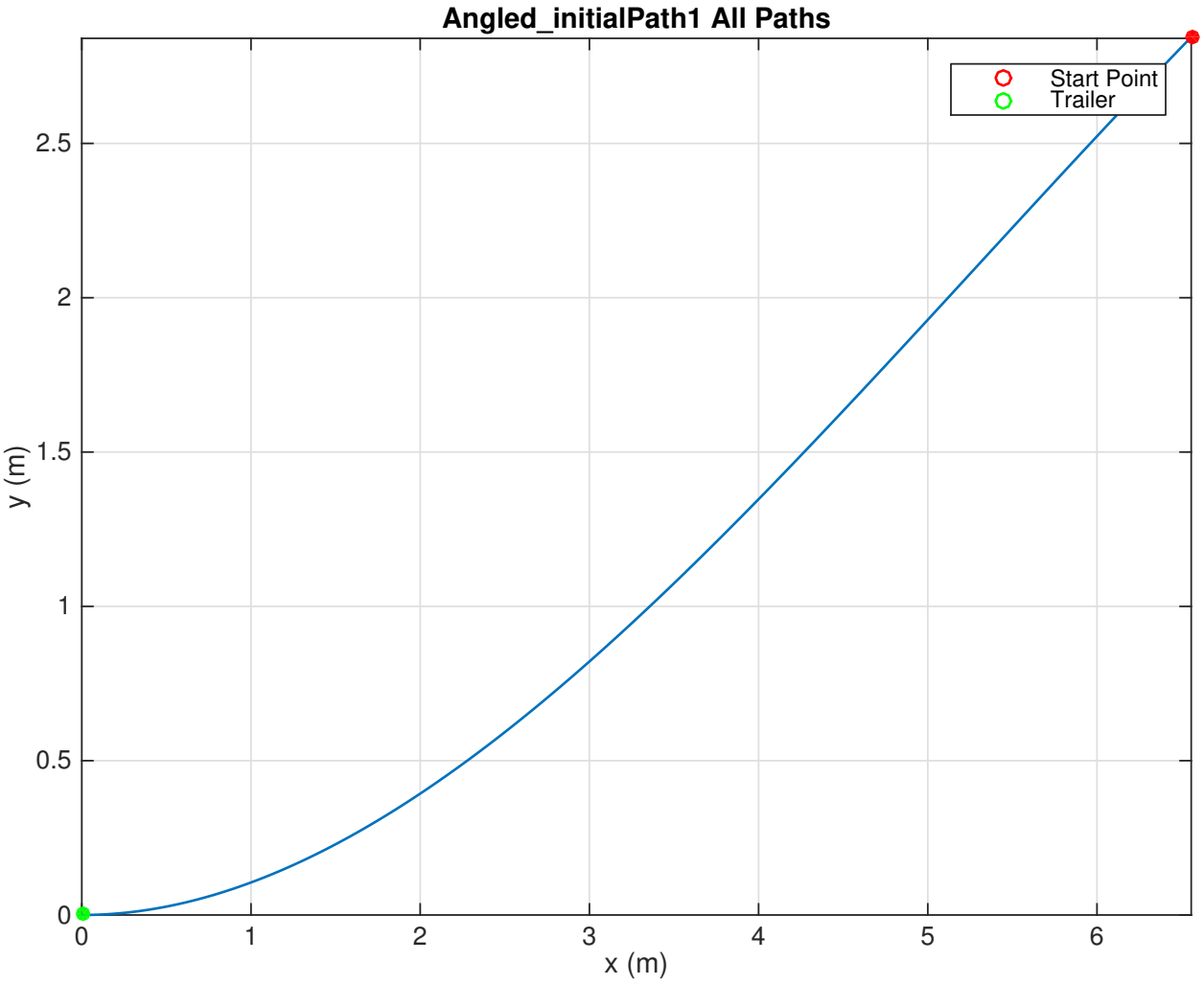
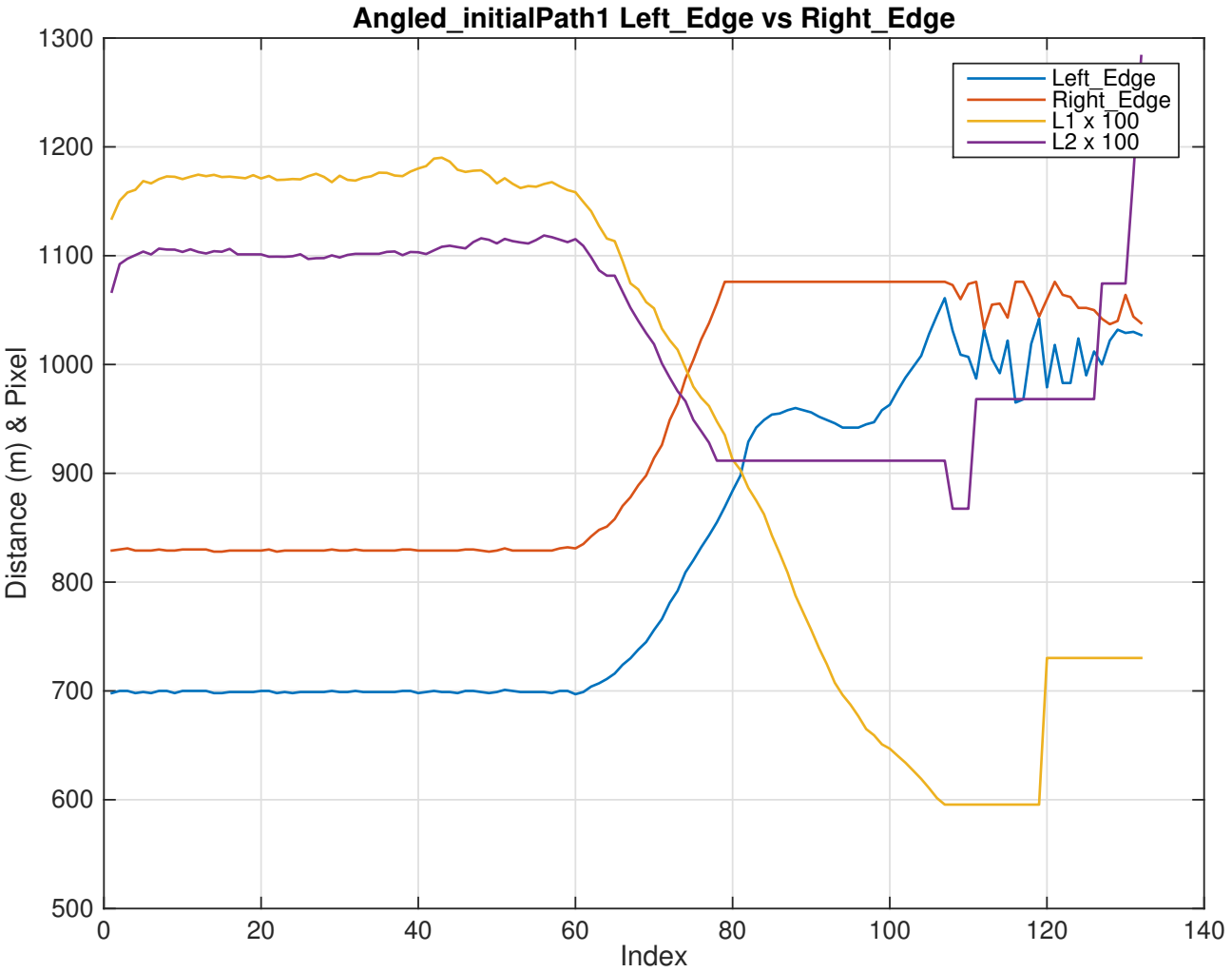
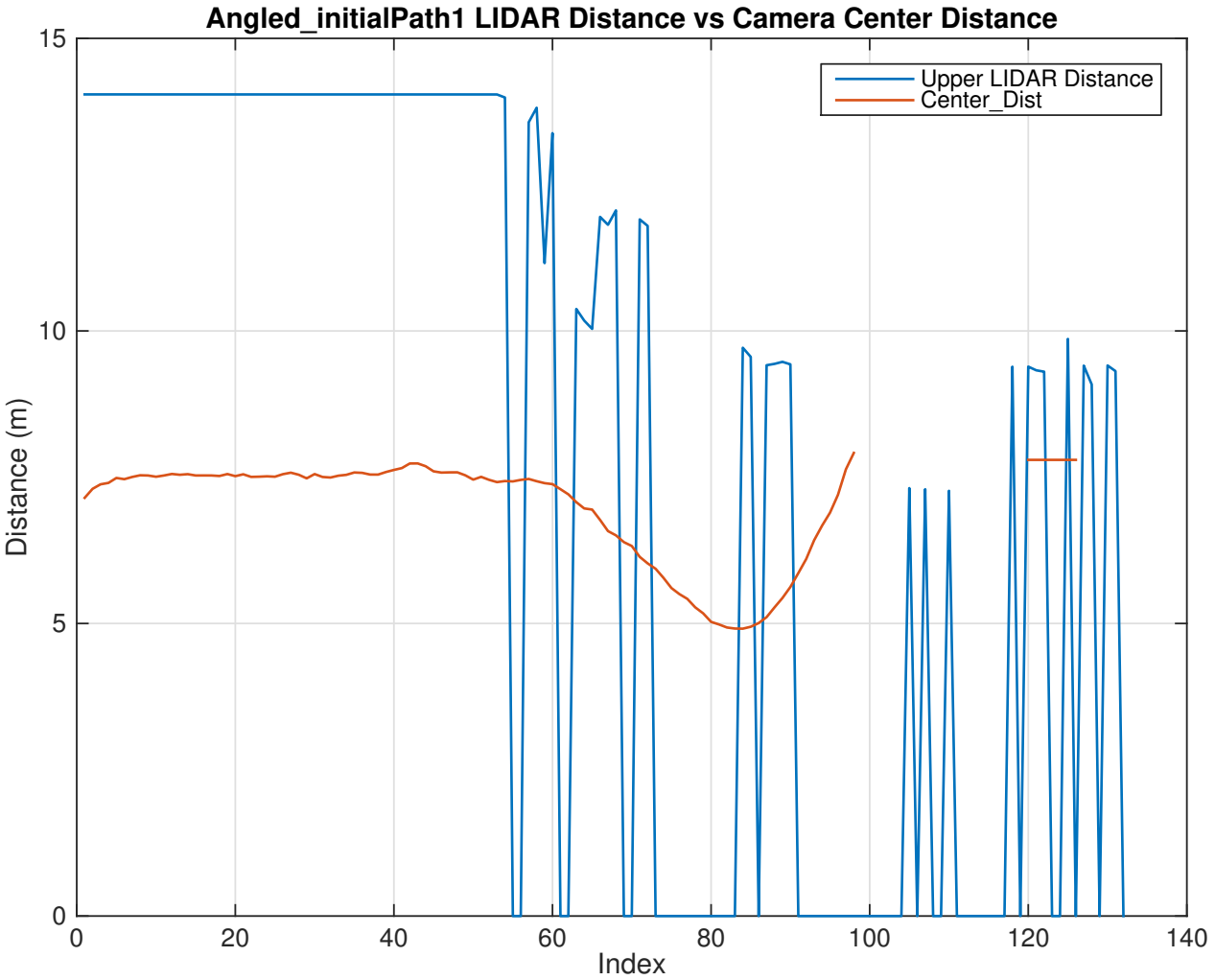
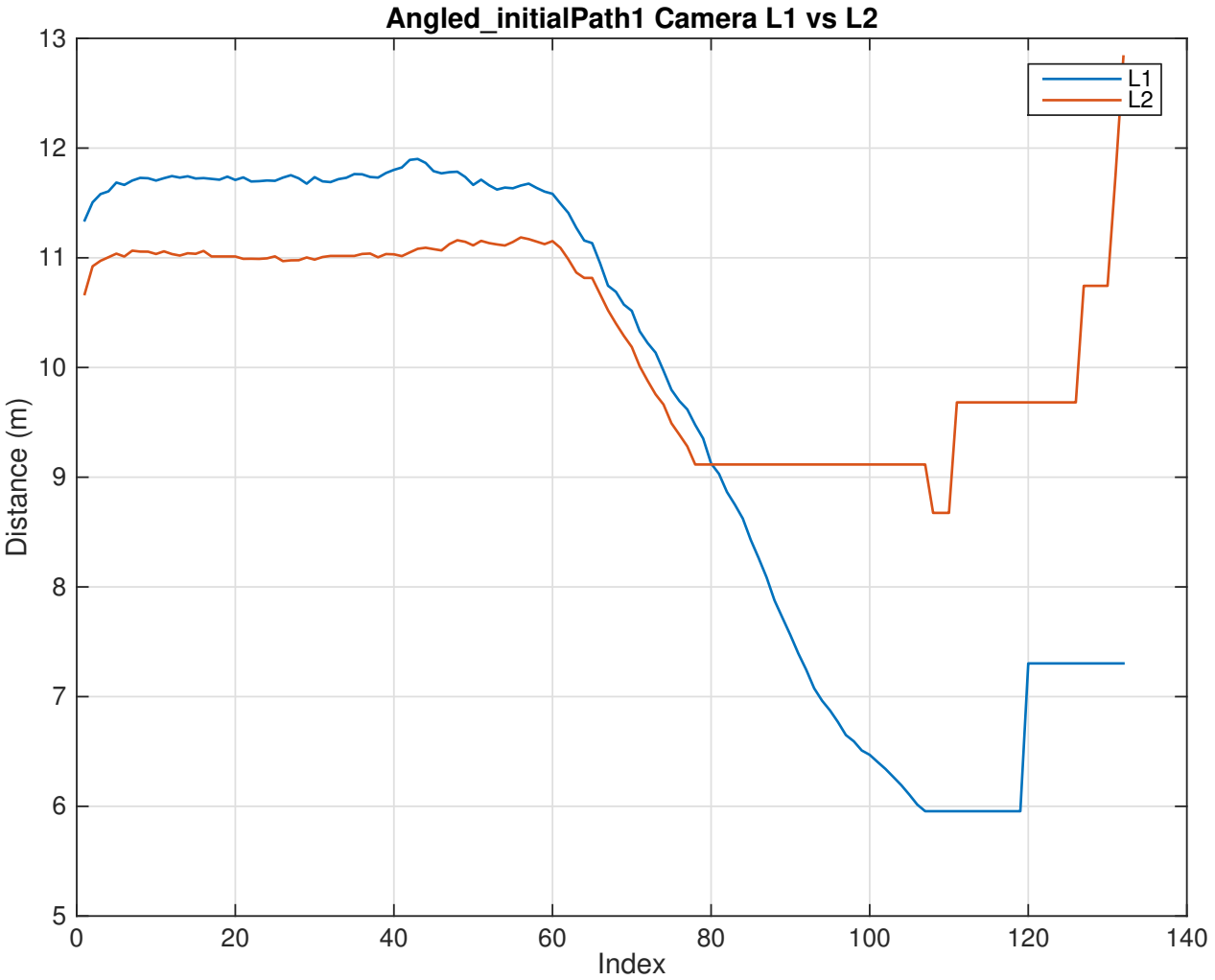
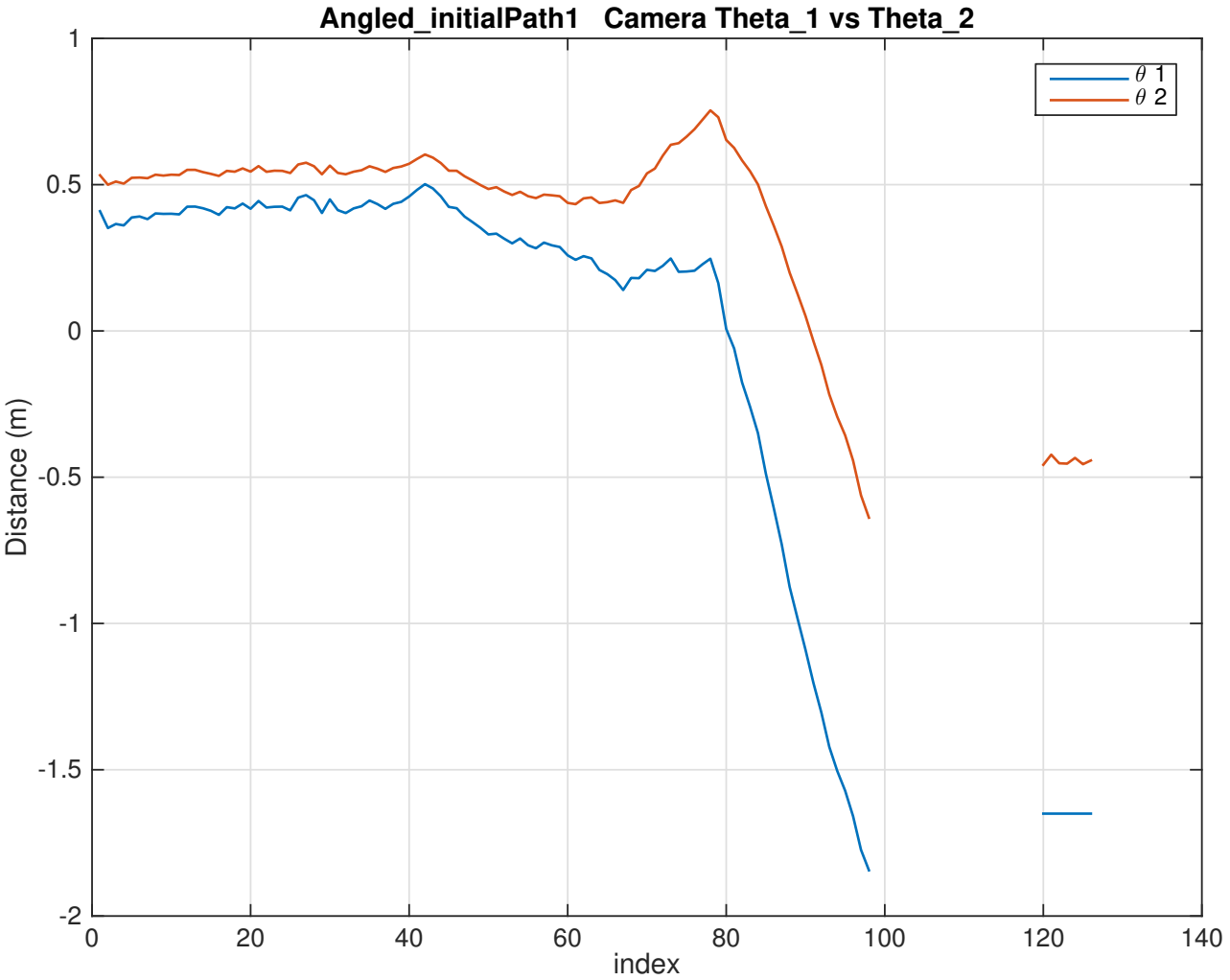

Angled_initialPath1 All Paths
Start Point
Trailer
y (m)
x (m)
0
0.5
1
1.5
2
2.5
0
1
2
3
4
5
6

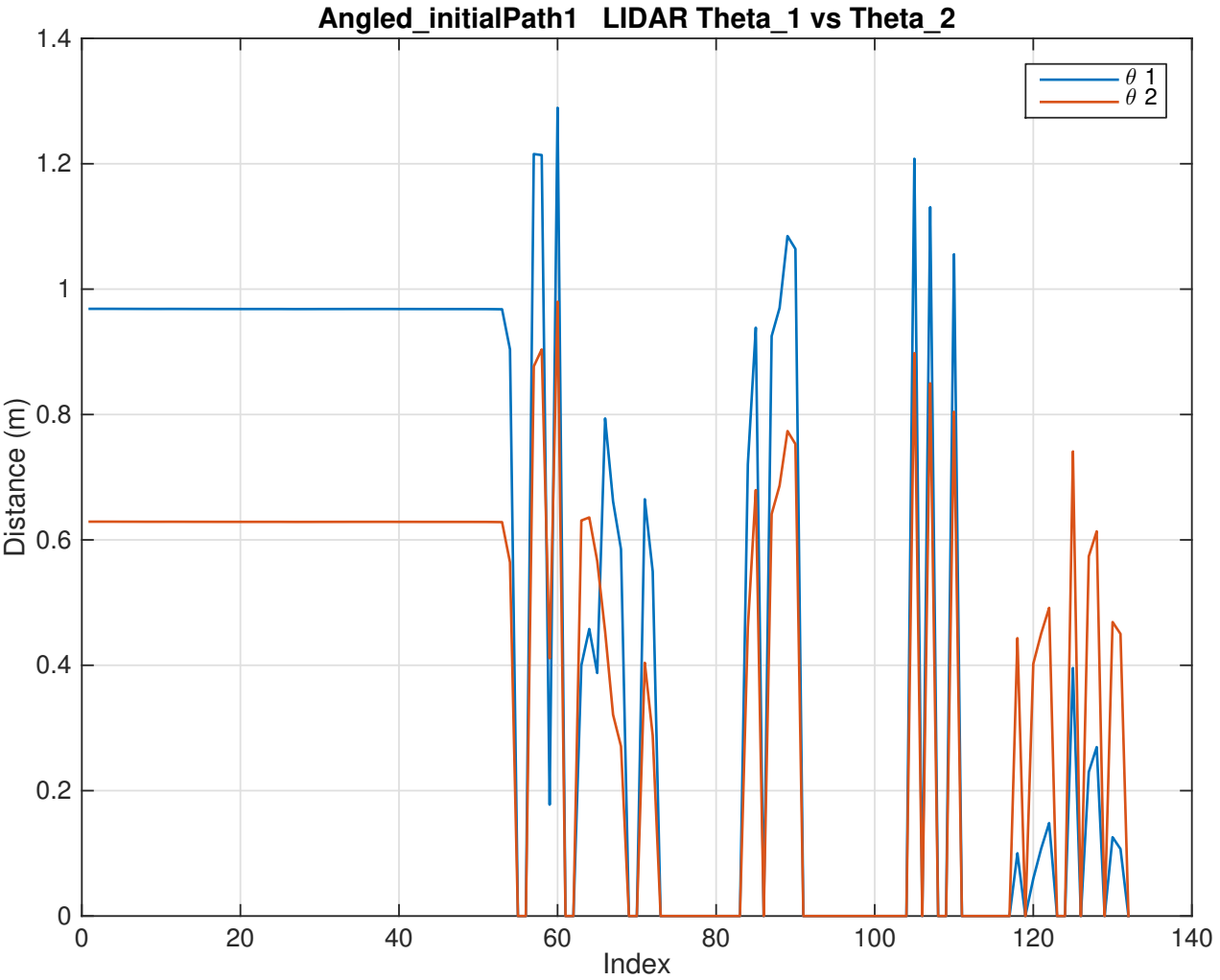
Number_Of_Unique_Paths	King_Pin_Detected
1	false

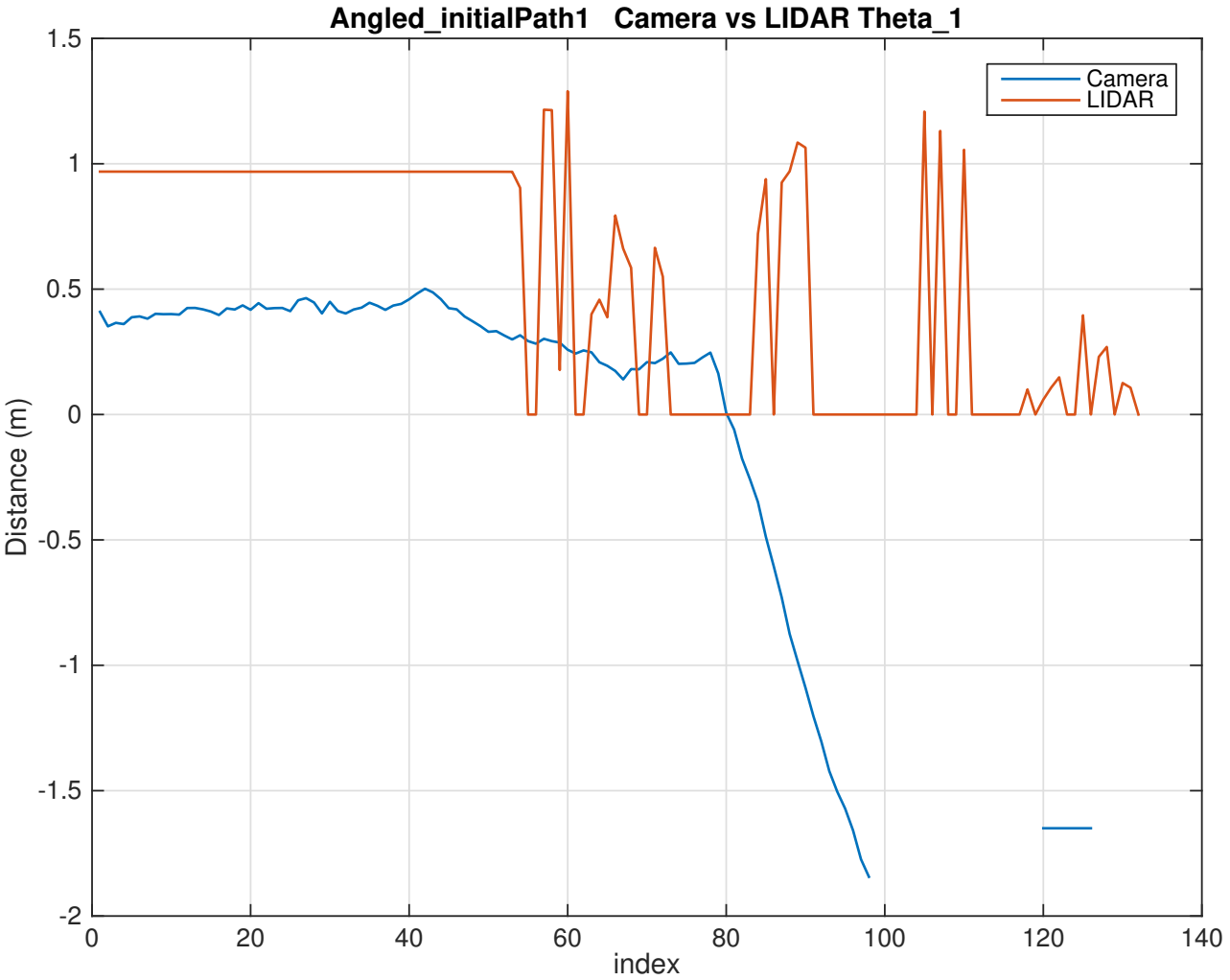

Angled_initialPath1 Left_Edge vs Right_Edge
Left_Edge
Right_Edge
L1 x 100
L2 x 100
Distance (m) & Pixel
Index
1300
1200
1100
1000
900
800
700
600
500
0
20
40
60
80
100
120
140

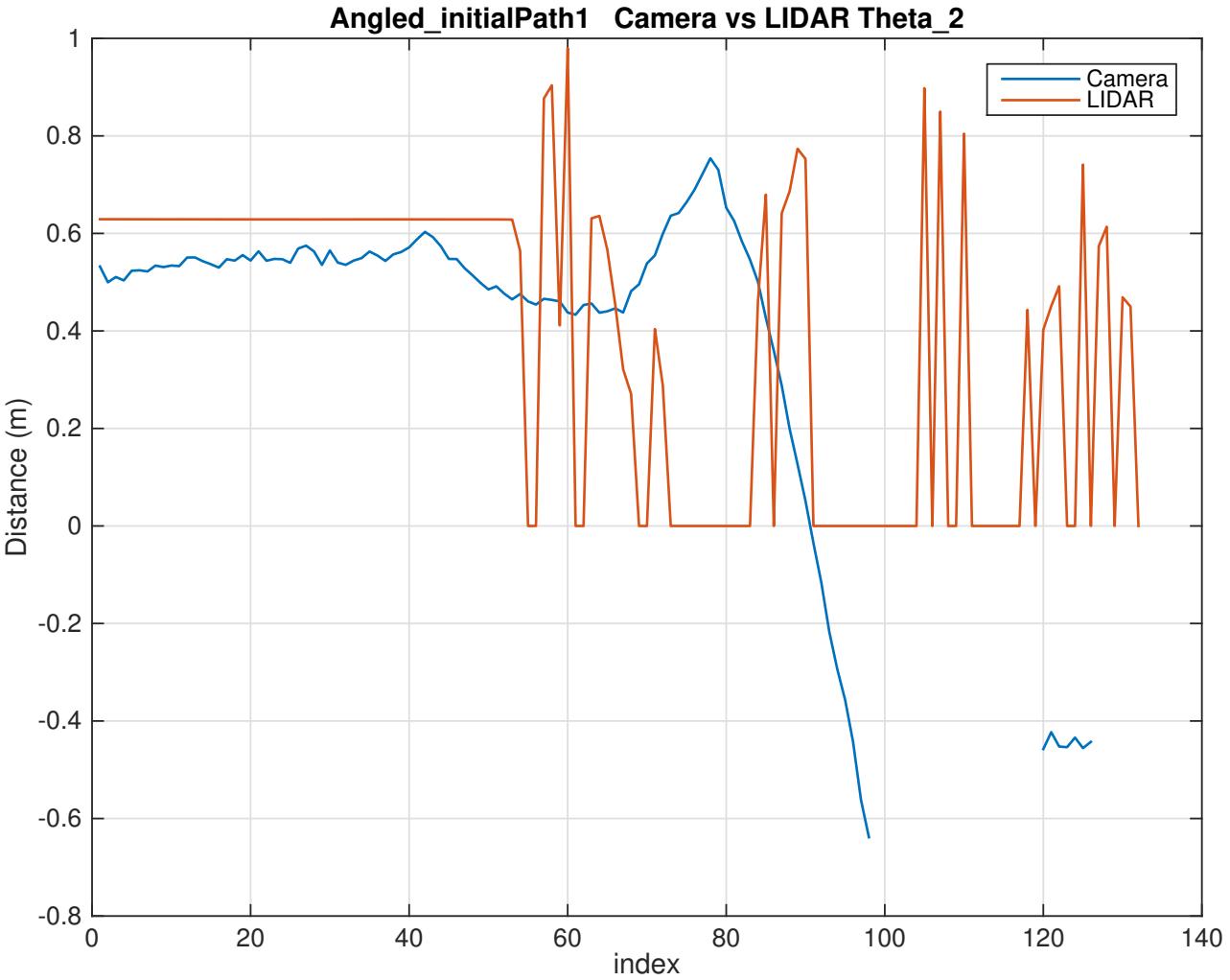

Angled_initialPath1 LIDAR Distance vs Camera Center Distance
Upper LIDAR Distance
Center_Dist
Distance (m)
Index
0
5
10
15
0
20
40
60
80
100
120
140

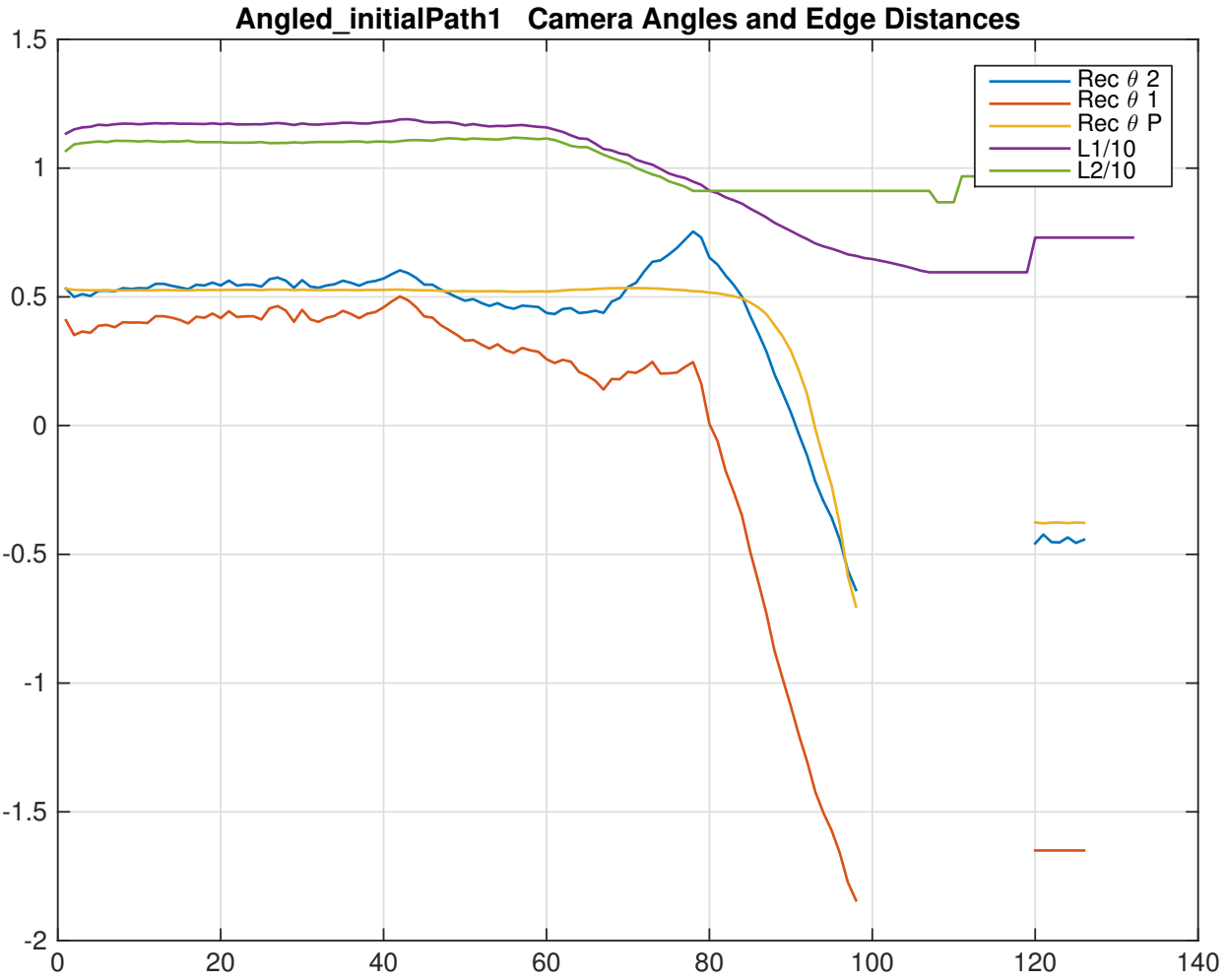

Angled_initialPath1 Camera L1 vs L2
L1
L2
Distance (m)
Index
13
12
11
10
9
8
7
6
5
0
20
40
60
80
100
120
140

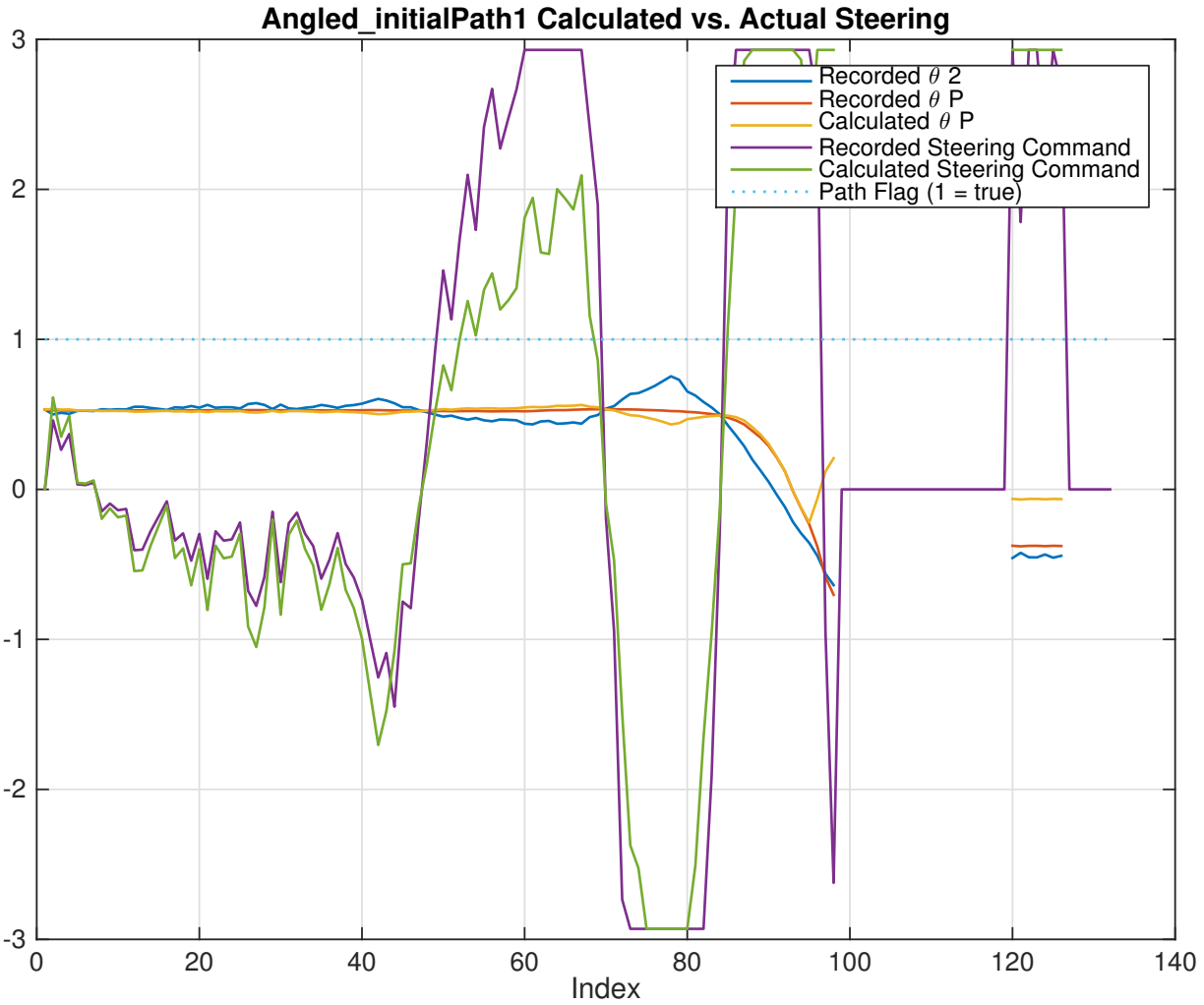

Angled_initialPath1 Camera Theta_1 vs Theta_2
θ 1
θ 2
Distance (m)
index
1
0.5
0
-0.5
-1
-1.5
-2
0
20
40
60
80
100
120
140

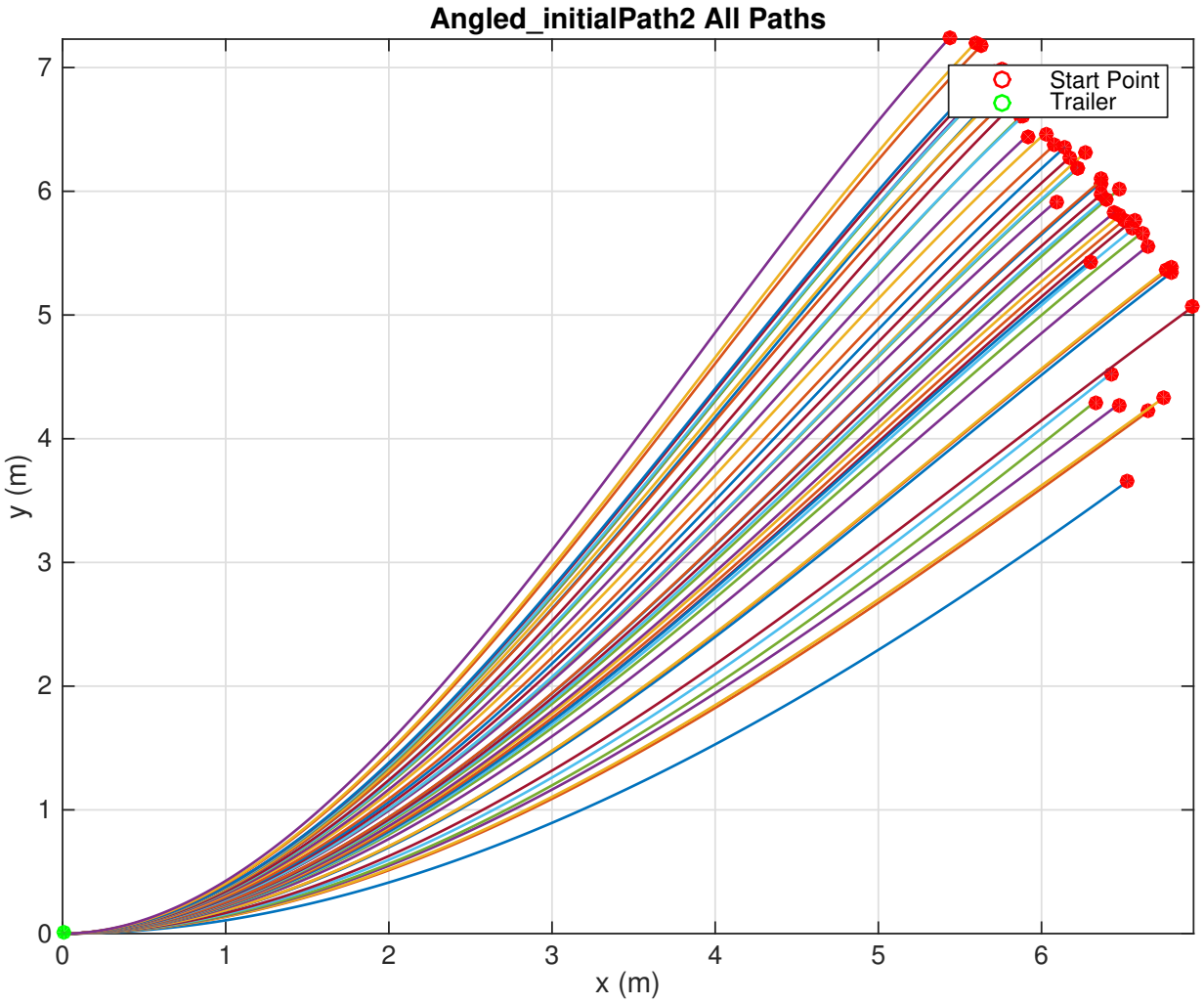

Angled_initialPath1 LIDAR Theta_1 vs Theta_2
θ 1
θ 2
Distance (m)
Index
0
0.2
0.4
0.6
0.8
1
1.2
1.4
0
20
40
60
80
100
120
140


Angled_initialPath1 Camera vs LIDAR Theta_1
Camera
LIDAR
Distance (m)
index
1.5
1
0.5
0
-0.5
-1
-1.5
-2
0
20
40
60
80
100
120
140

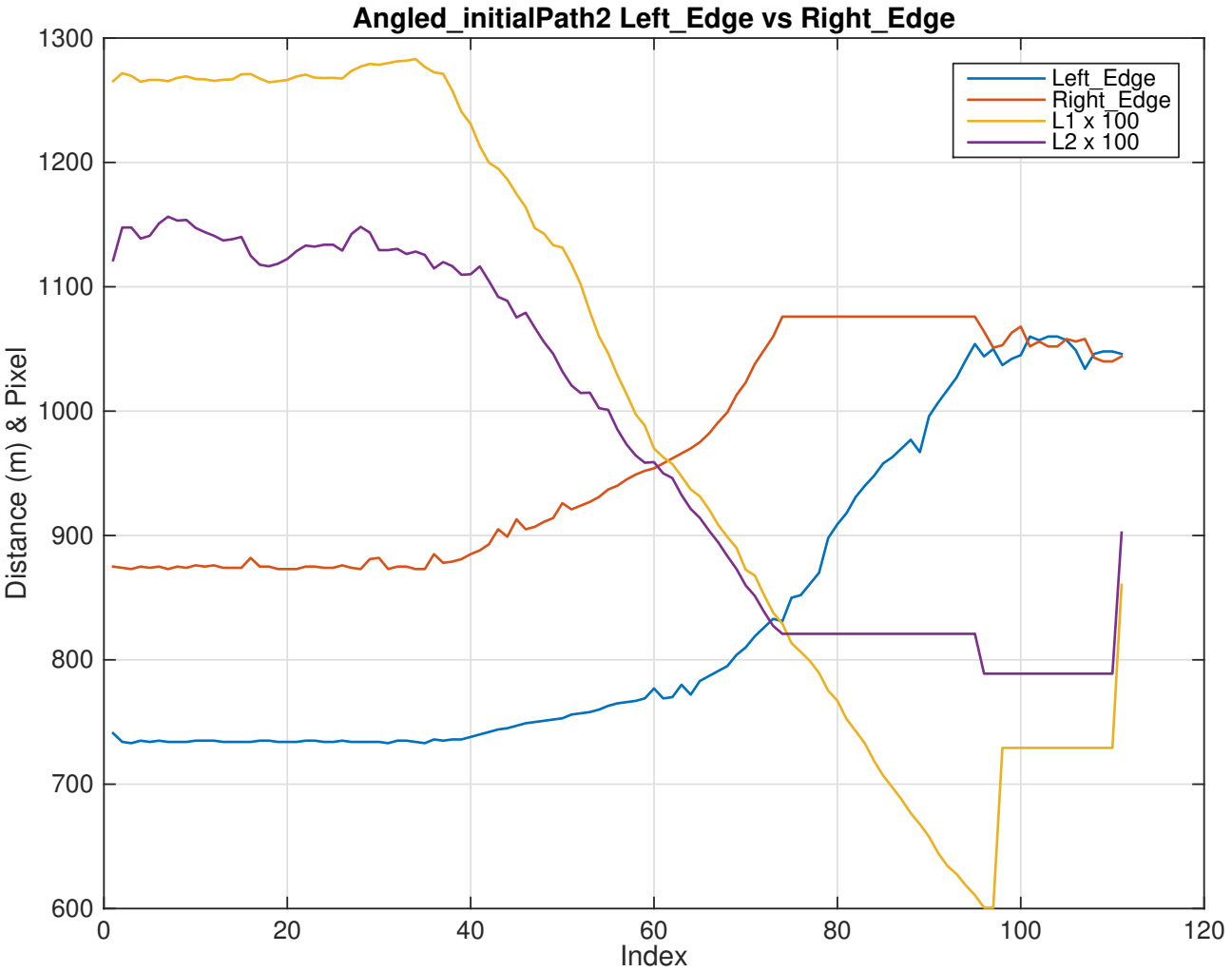

Angled_initialPath1 Camera vs LIDAR Theta_2
Camera
LIDAR
Distance (m)
index
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
0
20
40
60
80
100
120
140

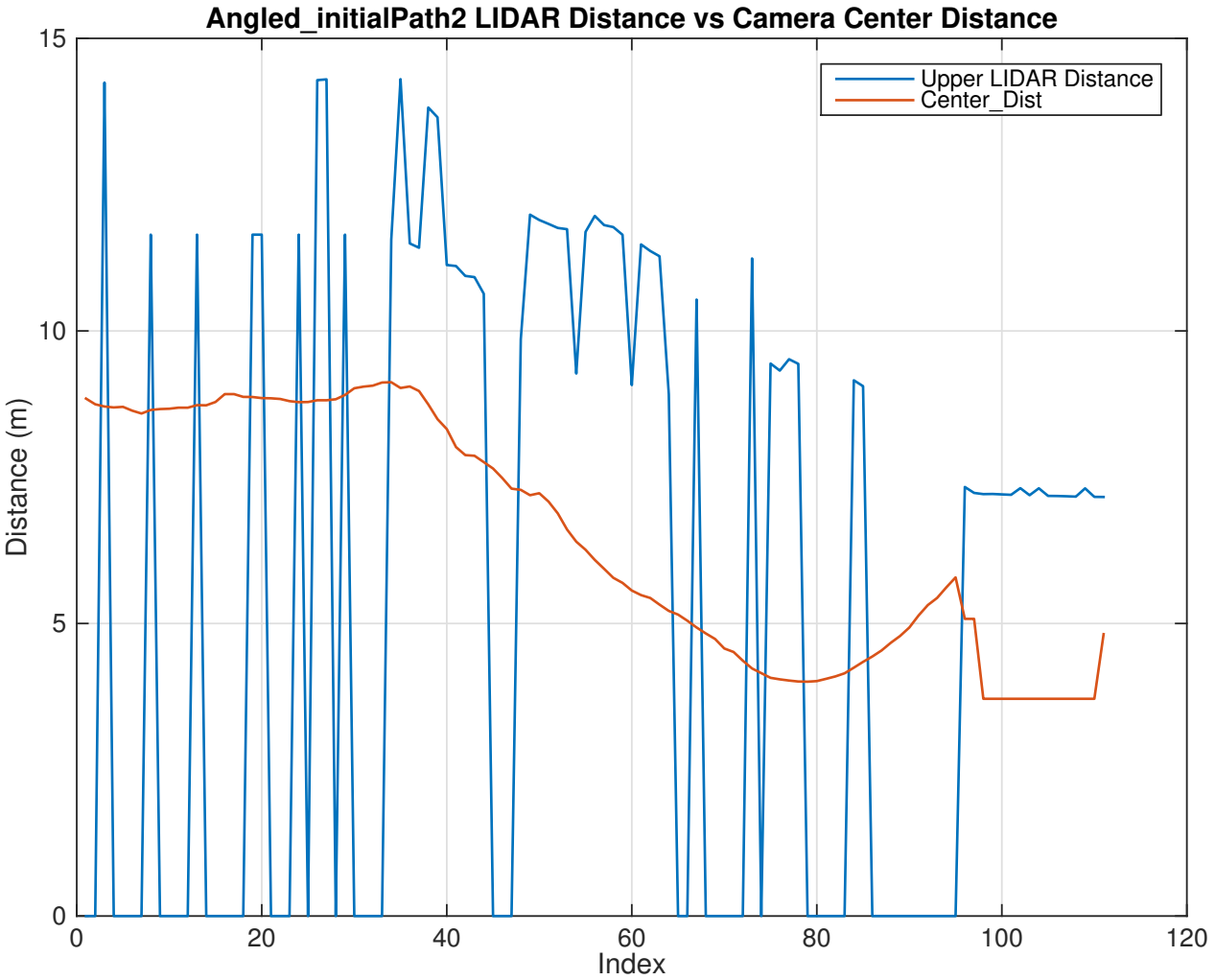

Angled_initialPath1 Camera Angles and Edge Distances
Rec θ 2
Rec θ 1
Rec θ P
L1/10
L2/10
1.5
1
0.5
0
-0.5
-1
-1.5
-2
0
20
40
60
80
100
120
140

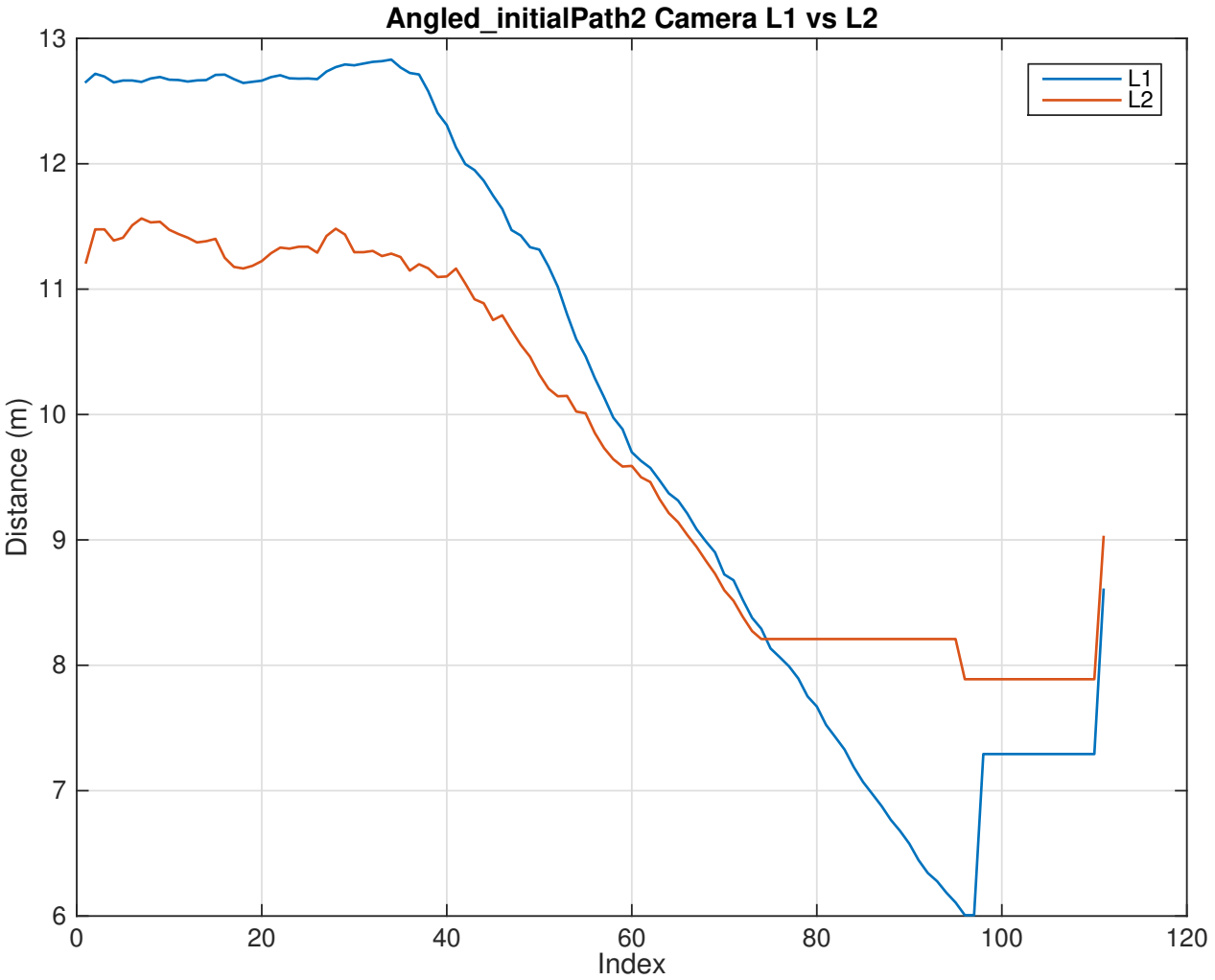

Angled_initialPath1 Calculated vs. Actual Steering
Recorded θ 2
Recorded θ P
Calculated θ P
Recorded Steering Command
Calculated Steering Command
Path Flag (1 = true)
3
2
1
0
-1
-2
-3
0
20
40
60
80
100
120
140
Index

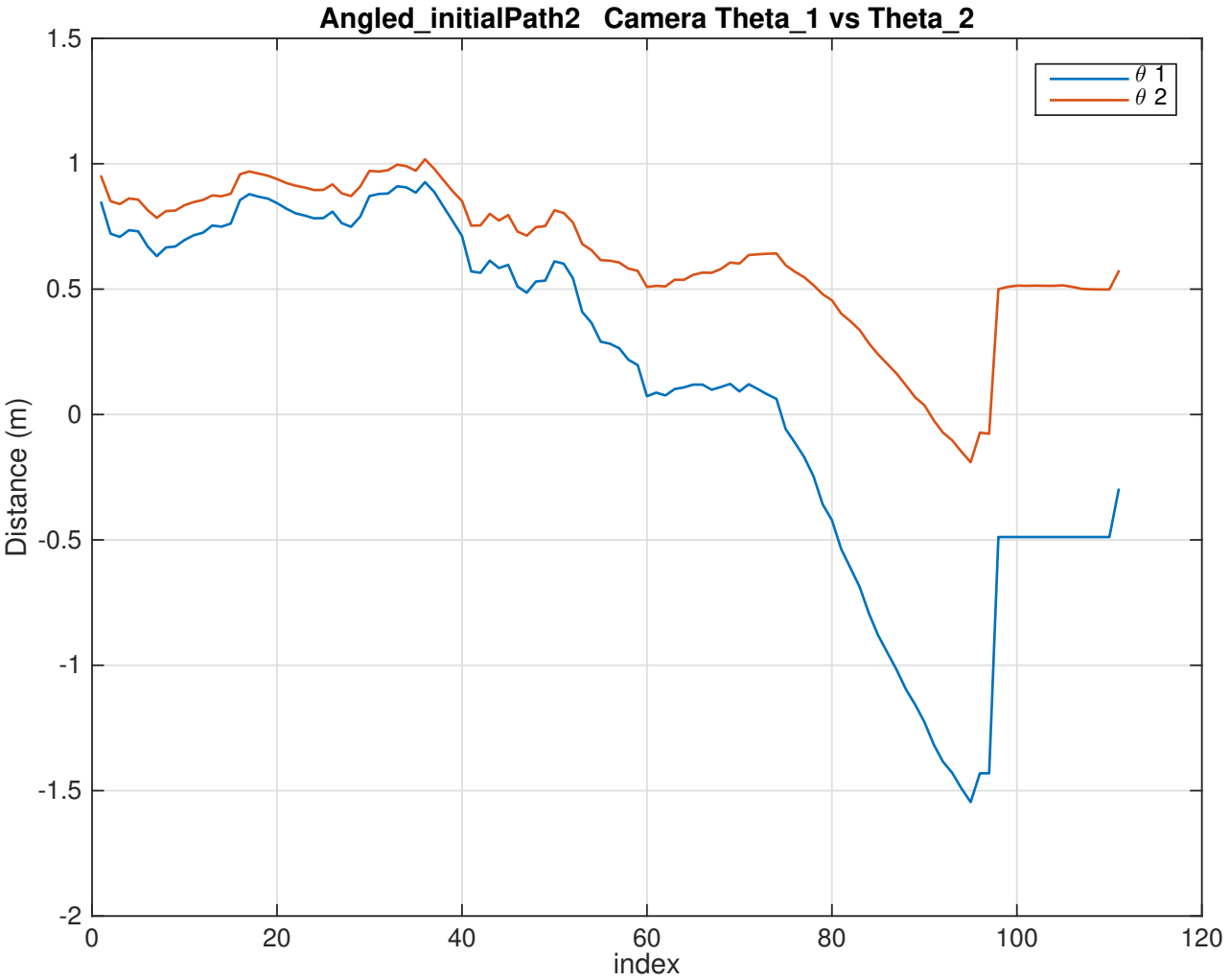

Angled_initialPath2 All Paths
Start Point
Trailer
y (m)
x (m)
0
1
2
3
4
5
6
7

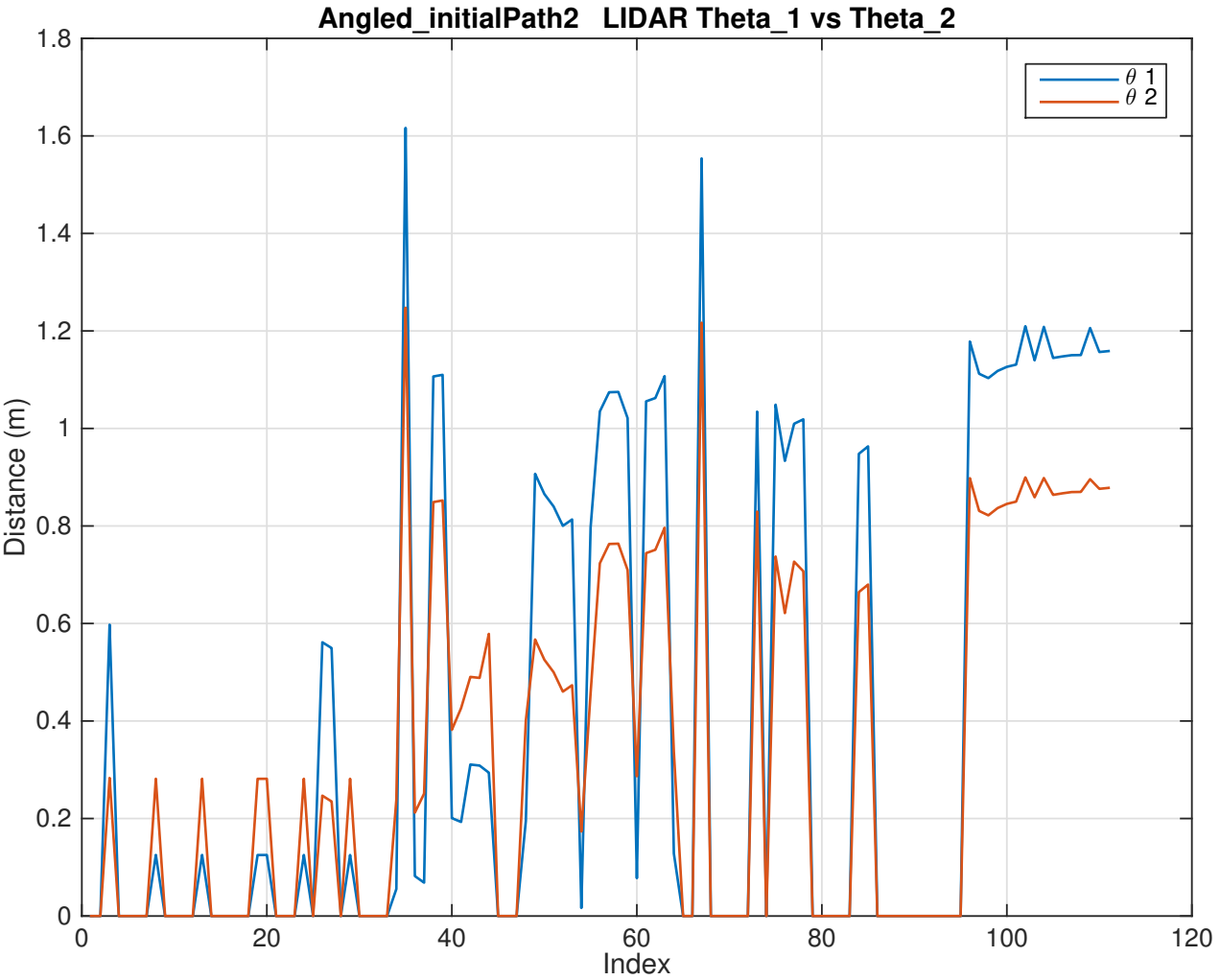
Number_Of_Unique_Paths	King_Pin_Detected
46	false

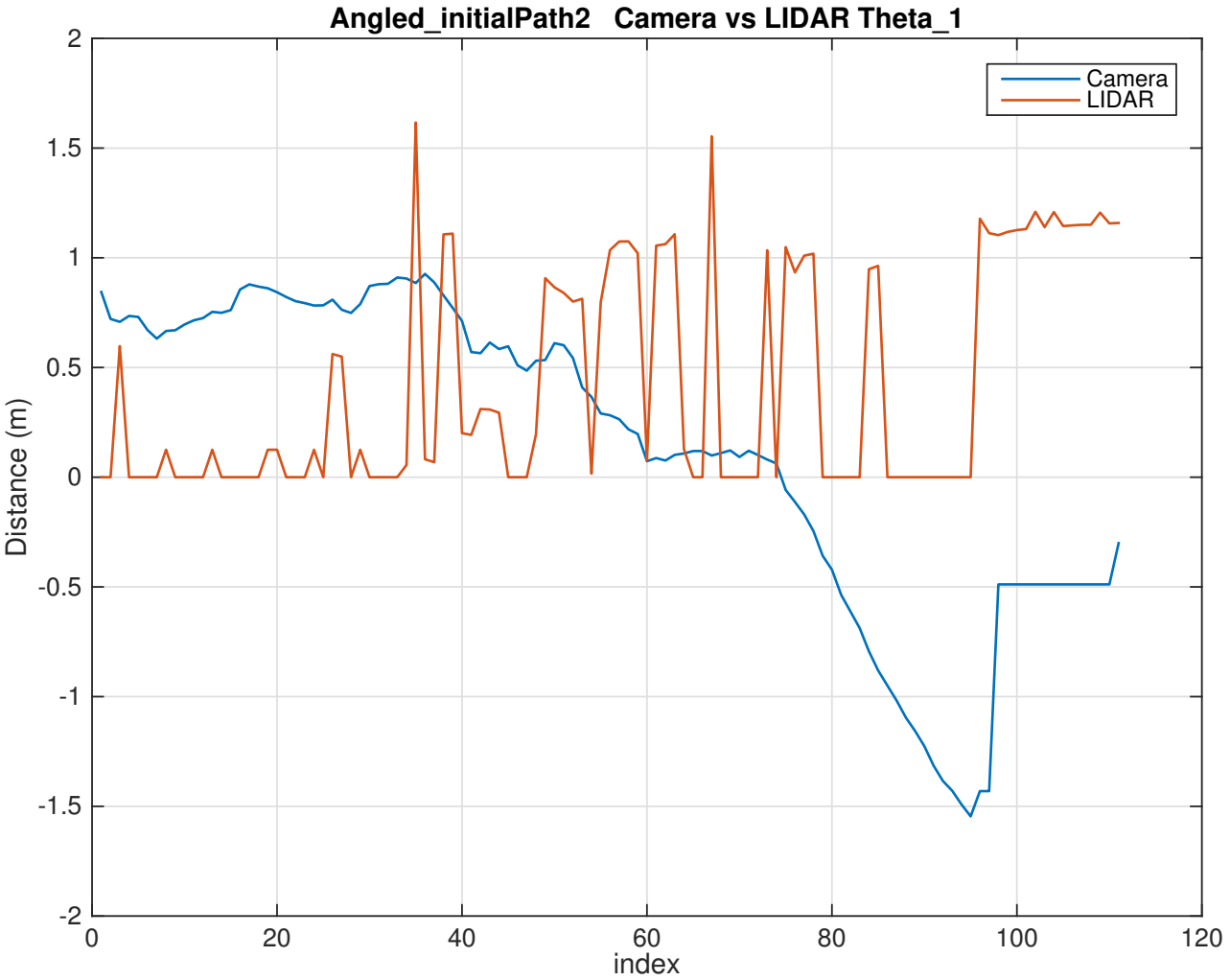

Angled_initialPath2 Left_Edge vs Right_Edge
Left_Edge
Right_Edge
L1 x 100
L2 x 100
Distance (m) & Pixel
Index
1300
1200
1100
1000
900
800
700
600
0
20
40
60
80
100
120

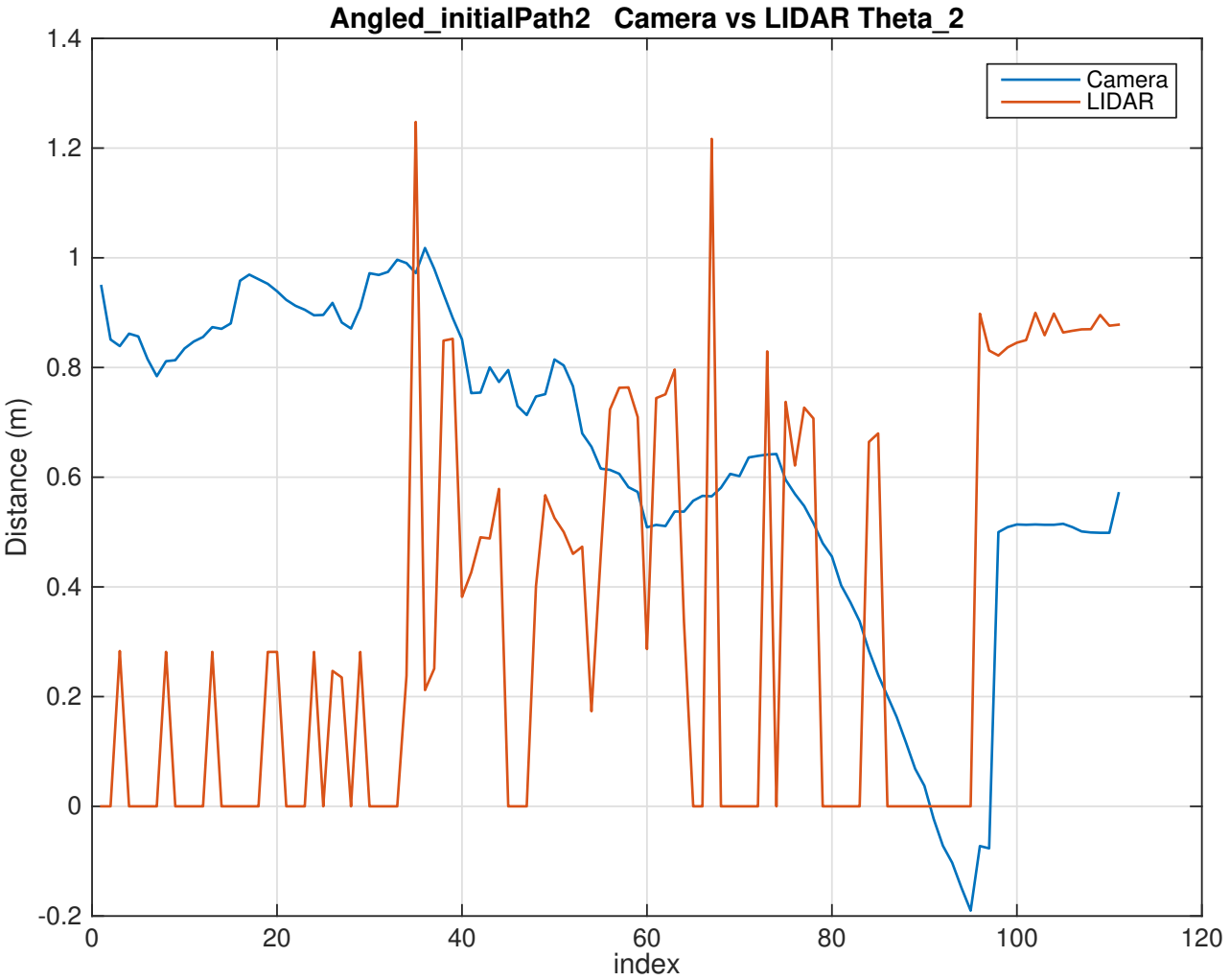

Angled_initialPath2 LIDAR Distance vs Camera Center Distance
Upper LIDAR Distance
Center_Dist
Distance (m)
Index
0
5
10
15
0
20
40
60
80
100
120

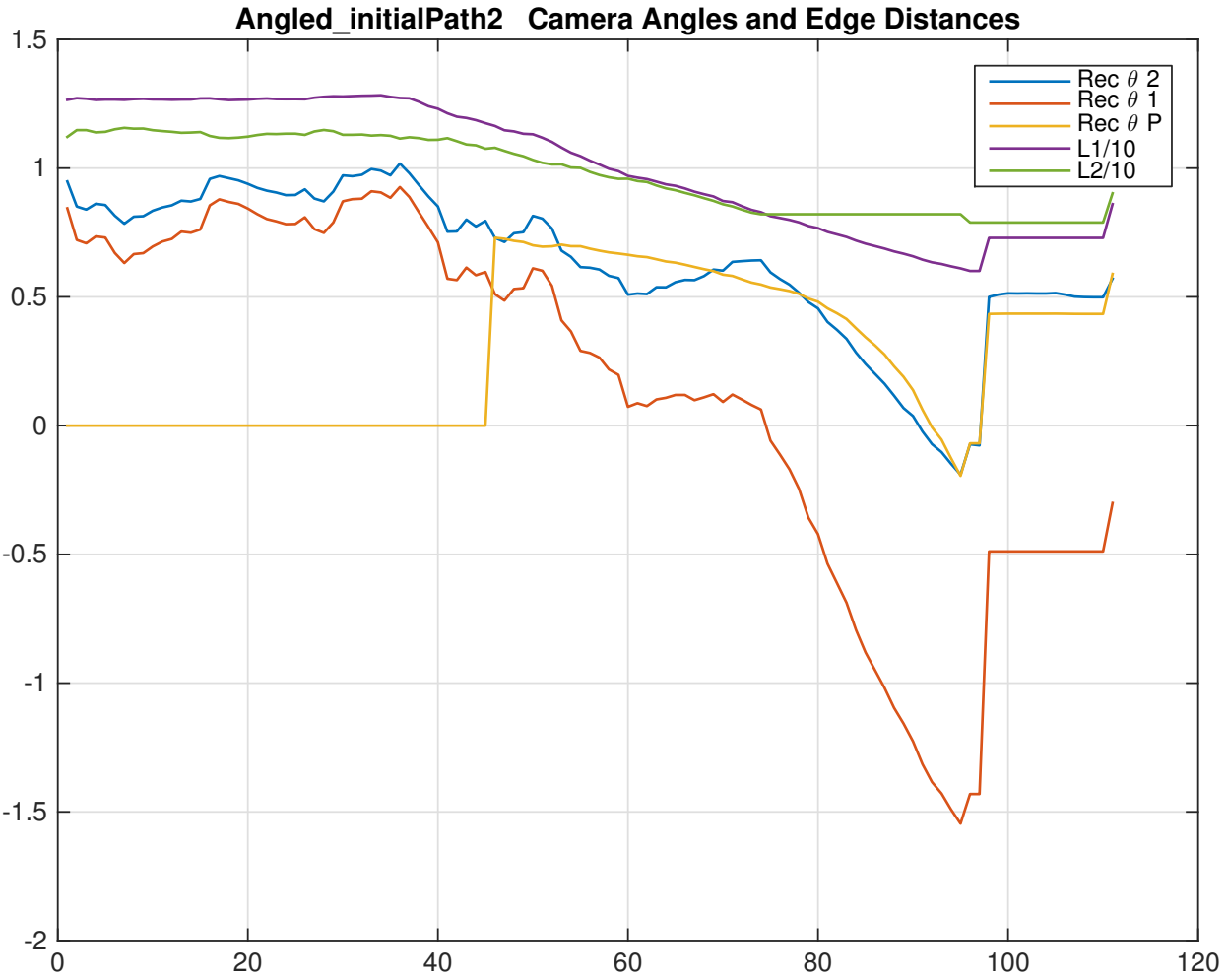

Angled_initialPath2 Camera L1 vs L2
L1
L2
Distance (m)
Index
13
12
11
10
9
8
7
6
0
20
40
60
80
100
120

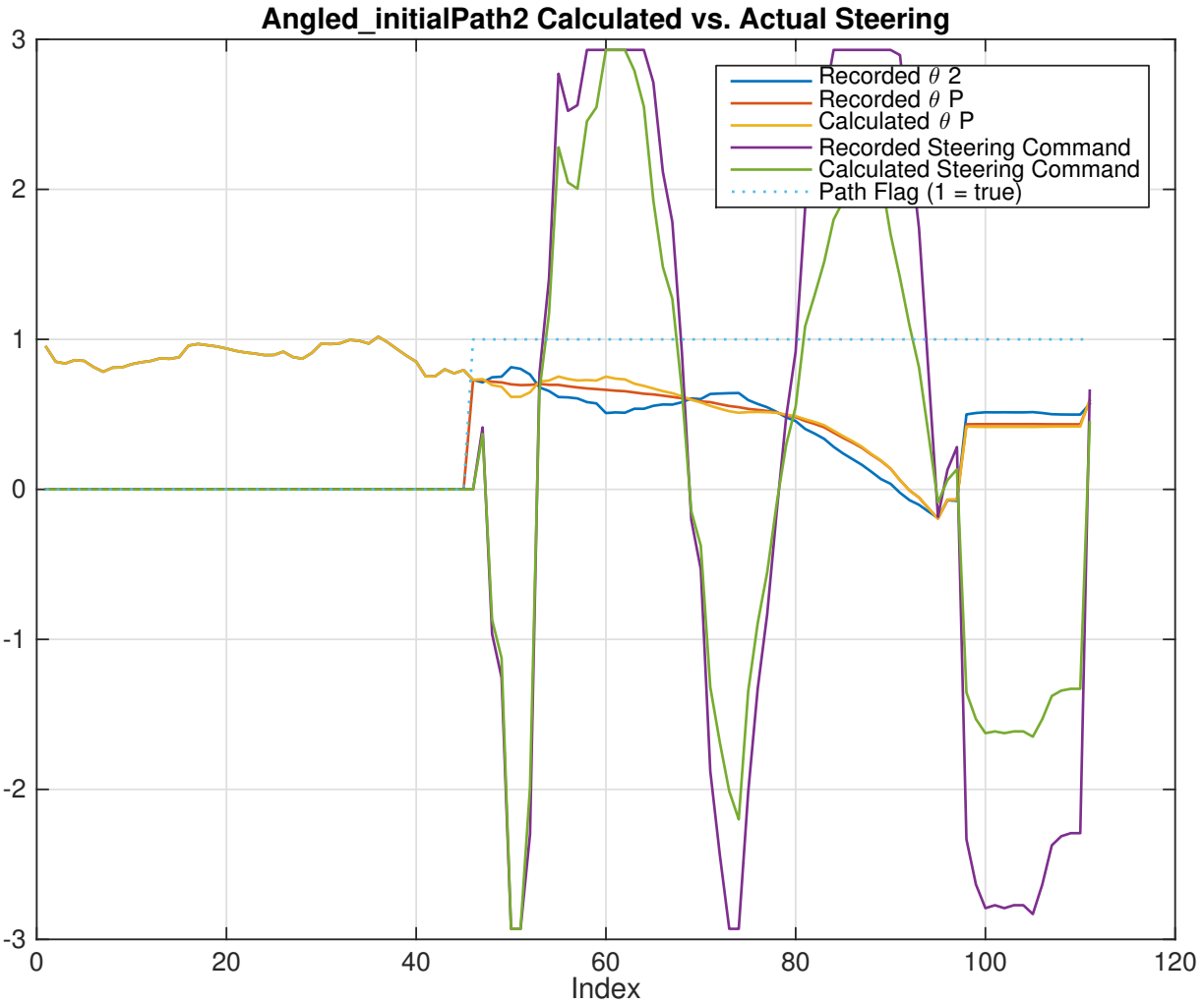

Angled_initialPath2 Camera Theta_1 vs Theta_2
θ 1
θ 2
Distance (m)
index
1.5
1
0.5
0
-0.5
-1
-1.5
-2
0
20
40
60
80
100
120

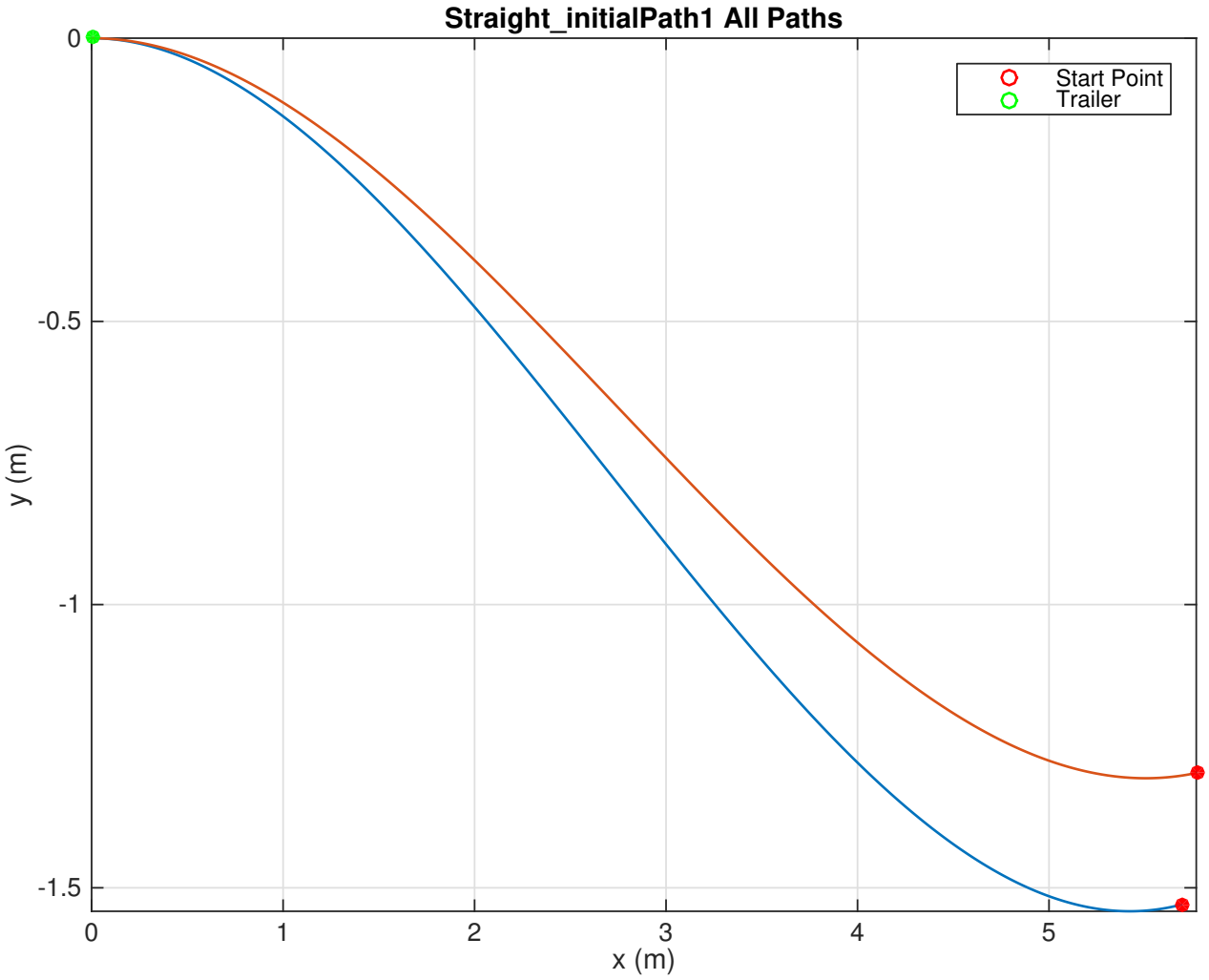

Angled_initialPath2 LIDAR Theta_1 vs Theta_2
θ 1
θ 2
Distance (m)
Index
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
0
20
40
60
80
100
120


Angled_initialPath2 Camera vs LIDAR Theta_1
Camera
LIDAR
Distance (m)
index
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
0
20
40
60
80
100
120

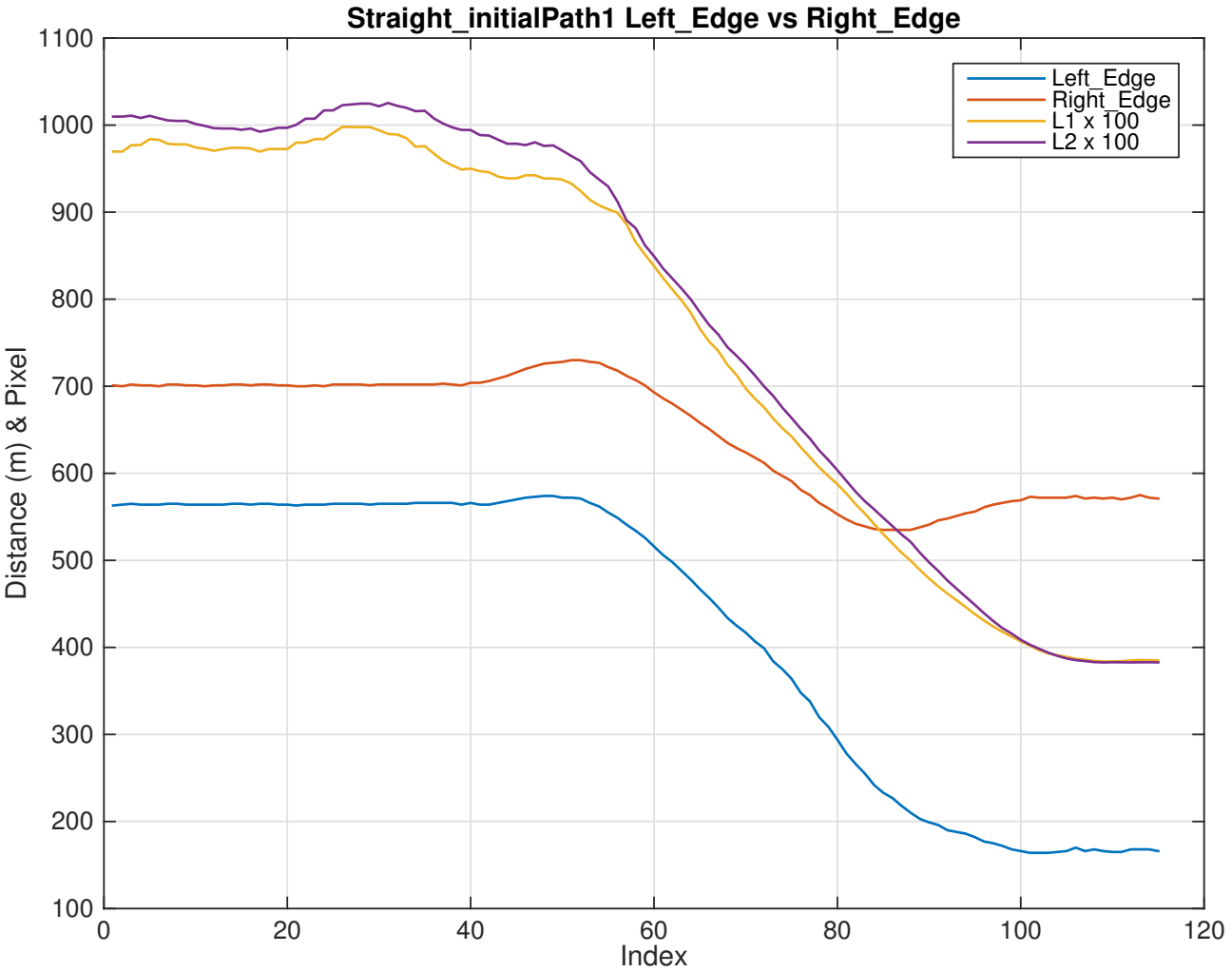

Angled_initialPath2 Camera vs LIDAR Theta_2
Camera
LIDAR
Distance (m)
index
1.4
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
0
20
40
60
80
100
120

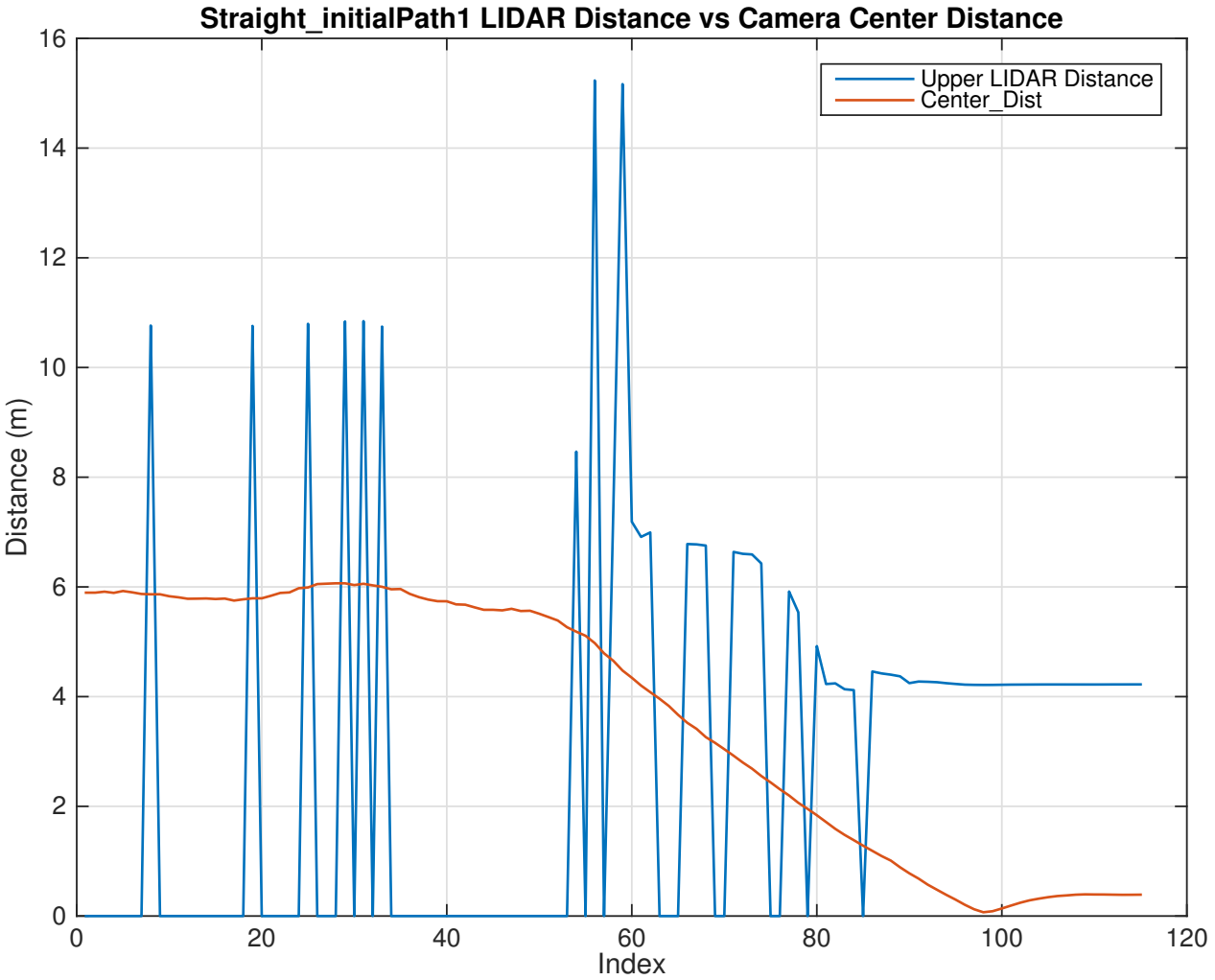

Angled_initialPath2 Camera Angles and Edge Distances
Rec θ 2
Rec θ 1
Rec θ P
L1/10
L2/10
1.5
1
0.5
0
-0.5
-1
-1.5
-2
0
20
40
60
80
100
120

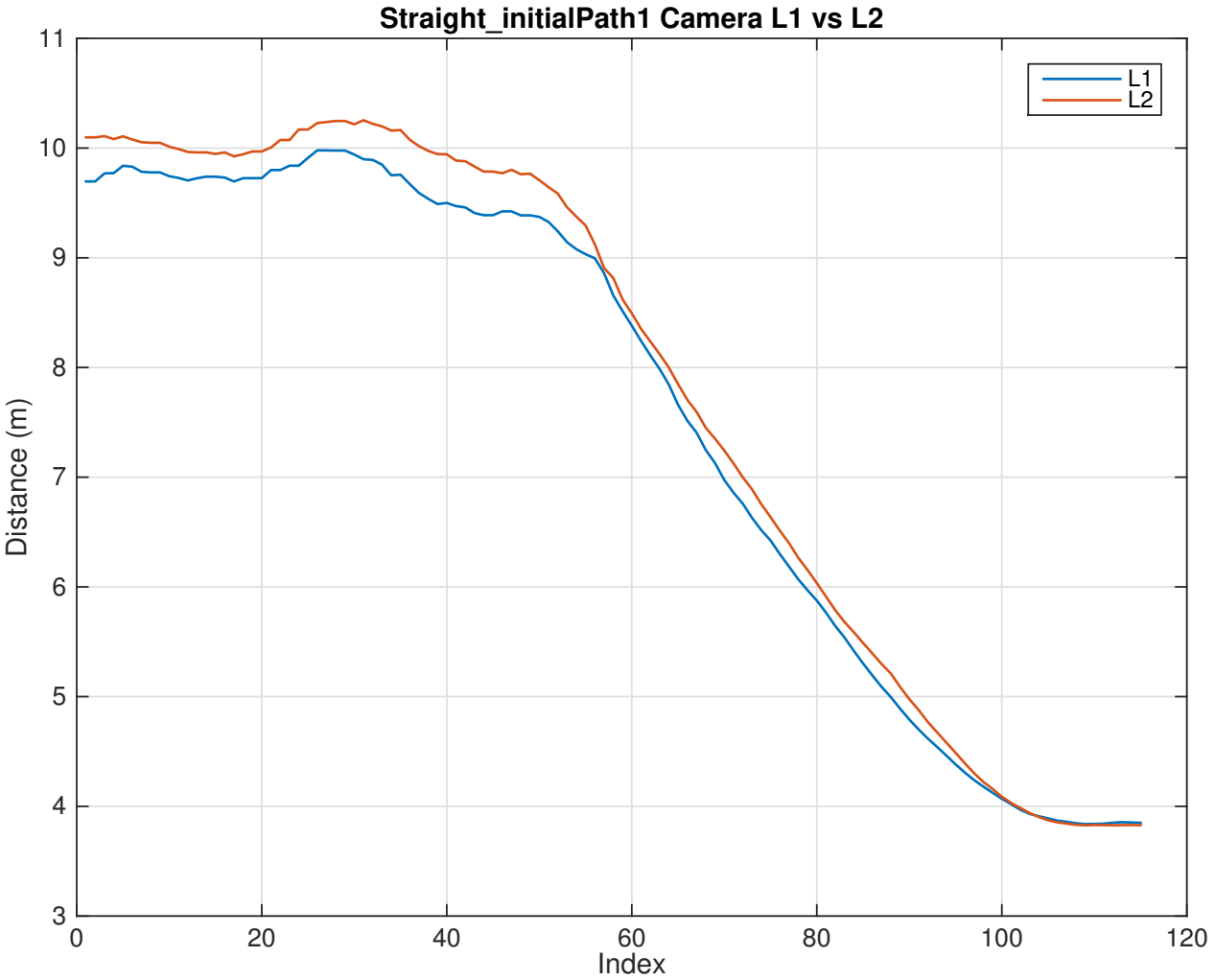

Angled_initialPath2 Calculated vs. Actual Steering
Recorded θ 2
Recorded θ P
Calculated θ P
Recorded Steering Command
Calculated Steering Command
Path Flag (1 = true)
3
2
1
0
-1
-2
-3
0
20
40
60
80
100
120
Index

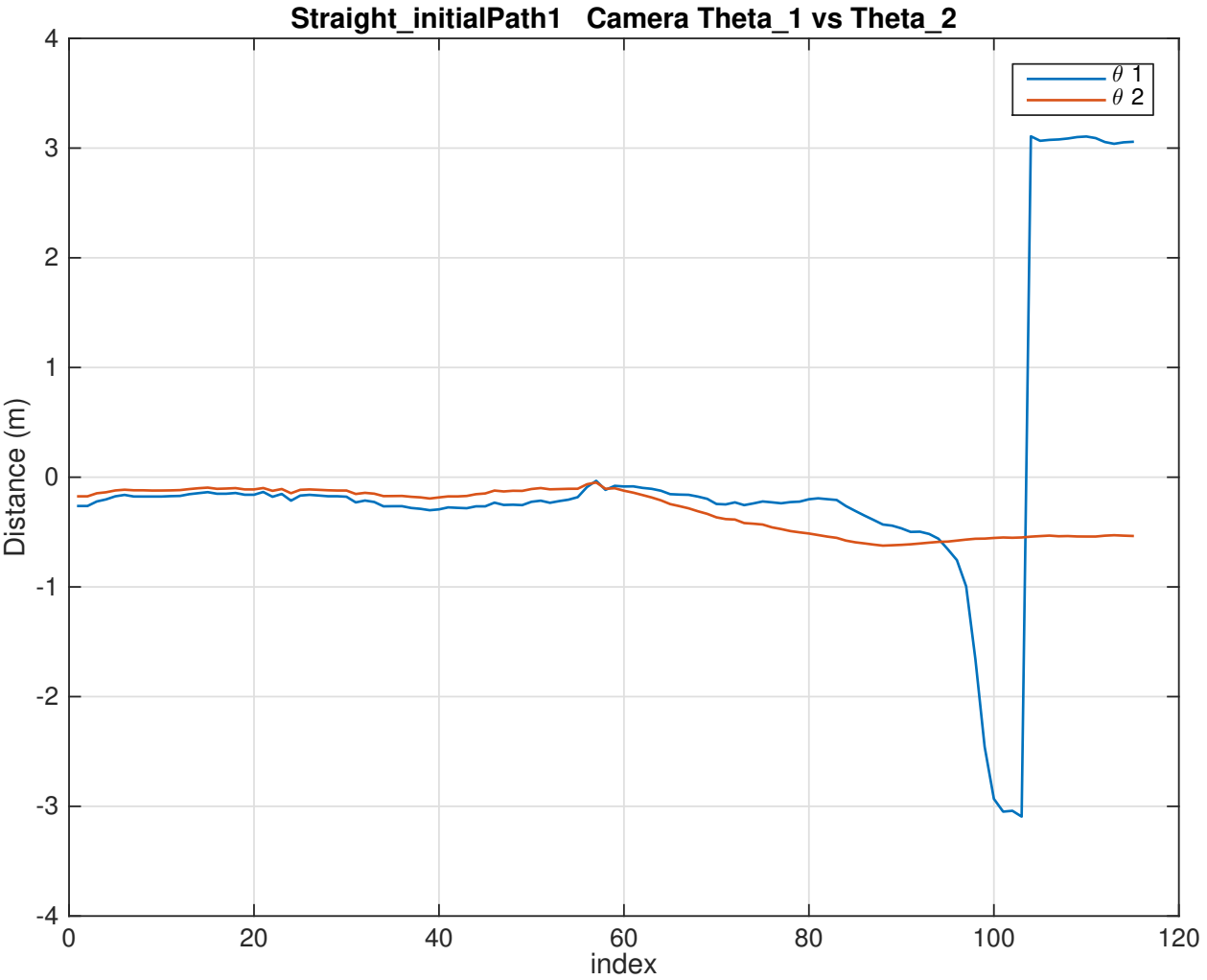

Straight_initialPath1 All Paths
Start Point
Trailer
0
-0.5
-1
-1.5
y (m)
0
1
2
3
4
5
x (m)

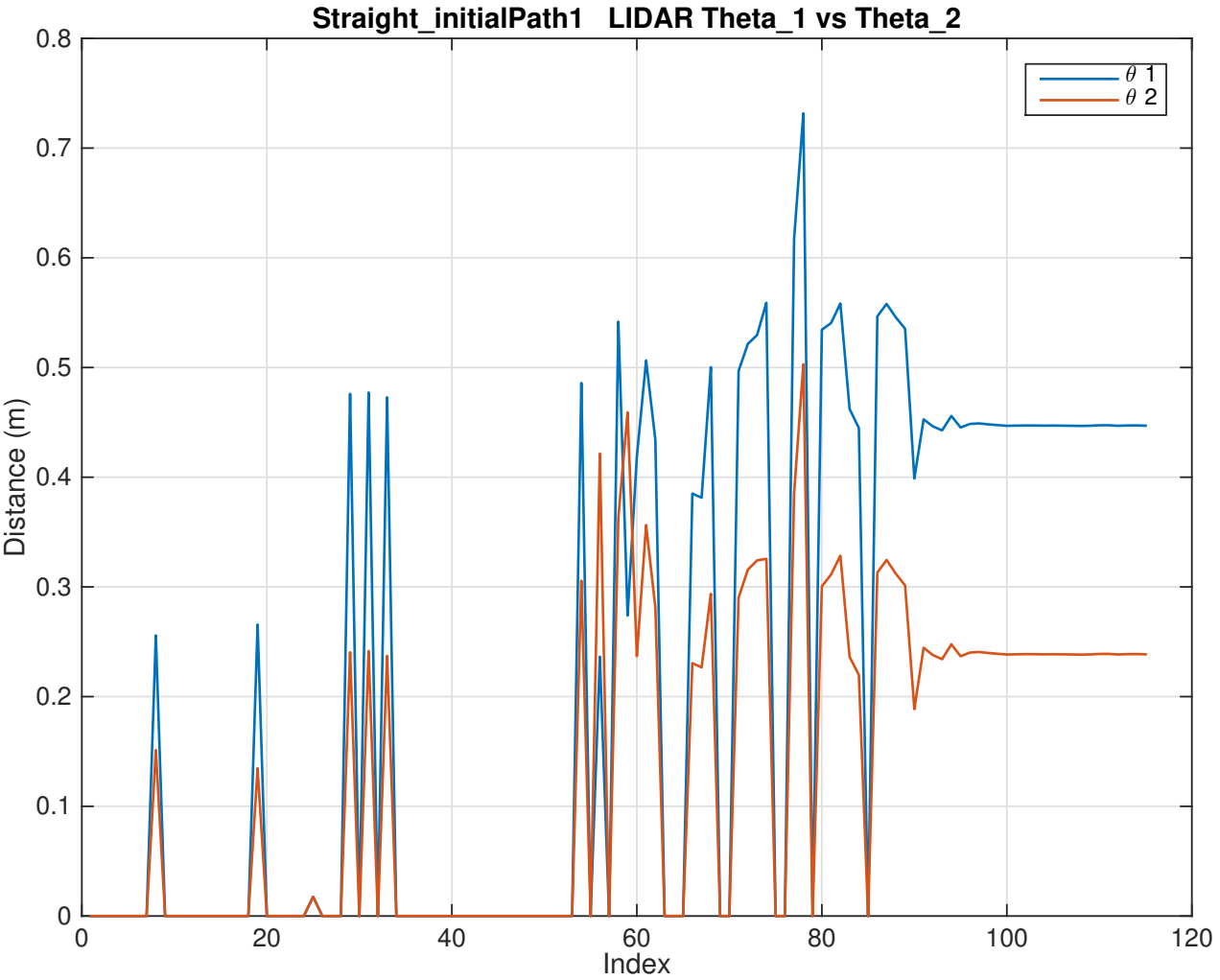
Number_Of_Unique_Paths	King_Pin_Detected
2	false

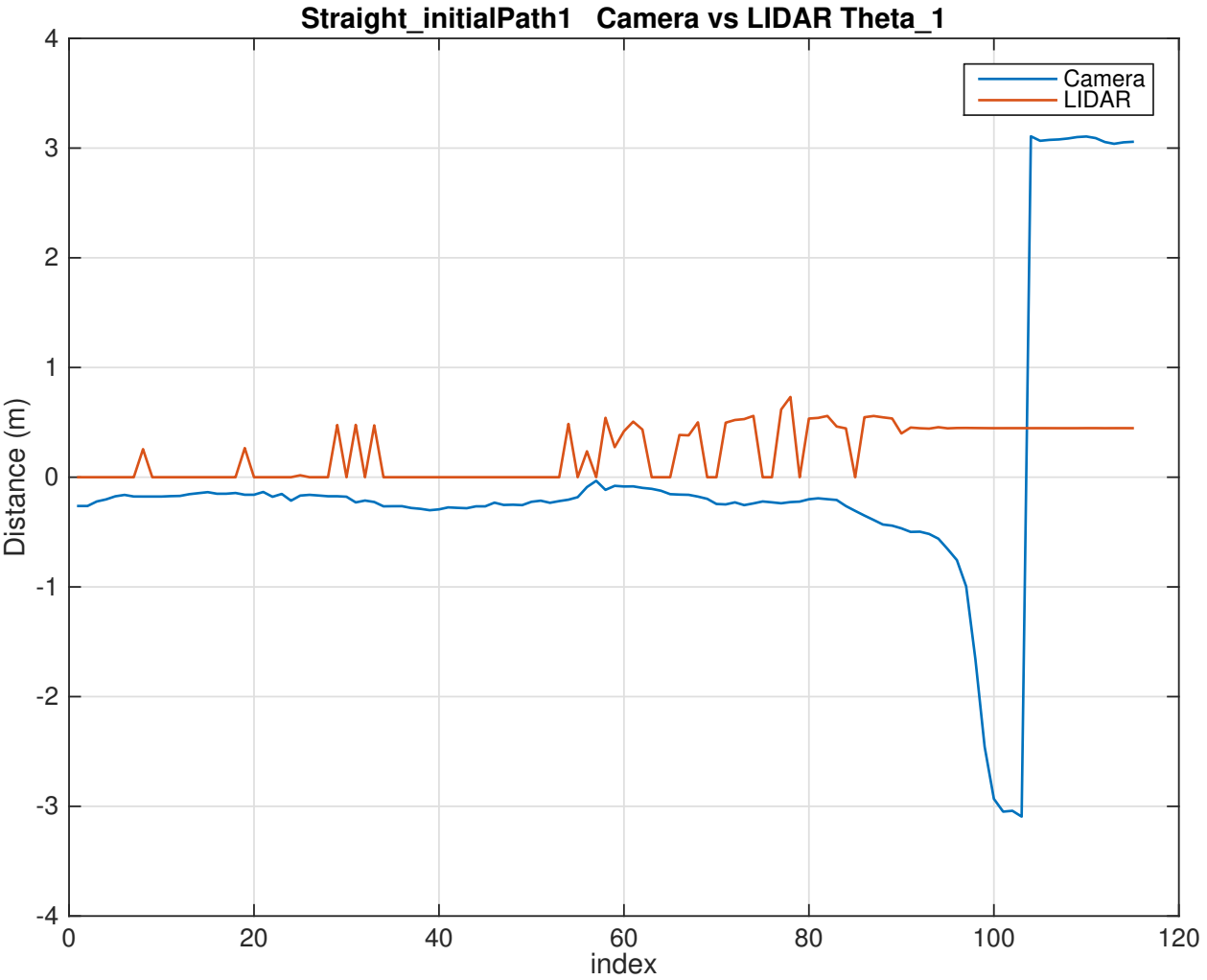

Straight_initialPath1 Left_Edge vs Right_Edge
Left_Edge
Right_Edge
L1 x 100
L2 x 100
Distance (m) & Pixel
Index
1100
1000
900
800
700
600
500
400
300
200
100
0
20
40
60
80
100
120

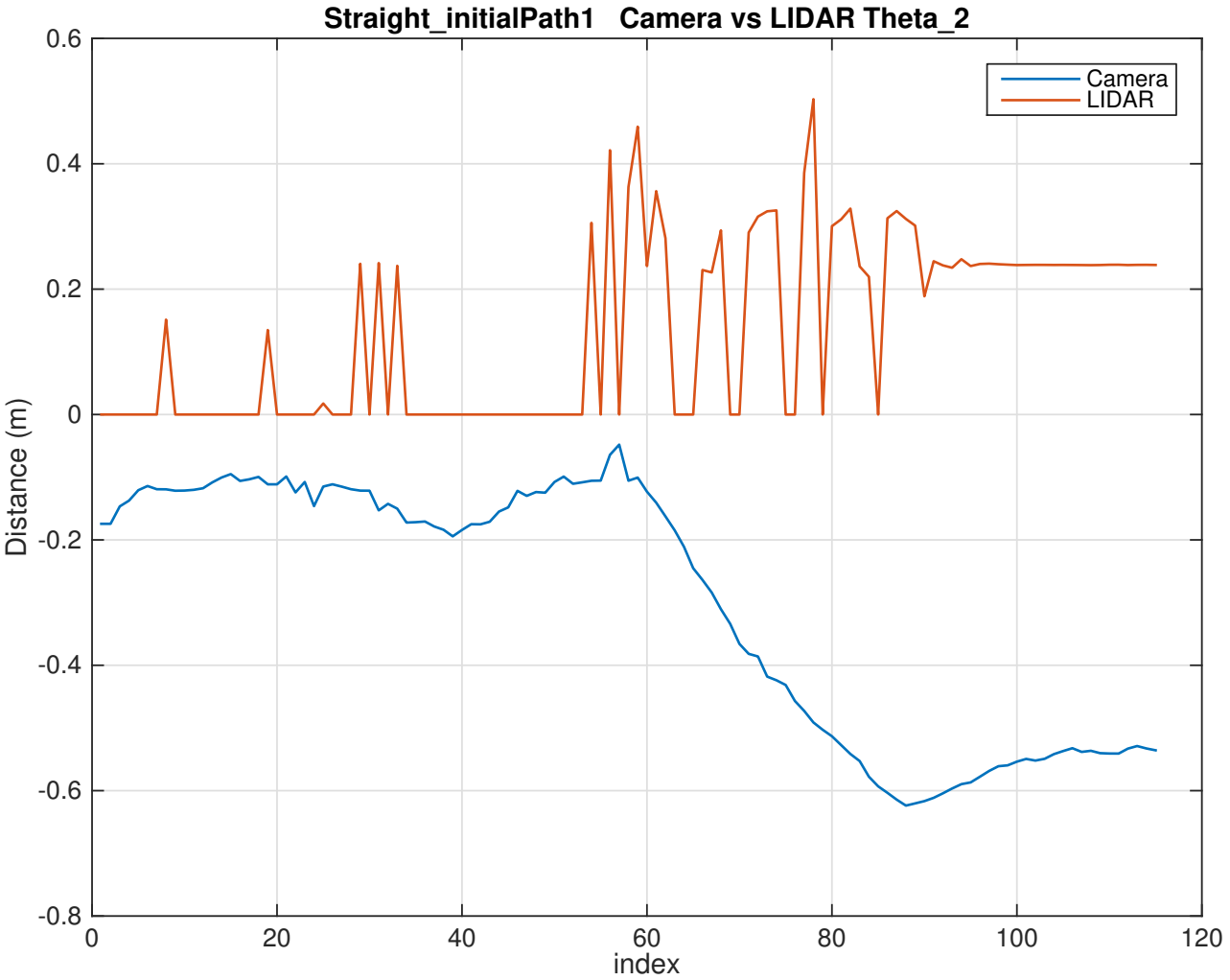

Straight_initialPath1 LIDAR Distance vs Camera Center Distance
Upper LIDAR Distance
Center_Dist
Distance (m)
Index
0
2
4
6
8
10
12
14
16
0
20
40
60
80
100
120

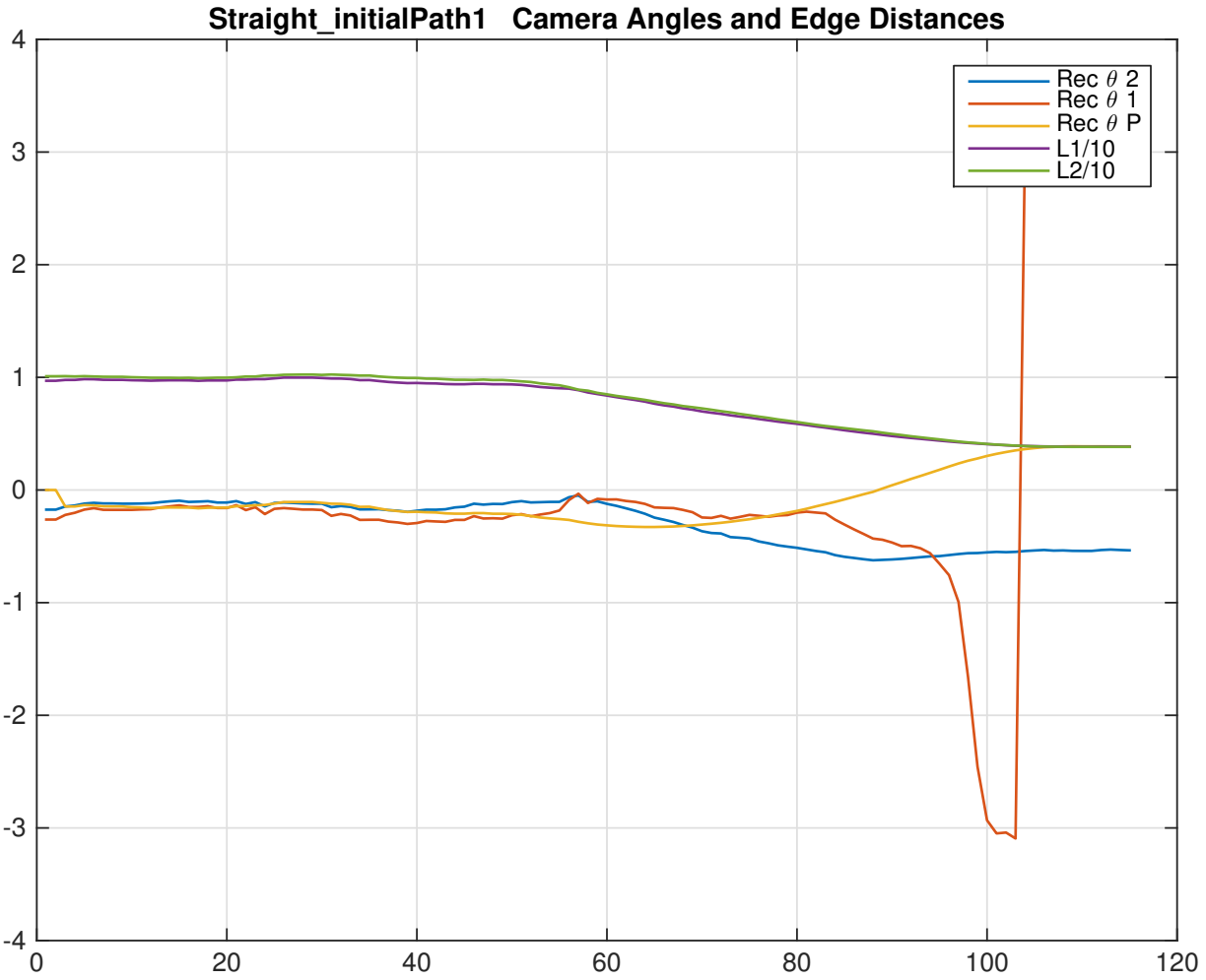

Straight_initialPath1 Camera L1 vs L2
L1
L2
Distance (m)
Index
11
10
9
8
7
6
5
4
3
0
20
40
60
80
100
120

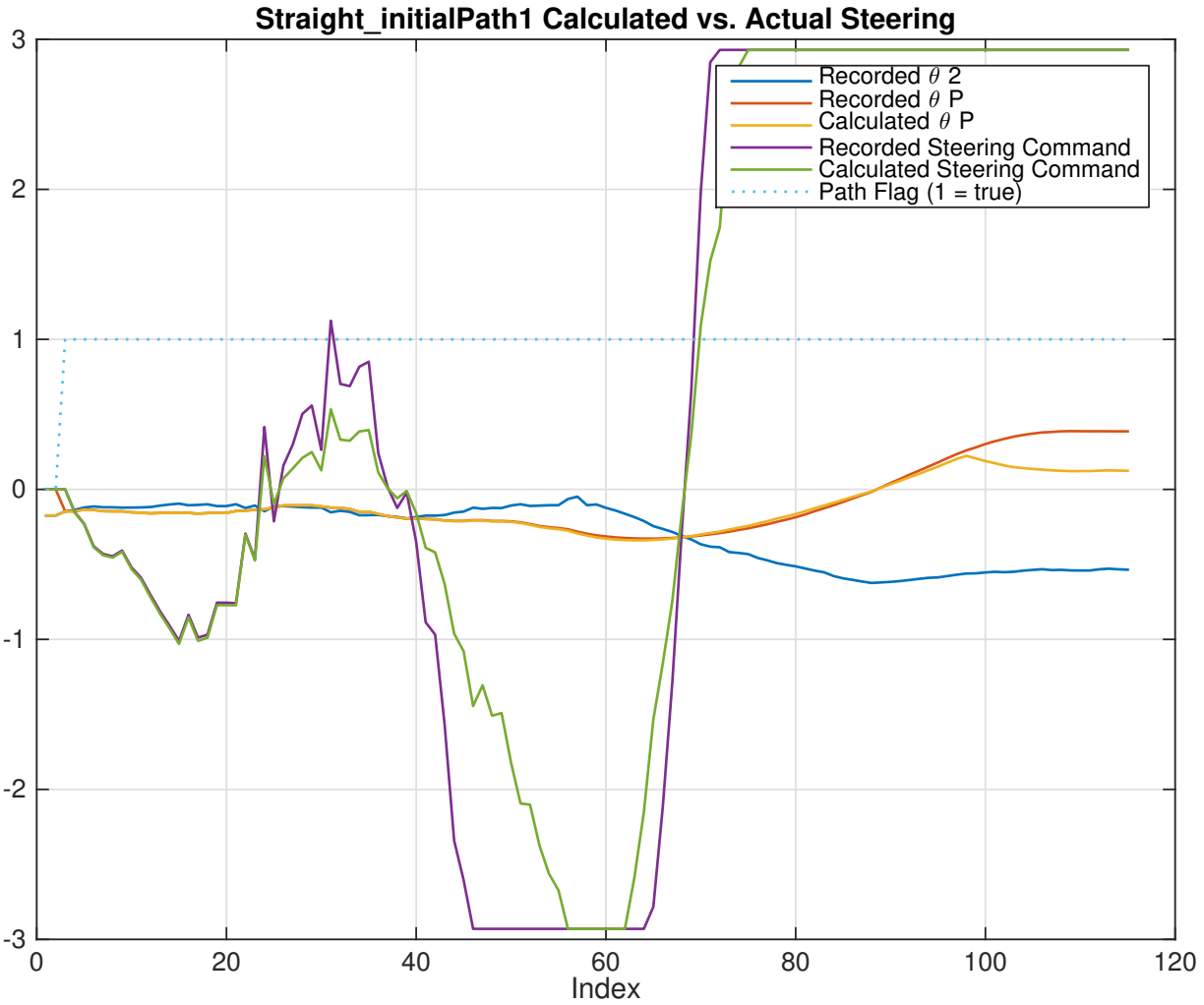

Straight_initialPath1 Camera Theta_1 vs Theta_2
θ 1
θ 2
Distance (m)
index
4
3
2
1
0
-1
-2
-3
-4
0
20
40
60
80
100
120

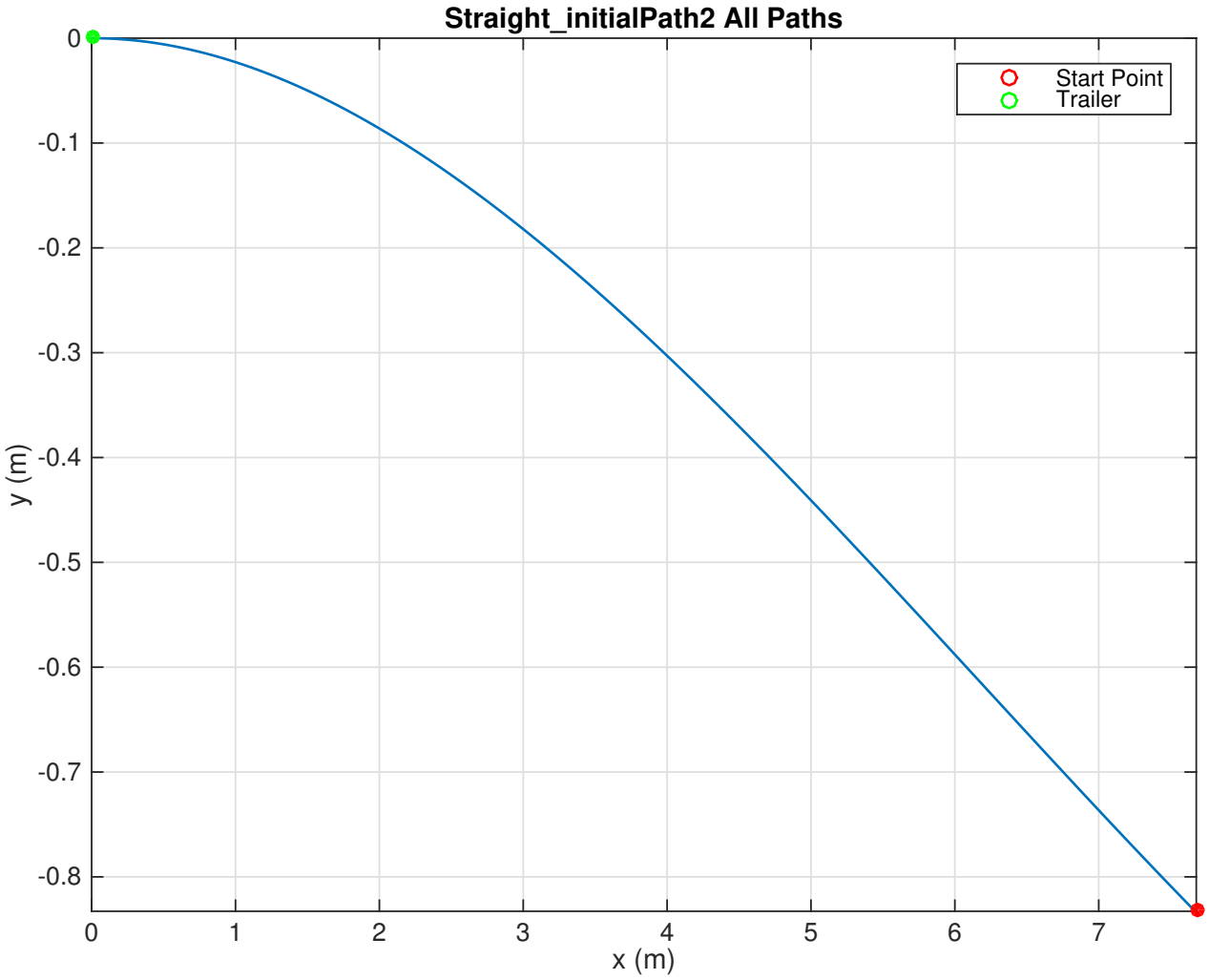

Straight_initialPath1 LIDAR Theta_1 vs Theta_2
θ 1
θ 2
Distance (m)
Index
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0
20
40
60
80
100
120


Straight_initialPath1 Camera vs LIDAR Theta_1
Camera
LIDAR
Distance (m)
index
4
3
2
1
0
-1
-2
-3
-4
0
20
40
60
80
100
120

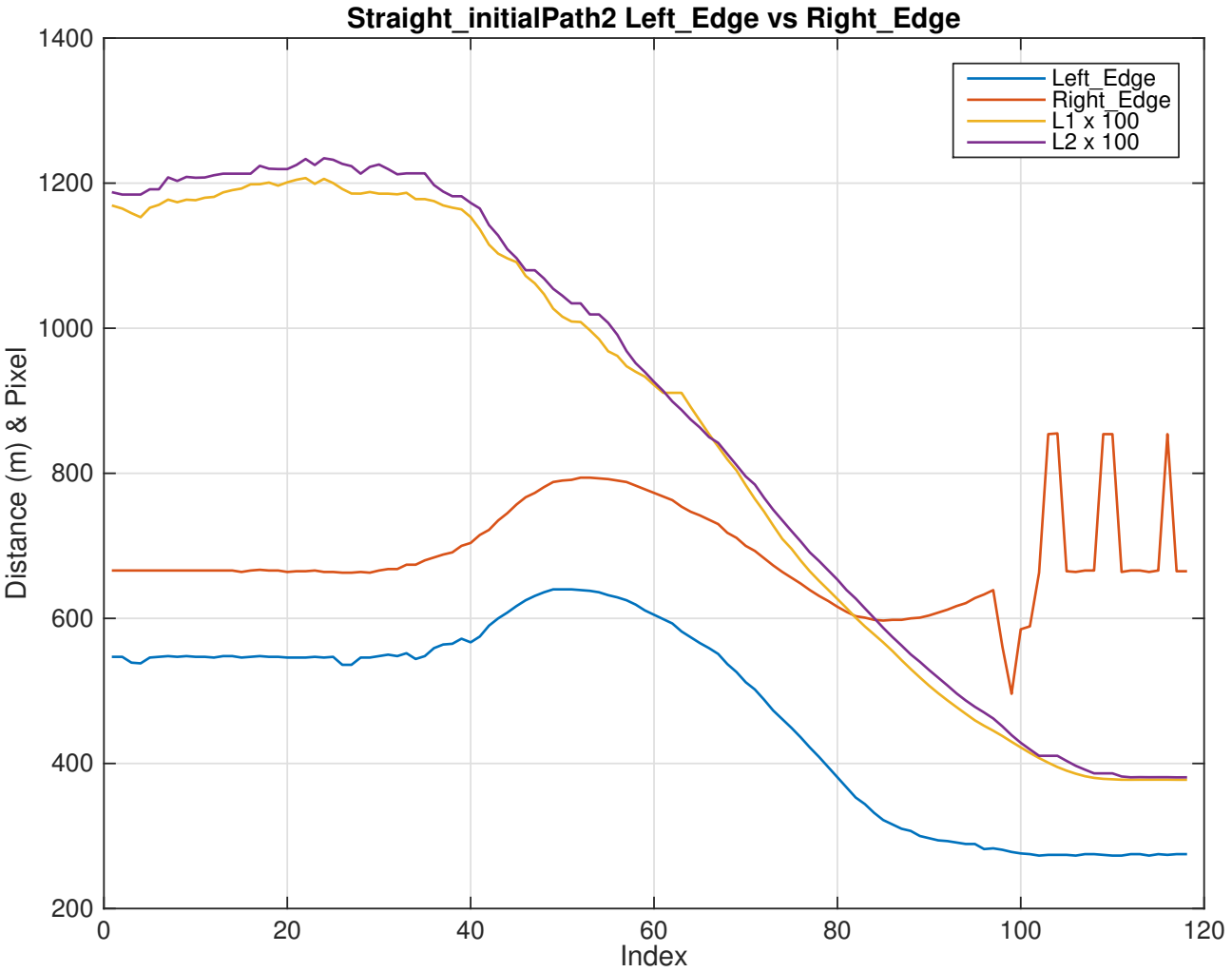

Straight_initialPath1 Camera vs LIDAR Theta_2
Camera
LIDAR
Distance (m)
index
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
0
20
40
60
80
100
120

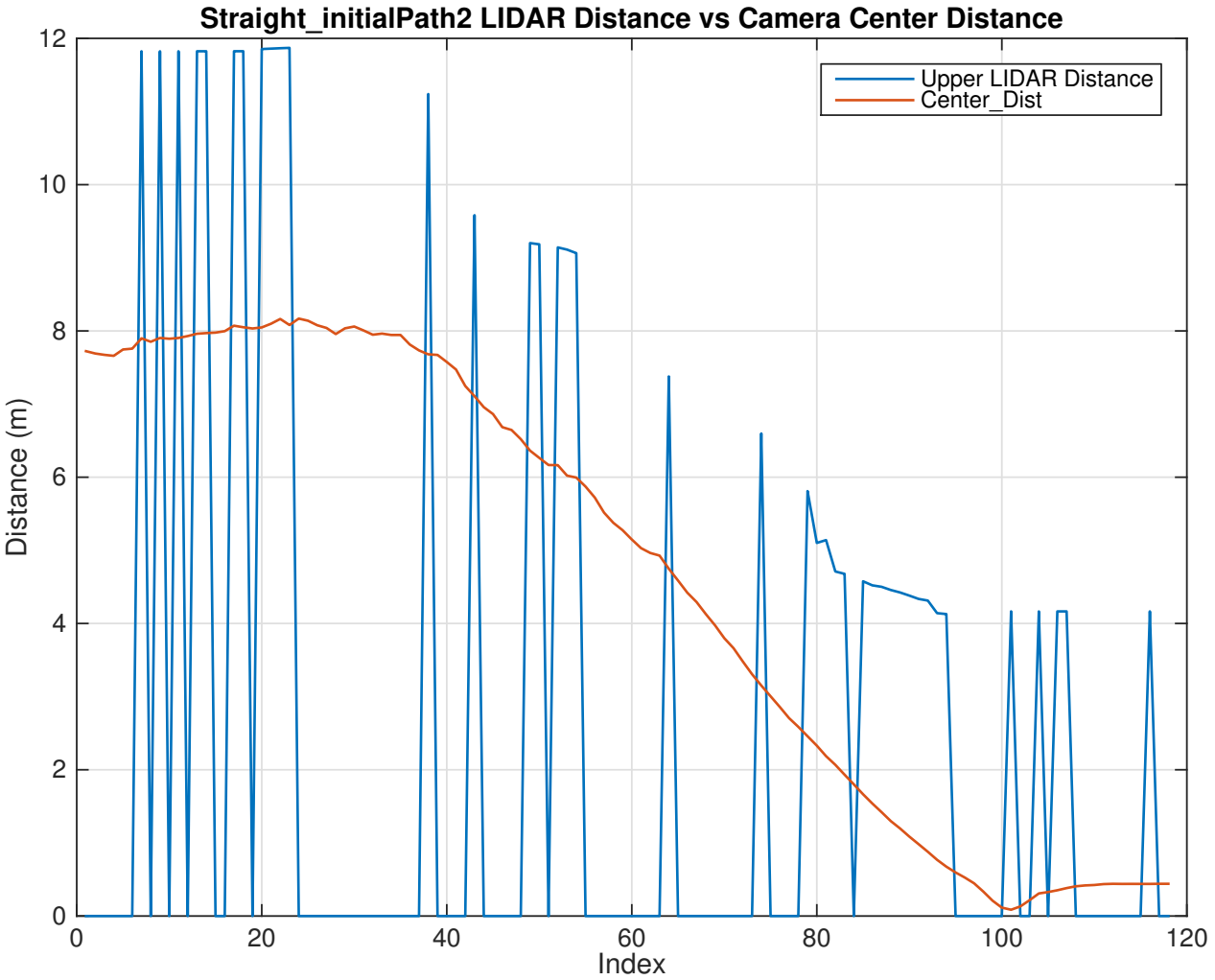

Straight_initialPath1 Camera Angles and Edge Distances
Rec θ 2
Rec θ 1
Rec θ P
L1/10
L2/10
4
3
2
1
0
-1
-2
-3
-4
0
20
40
60
80
100
120

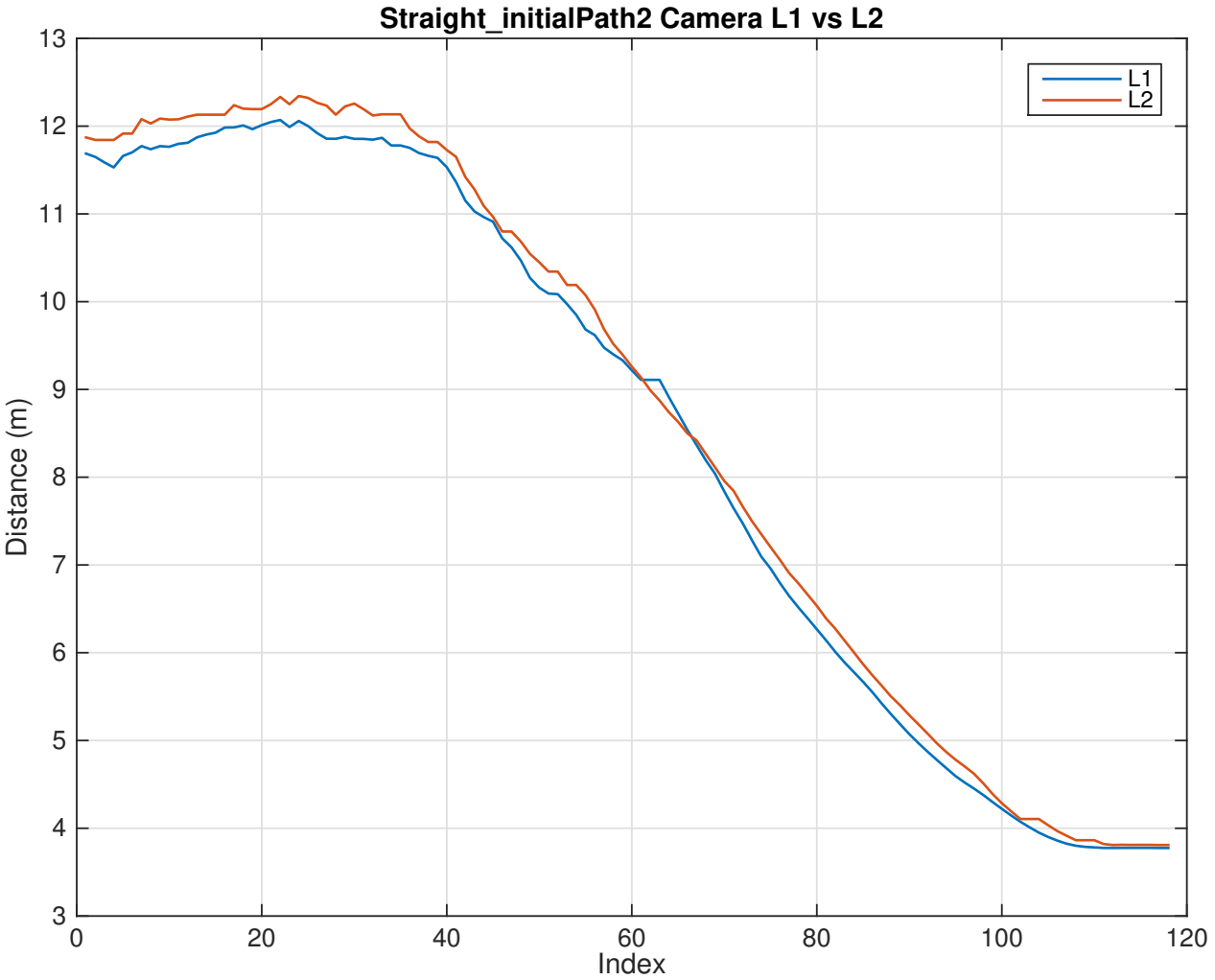

Straight_initialPath1 Calculated vs. Actual Steering
Recorded θ 2
Recorded θ P
Calculated θ P
Recorded Steering Command
Calculated Steering Command
Path Flag (1 = true)
3
2
1
0
-1
-2
-3
0
20
40
60
80
100
120
Index

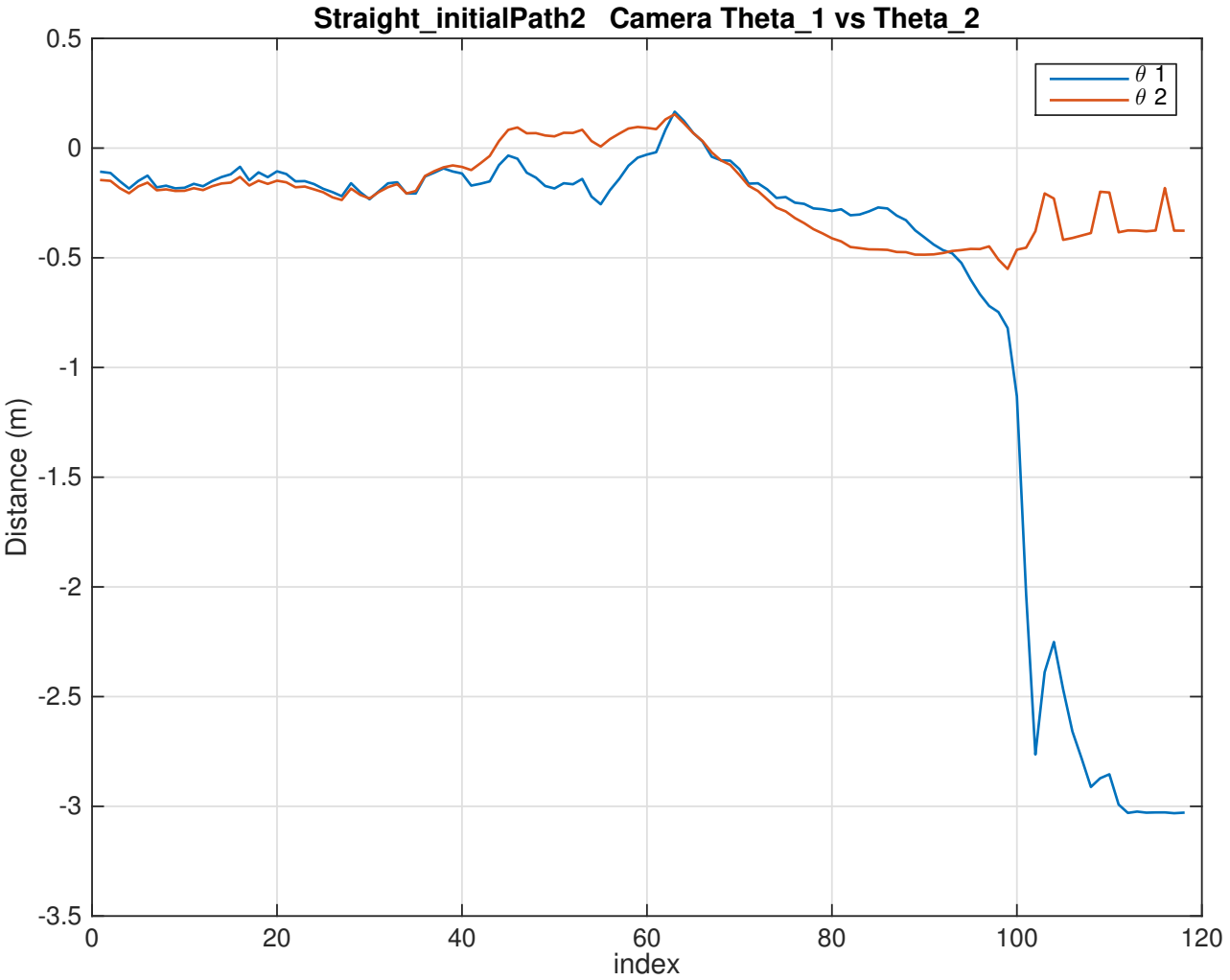

Straight_initialPath2 All Paths
Start Point
Trailer
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
y (m)
0
1
2
3
4
5
6
7
x (m)

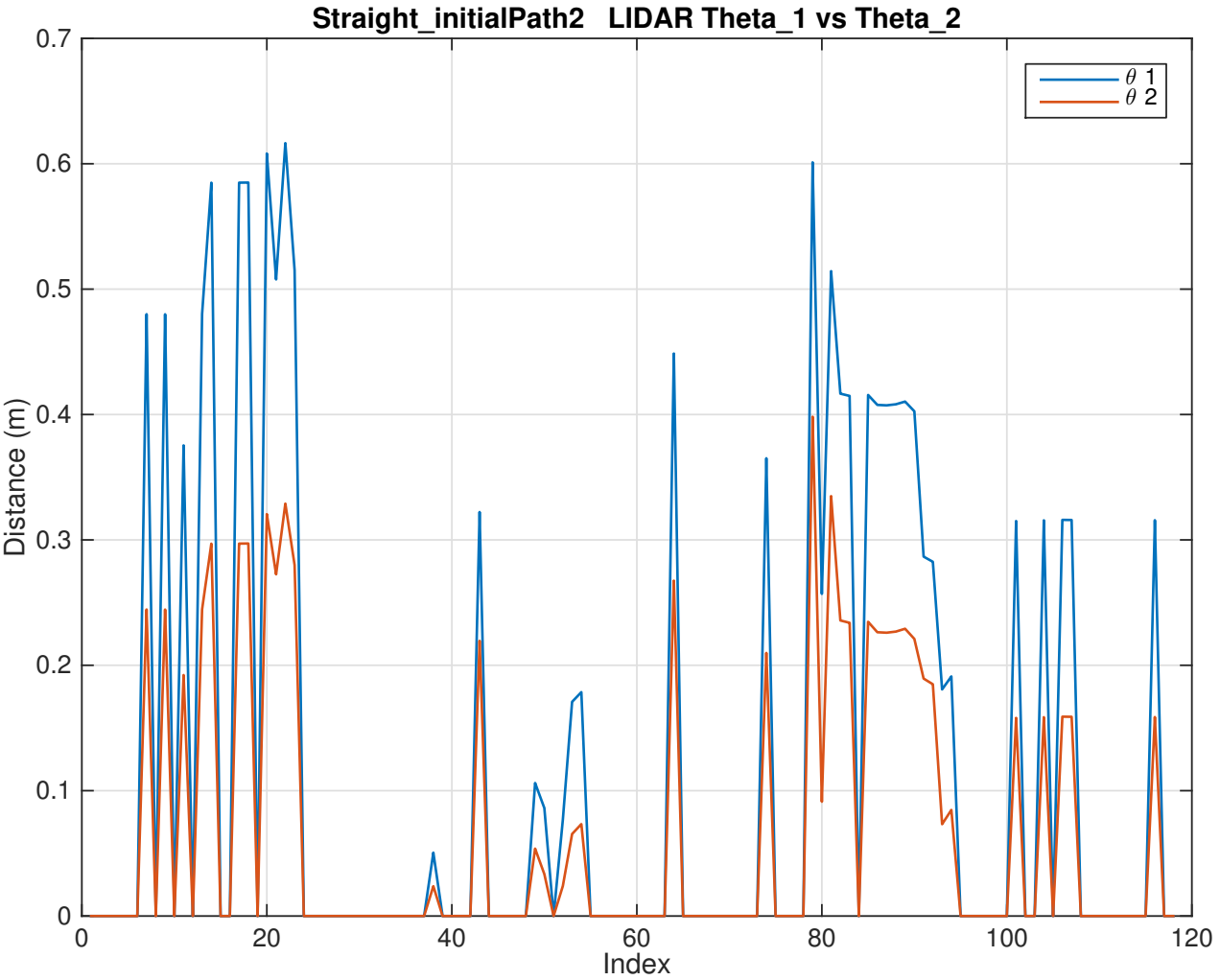
Number_Of_Unique_Paths	King_Pin_Detected
1	false

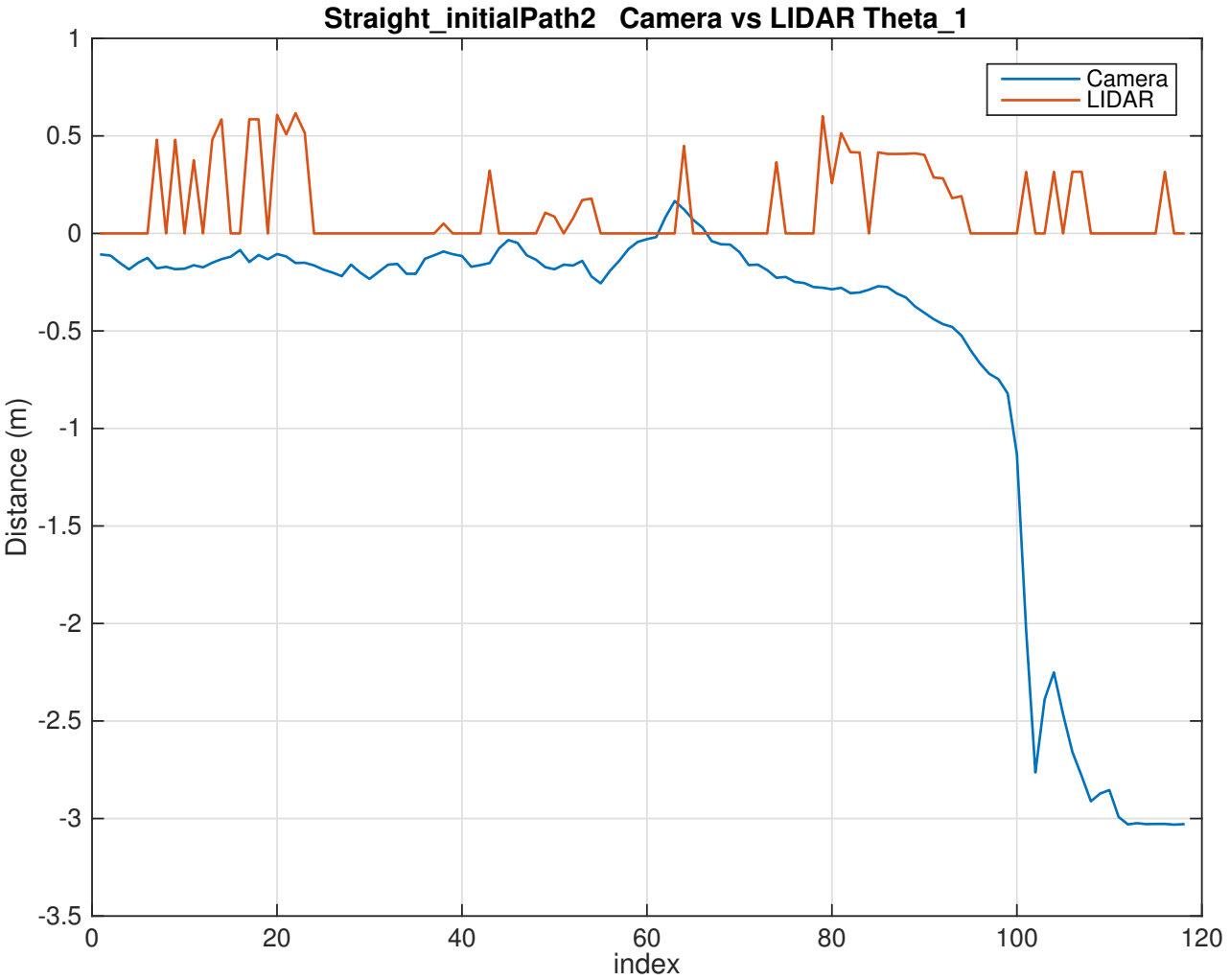

Straight_initialPath2 Left_Edge vs Right_Edge
Left_Edge
Right_Edge
L1 x 100
L2 x 100
Distance (m) & Pixel
Index
1400
1200
1000
800
600
400
200
0
20
40
60
80
100
120

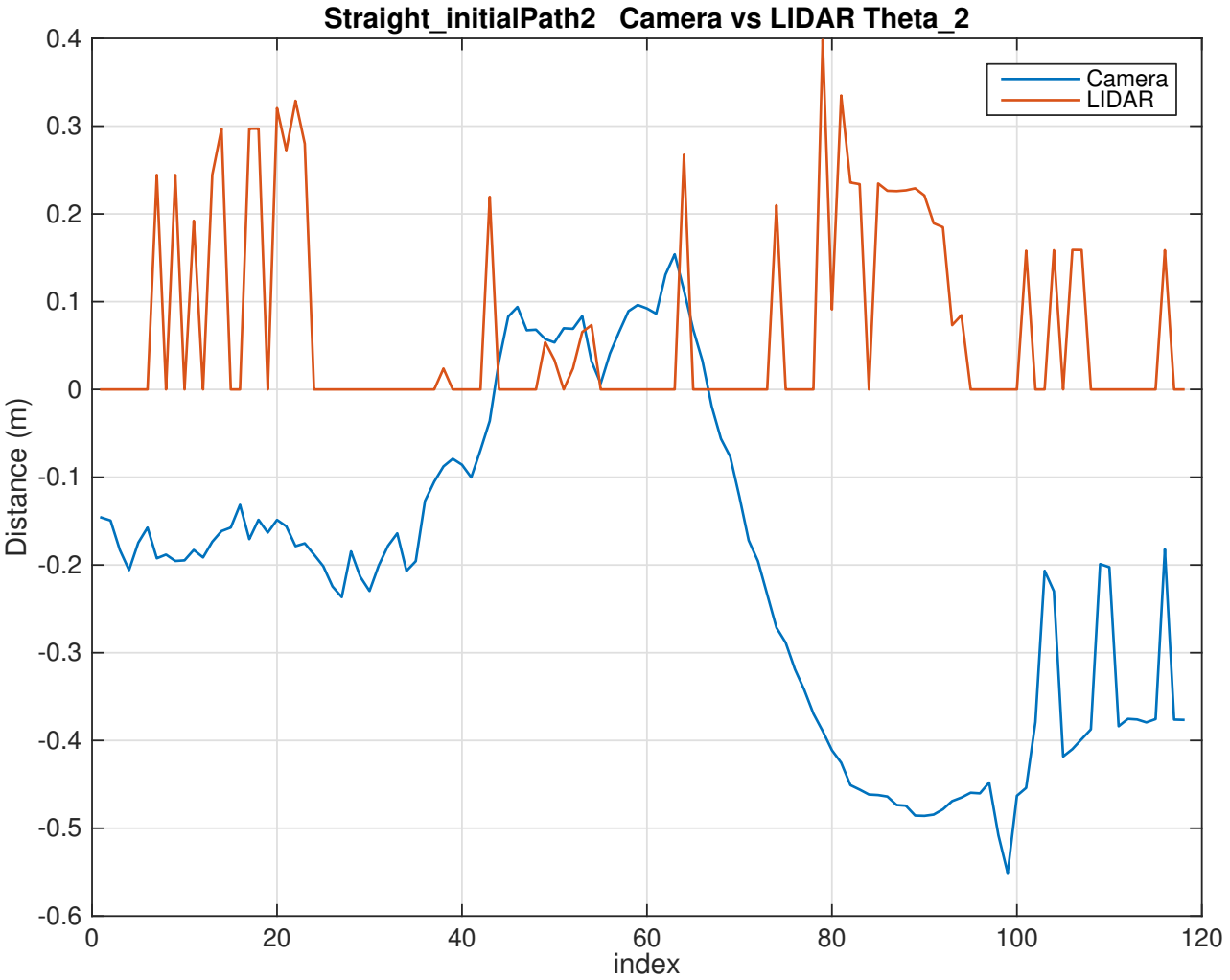

Straight_initialPath2 LIDAR Distance vs Camera Center Distance
Upper LIDAR Distance
Center_Dist
Distance (m)
Index
0
2
4
6
8
10
12
0
20
40
60
80
100
120

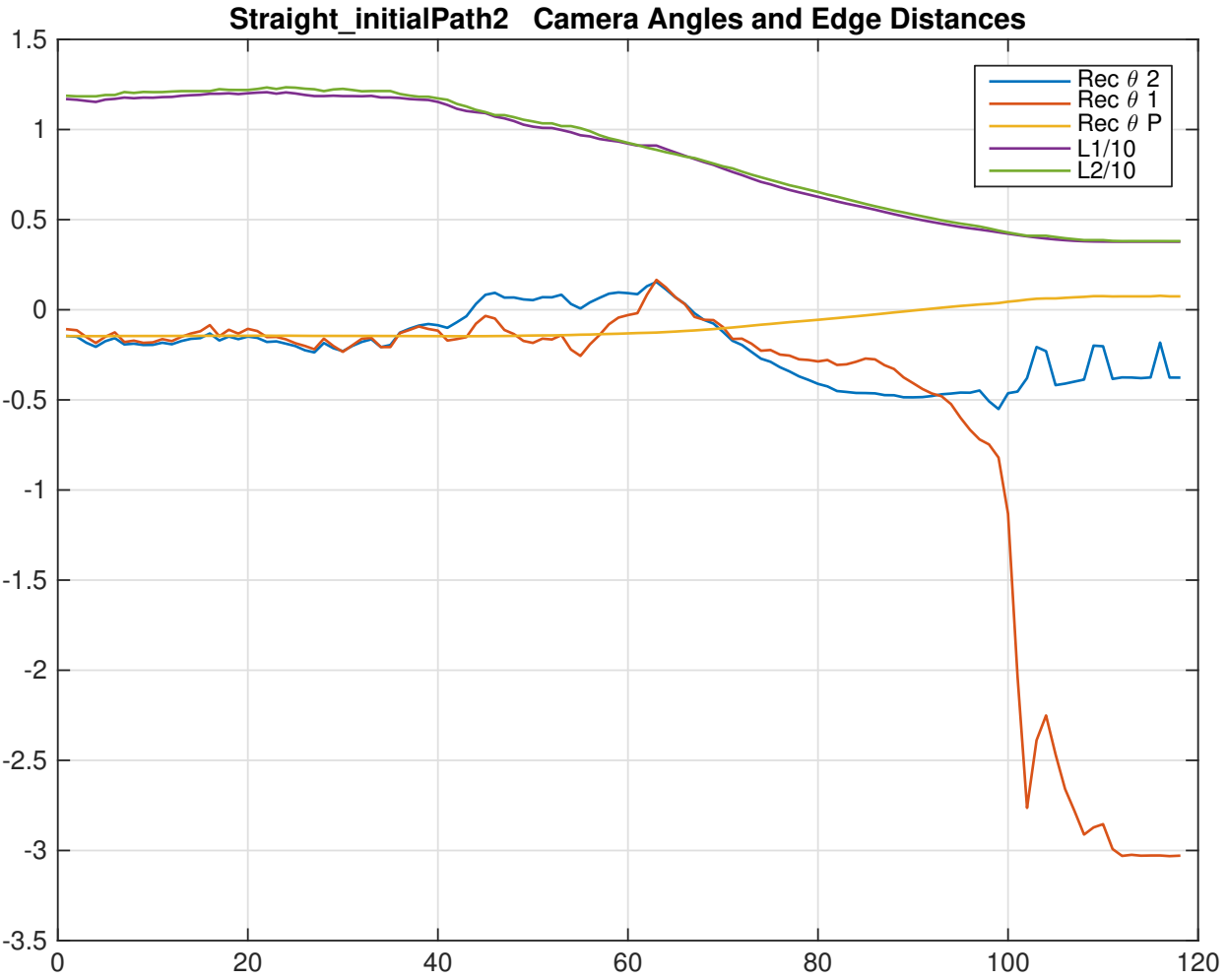

Straight_initialPath2 Camera L1 vs L2
L1
L2
Distance (m)
Index
13
12
11
10
9
8
7
6
5
4
3
0
20
40
60
80
100
120

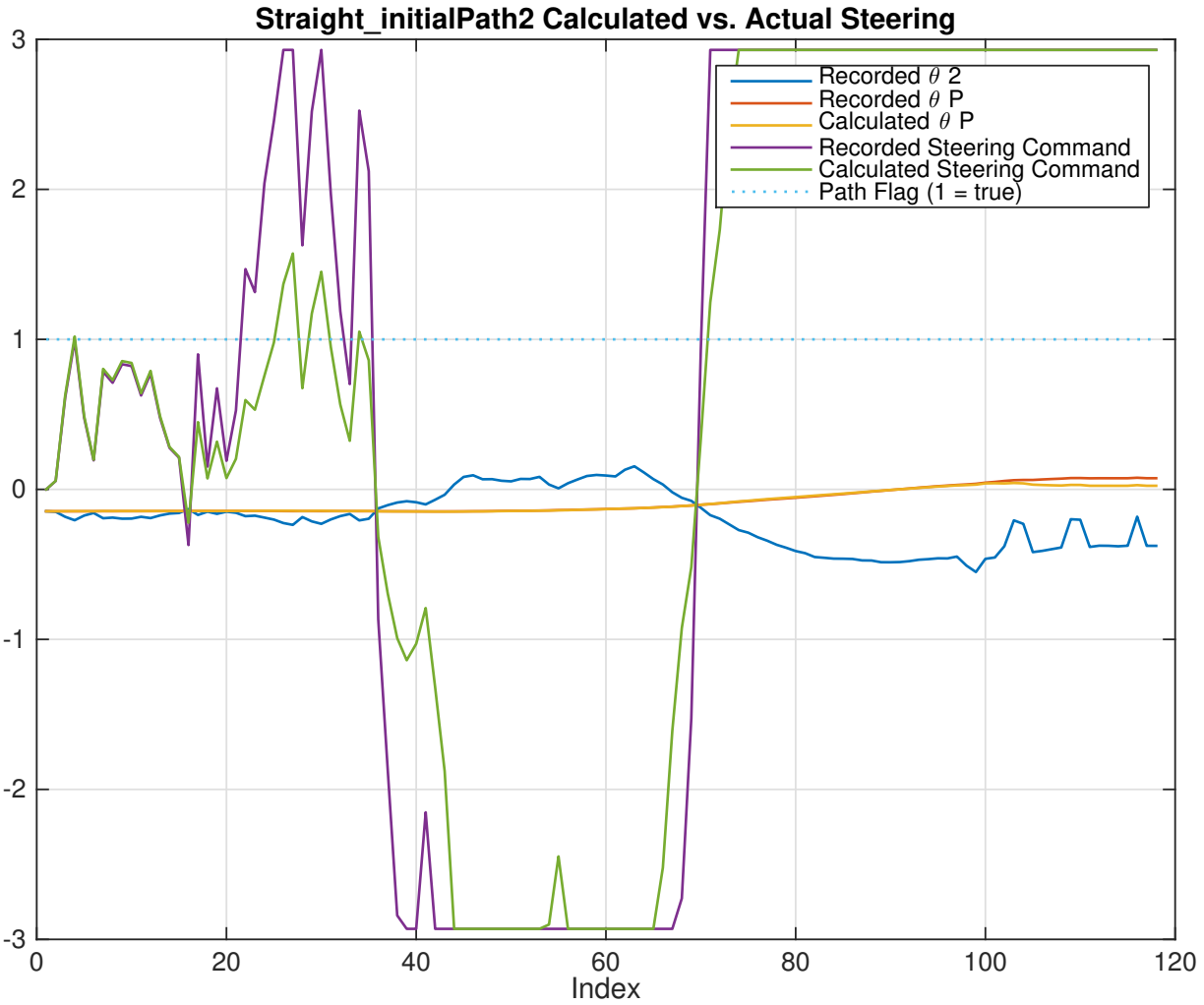

Straight_initialPath2 Camera Theta_1 vs Theta_2
θ 1
θ 2
Distance (m)
index
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
0
20
40
60
80
100
120

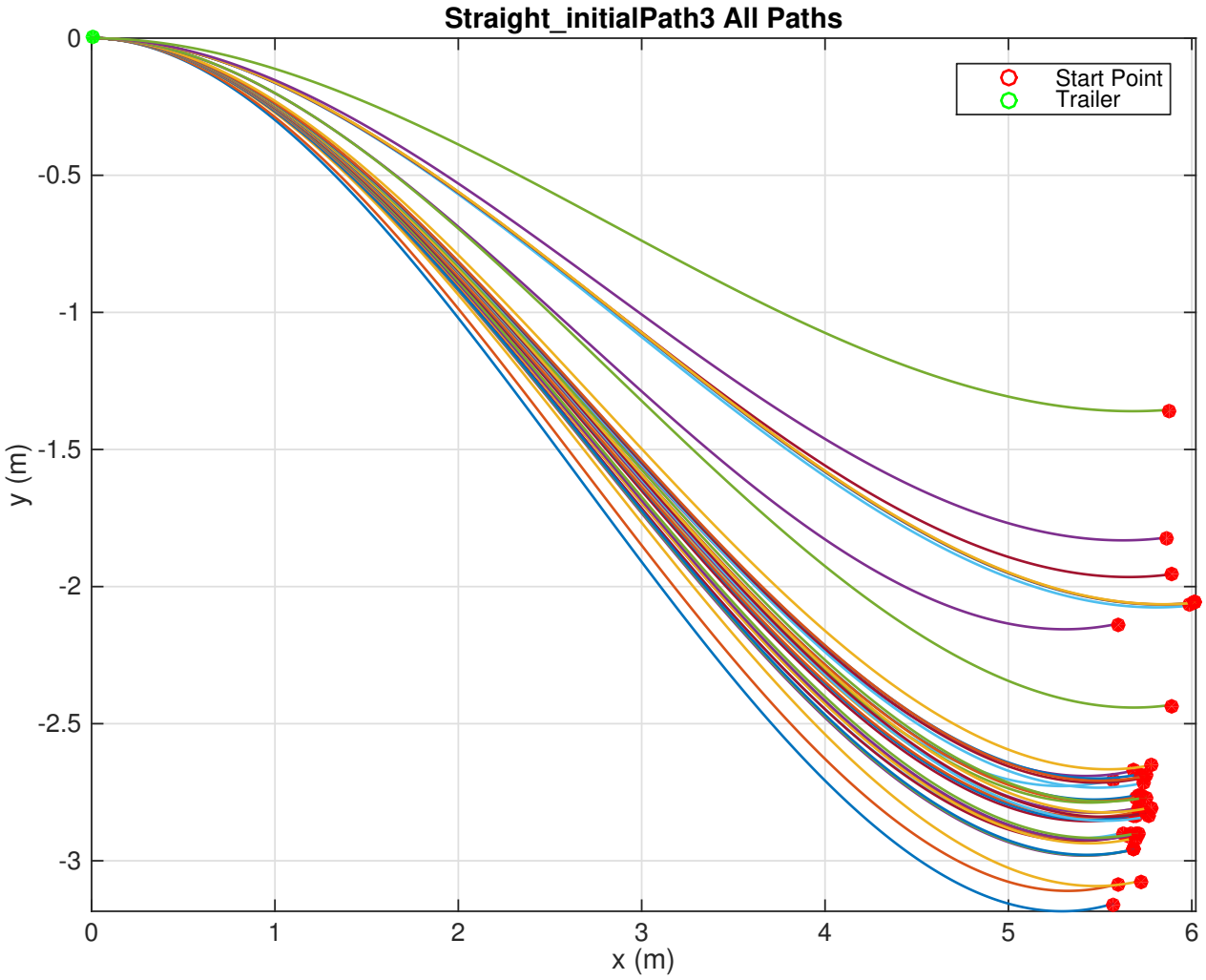

Straight_initialPath2 LIDAR Theta_1 vs Theta_2
θ 1
θ 2
Distance (m)
Index
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0
20
40
60
80
100
120


Straight_initialPath2 Camera vs LIDAR Theta_1
Camera
LIDAR
Distance (m)
index
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
0
20
40
60
80
100
120

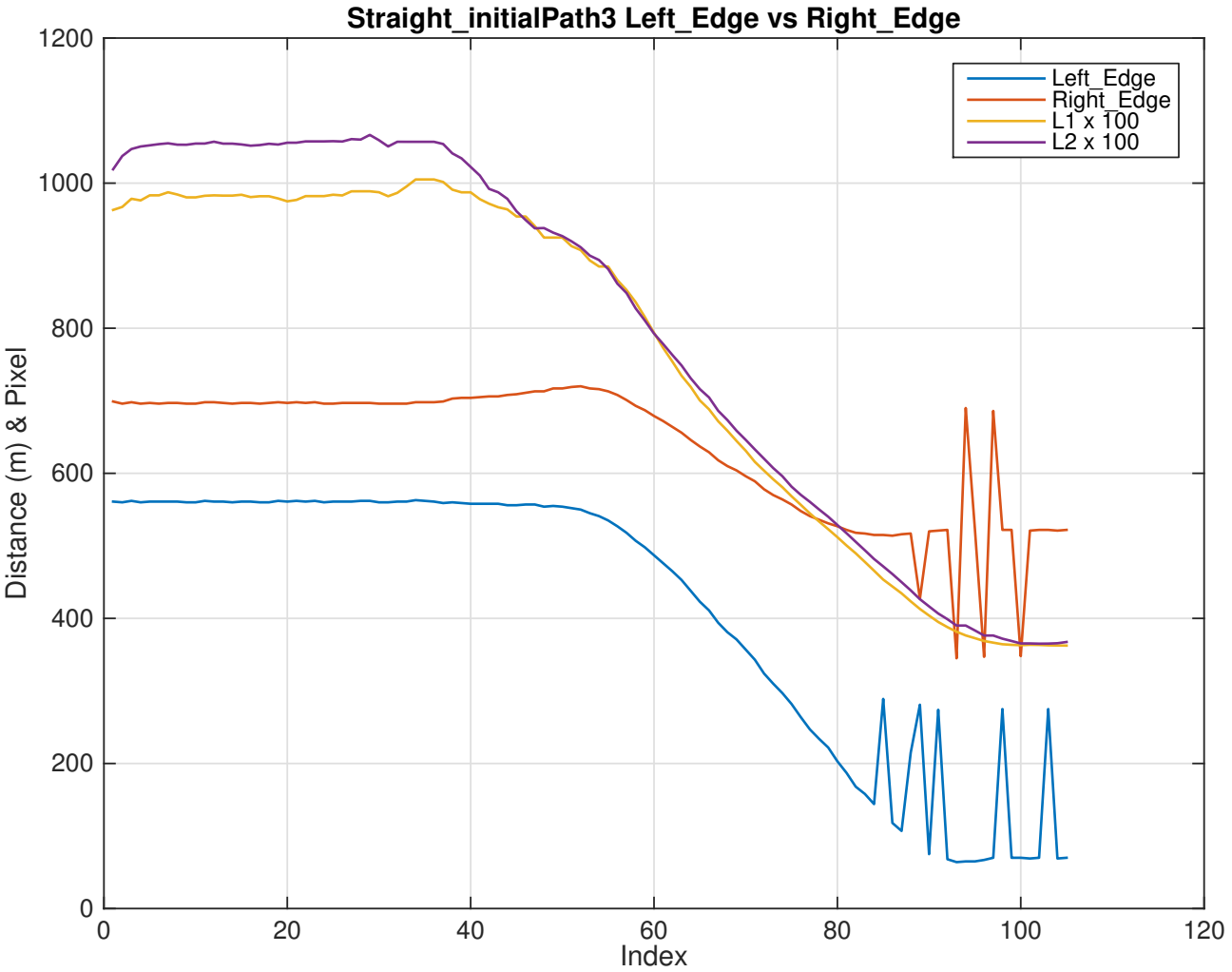

Straight_initialPath2 Camera vs LIDAR Theta_2
Camera
LIDAR
Distance (m)
index
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
0
20
40
60
80
100
120

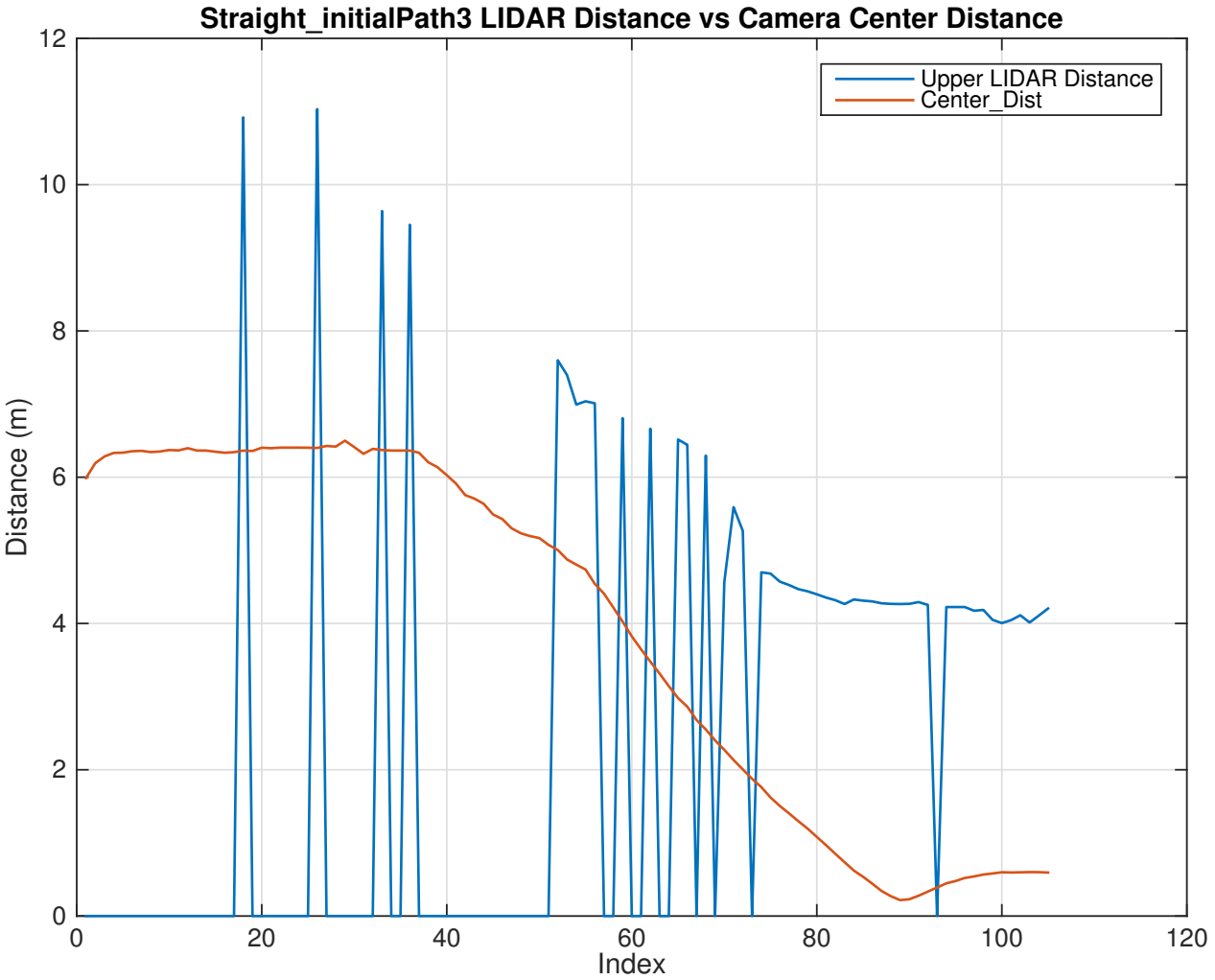

Straight_initialPath2 Camera Angles and Edge Distances
Rec θ 2
Rec θ 1
Rec θ P
L1/10
L2/10
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
0
20
40
60
80
100
120

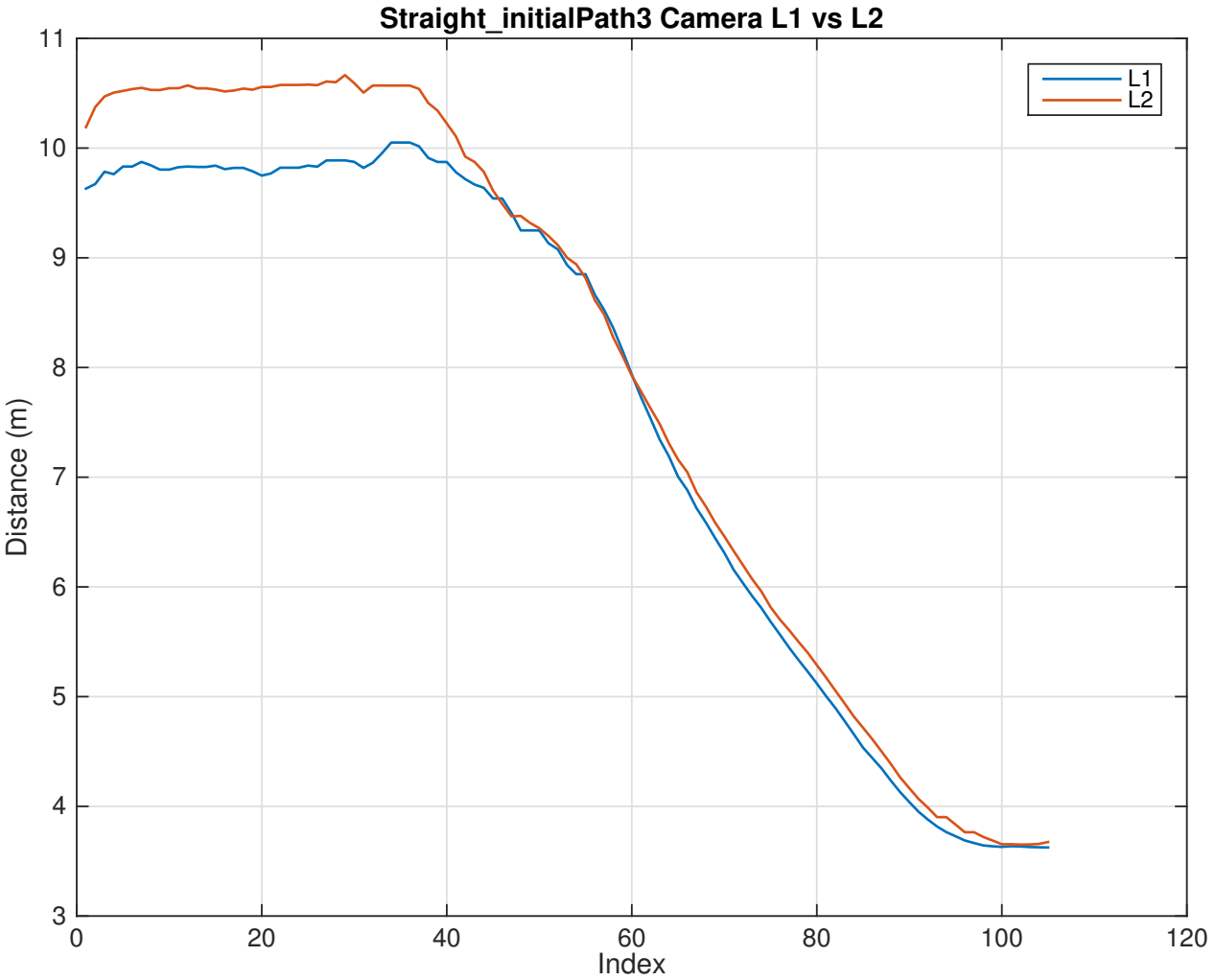

Straight_initialPath2 Calculated vs. Actual Steering
Recorded θ 2
Recorded θ P
Calculated θ P
Recorded Steering Command
Calculated Steering Command
Path Flag (1 = true)
3
2
1
0
-1
-2
-3
0
20
40
60
80
100
120
Index

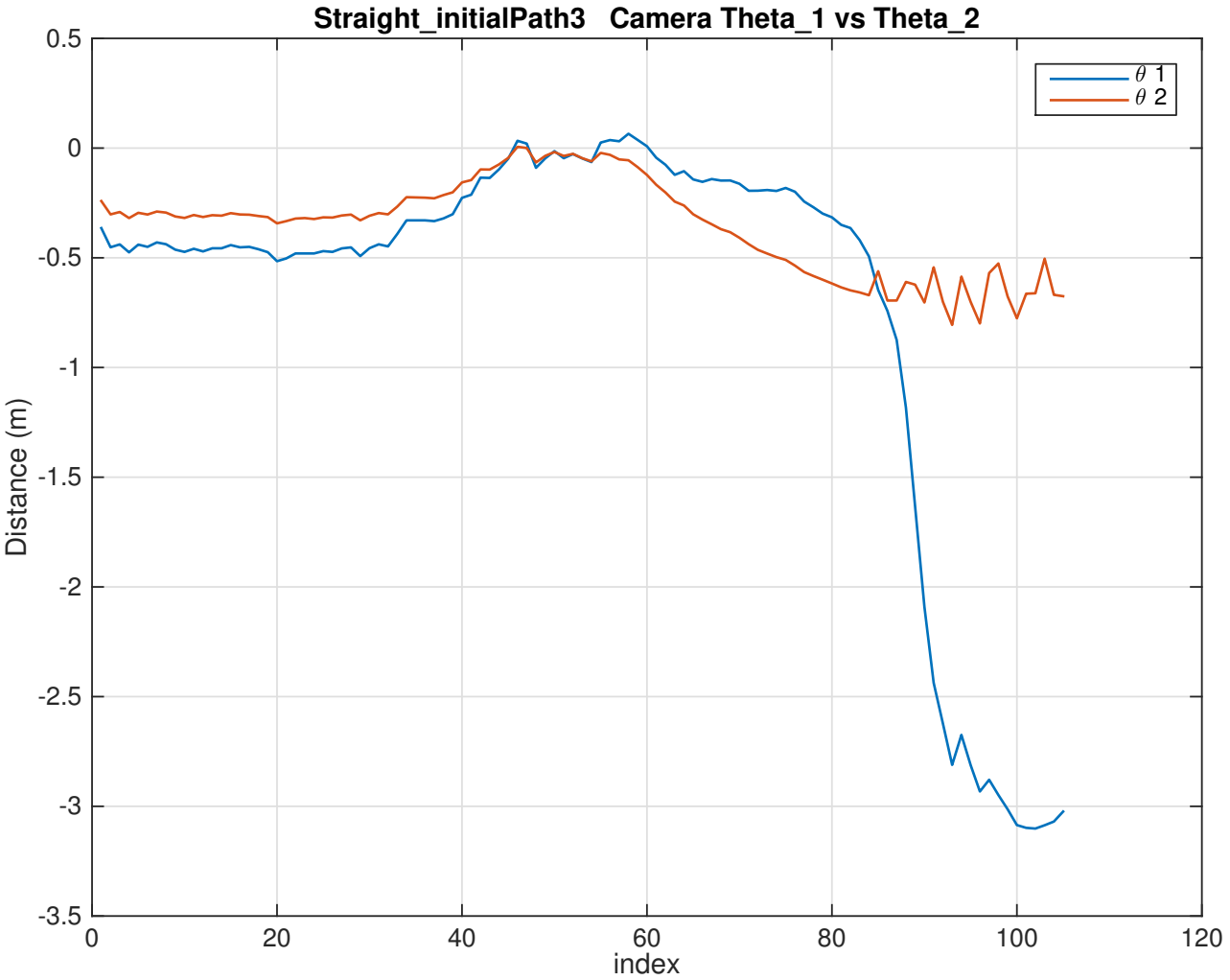

Straight_initialPath3 All Paths
Start Point
Trailer
0
-0.5
-1
-1.5
-2
-2.5
-3
y (m)
0
1
2
3
4
5
6
x (m)

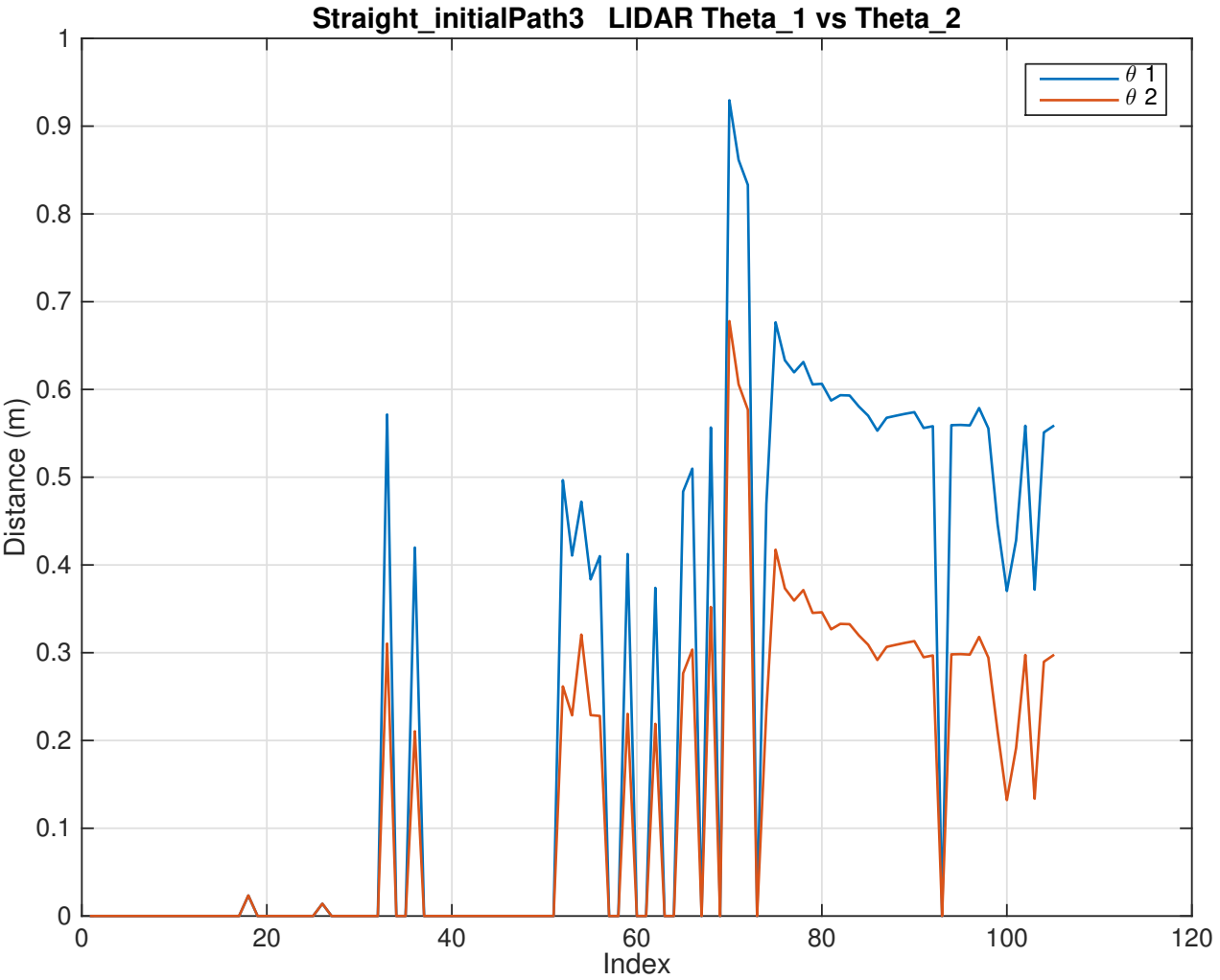
Number_Of_Unique_Paths	King_Pin_Detected
40	false

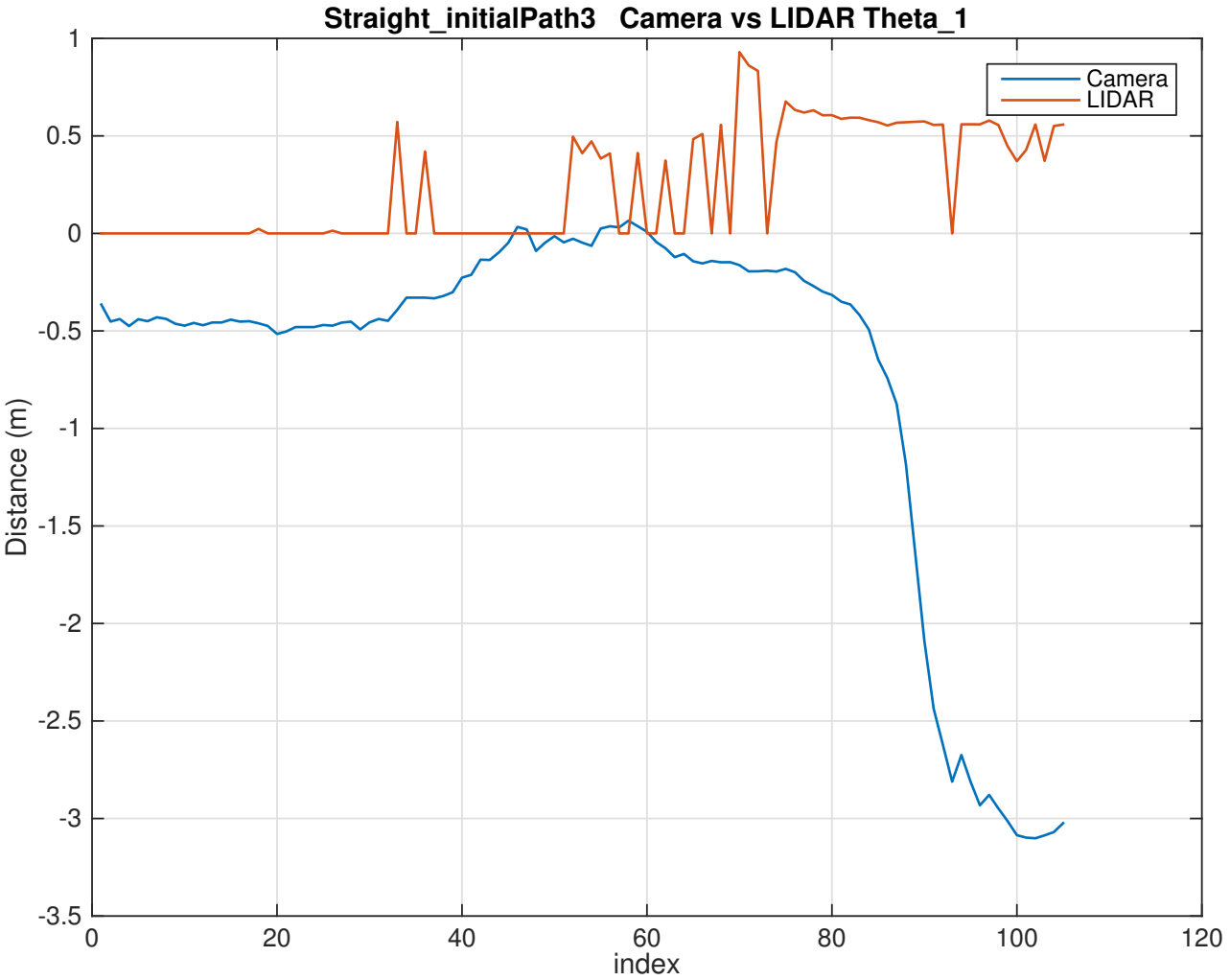

Straight_initialPath3 Left_Edge vs Right_Edge
Left_Edge
Right_Edge
L1 x 100
L2 x 100
Distance (m) & Pixel
Index
0
200
400
600
800
1000
1200
0
20
40
60
80
100
120

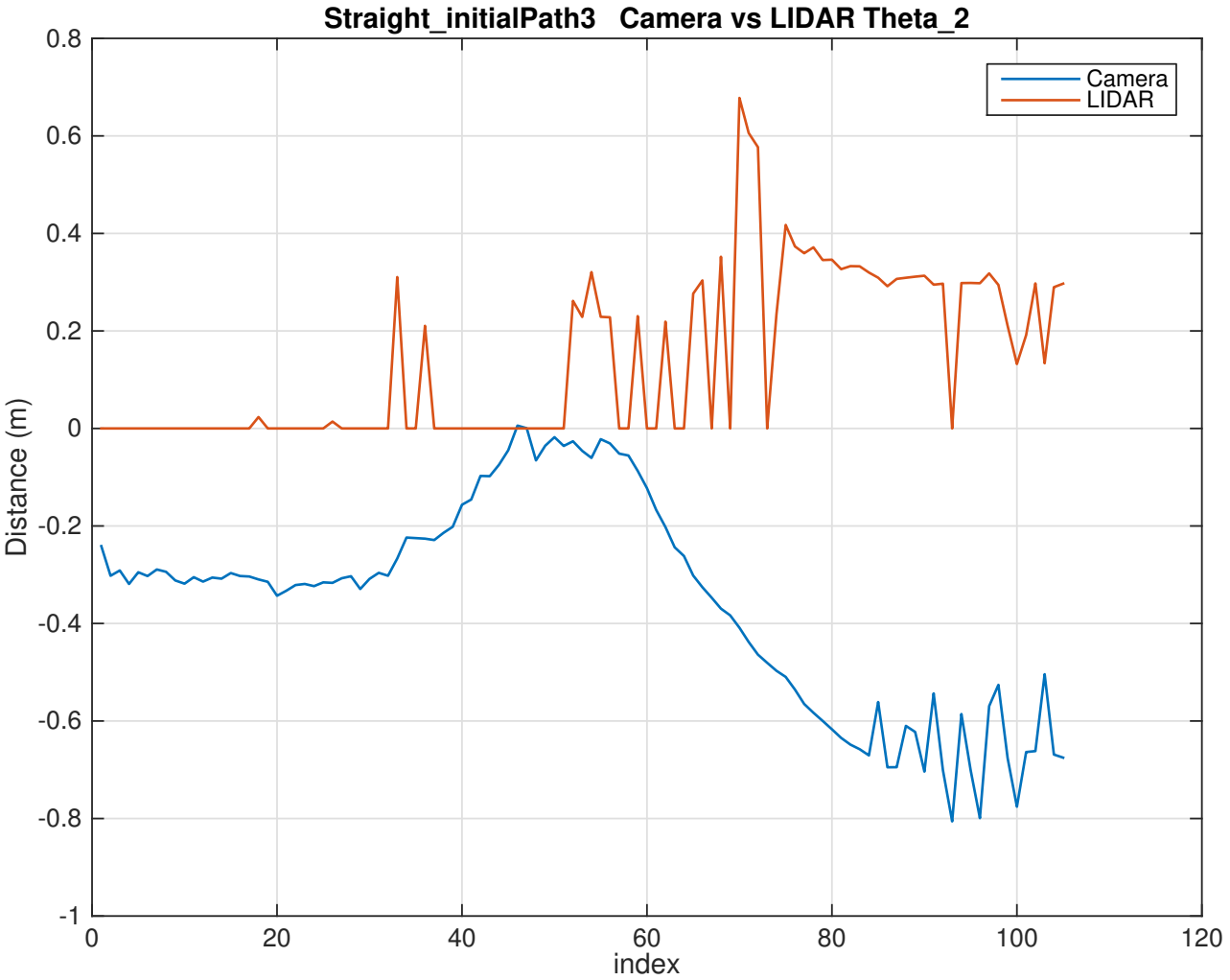

Straight_initialPath3 LIDAR Distance vs Camera Center Distance
Upper LIDAR Distance
Center_Dist
Distance (m)
Index
0
2
4
6
8
10
12
0
20
40
60
80
100
120

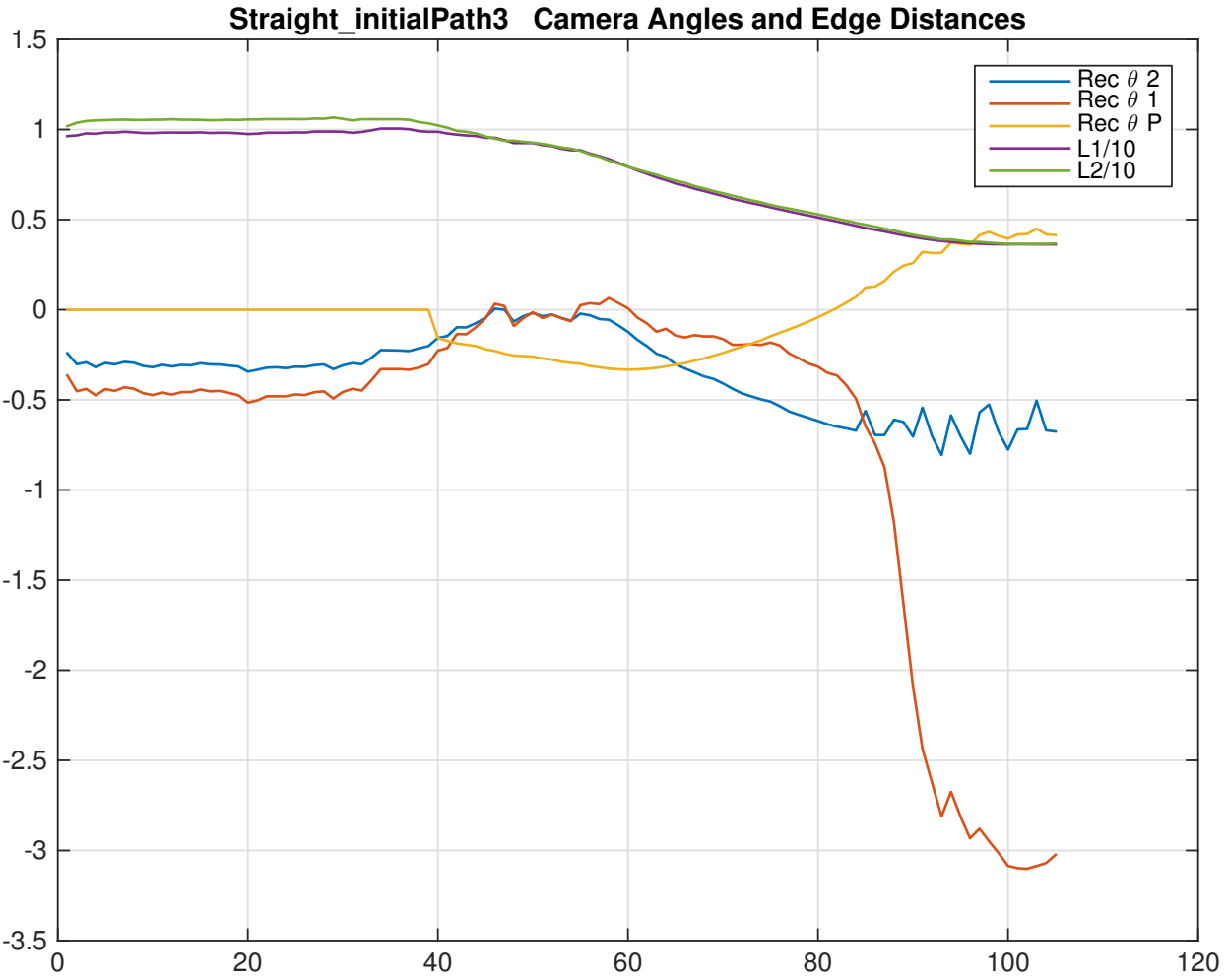

Straight_initialPath3 Camera L1 vs L2
L1
L2
Distance (m)
Index
11
10
9
8
7
6
5
4
3
0
20
40
60
80
100
120

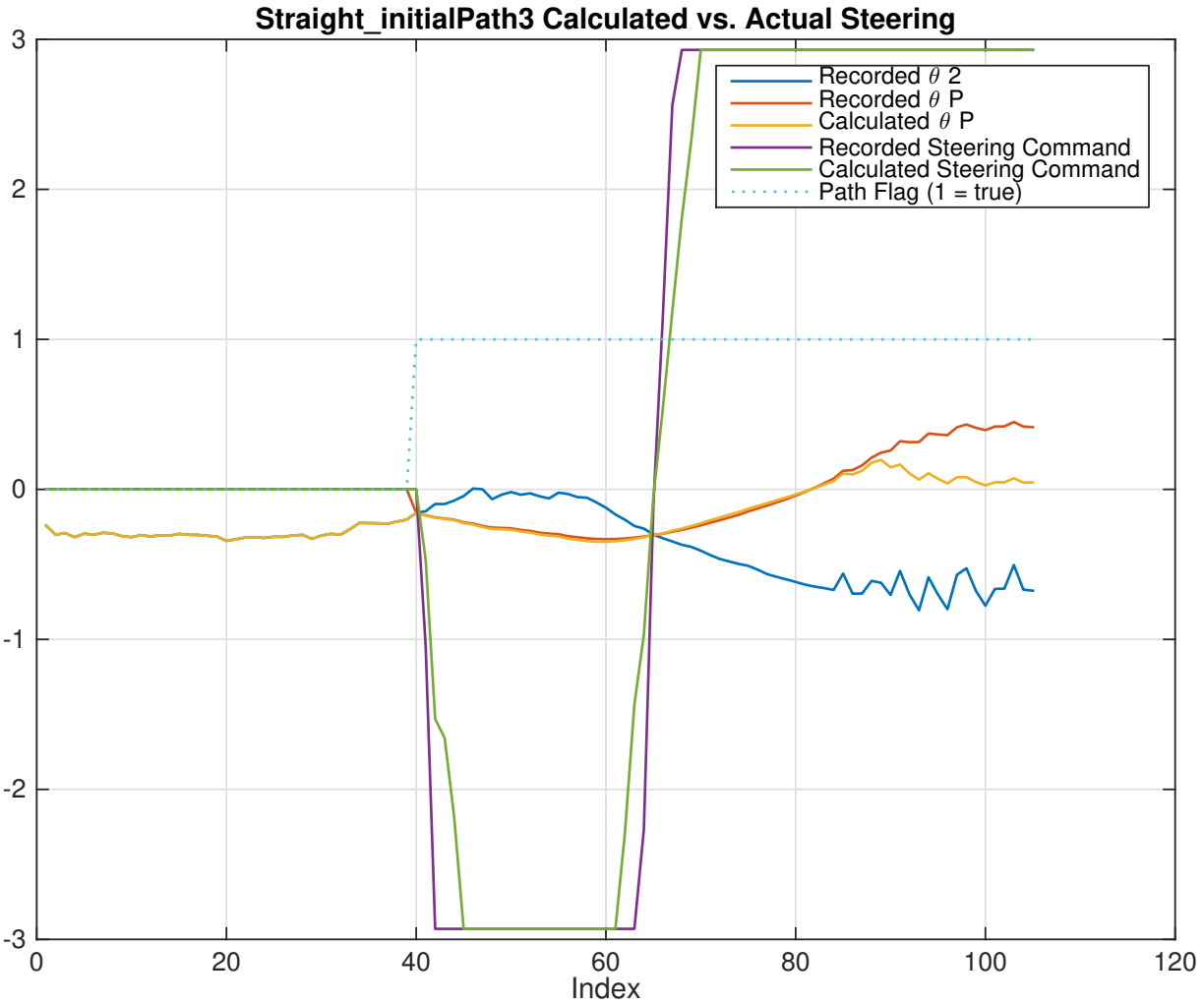

Straight_initialPath3 Camera Theta_1 vs Theta_2
θ 1
θ 2
Distance (m)
index
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
0
20
40
60
80
100
120


Straight_initialPath3 LIDAR Theta_1 vs Theta_2
θ 1
θ 2
Distance (m)
Index
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
20
40
60
80
100
120


Straight_initialPath3 Camera vs LIDAR Theta_1
Camera
LIDAR
Distance (m)
index
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
0
20
40
60
80
100
120


Straight_initialPath3 Camera vs LIDAR Theta_2
Camera
LIDAR
Distance (m)
index
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
20
40
60
80
100
120


Straight_initialPath3 Camera Angles and Edge Distances
Rec θ 2
Rec θ 1
Rec θ P
L1/10
L2/10
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
0
20
40
60
80
100
120


Straight_initialPath3 Calculated vs. Actual Steering
Recorded θ 2
Recorded θ P
Calculated θ P
Recorded Steering Command
Calculated Steering Command
Path Flag (1 = true)
3
2
1
0
-1
-2
-3
0
20
40
60
80
100
120
Index