observe the directions in which there is maximum variation, and that corresponds to the direction of the major axis of the mean ellipse drawn.