two_mobile_restricted Turtlebot 2 Report

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July 12, 2016

This is a summary of the data from the two_mobile_restricted experiment, Turtlebot #2.

The runtime of this experiment was 0 hours, 0 minutes, and 58.2 seconds.

The total number of external pose measurements recieved by the robot during this time was 399 which means poses were received at an average of 6.8556701 poses per second.

Shown below is the summary of each filter's error for both x and y coordinates, and also the error in total distance.

```
summary(continuous$x_error)
```

```
##       Min.    1st Qu.     Median      Mean    3rd Qu.       Max.
## -3.750e-02 -1.726e-05  1.730e-06  1.317e-03  6.492e-05  4.286e-02
```

```
summary(continuous$y_error)
```

```
##       Min.    1st Qu.     Median      Mean    3rd Qu.       Max.
## -4.436e-02 -1.834e-05 -1.930e-06 -9.073e-04  3.980e-06  2.101e-02
```

```
summary(continuous$yaw_error)
```

```
##       Min.    1st Qu.     Median      Mean    3rd Qu.       Max.
## -6.283000 -0.200400  0.001457 -0.062220  0.057190  6.140000
```

```
summary(continuous$dist_error)
```

```
##       Min.    1st Qu.     Median      Mean    3rd Qu.       Max.
## 4.400e-07 5.410e-06 4.066e-05 4.896e-03 3.543e-03 4.964e-02
```

```
summary(discrete$x_error)
```

```
##      Min.  1st Qu.   Median      Mean  3rd Qu.      Max.
## -0.19850 -0.09991 -0.01282 -0.02914  0.01519  0.40330
```

```
summary(discrete$y_error)
```

```
##       Min.    1st Qu.     Median      Mean    3rd Qu.       Max.
## -0.278300 -0.035180  0.001737  0.007130  0.077400  0.282300
```

```
summary(discrete$yaw_error)
```

```
##       Min.    1st Qu.     Median      Mean    3rd Qu.       Max.
## -6.189000 -0.348600 -0.000061  0.086660  0.000039  6.276000
```
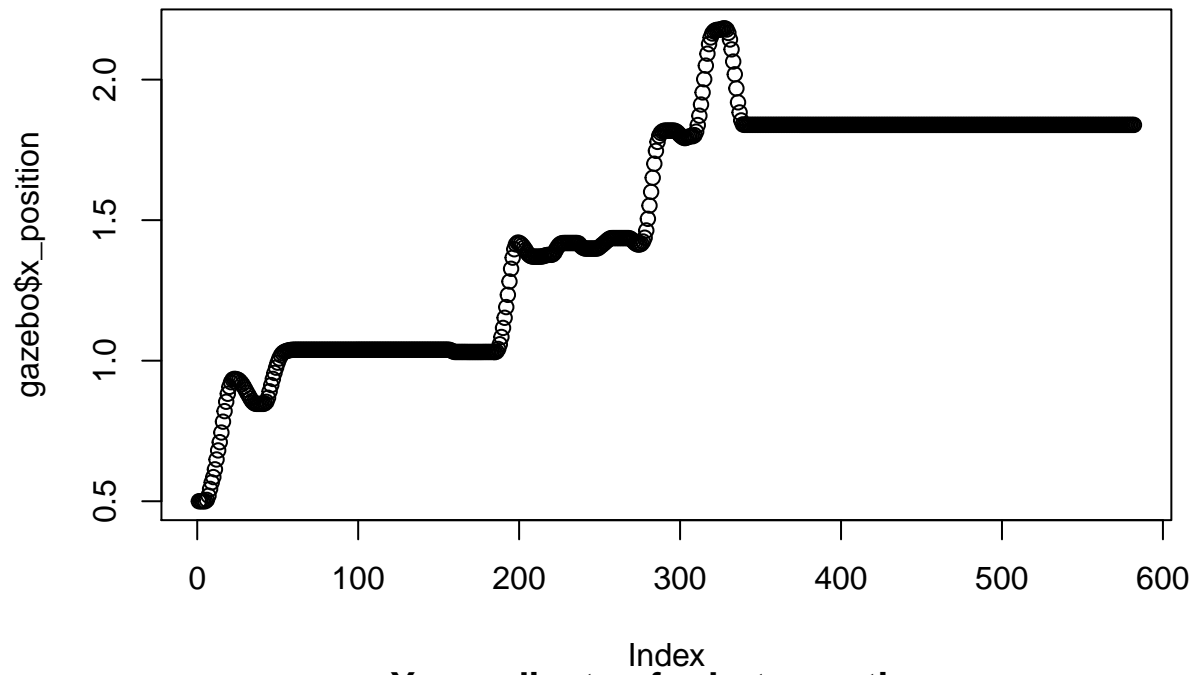
```
summary(discrete$dist_error)
```

```
##       Min.    1st Qu.     Median      Mean    3rd Qu.       Max.
## 0.0000004 0.0421800 0.0893400 0.0988100 0.1608000 0.4459000
```
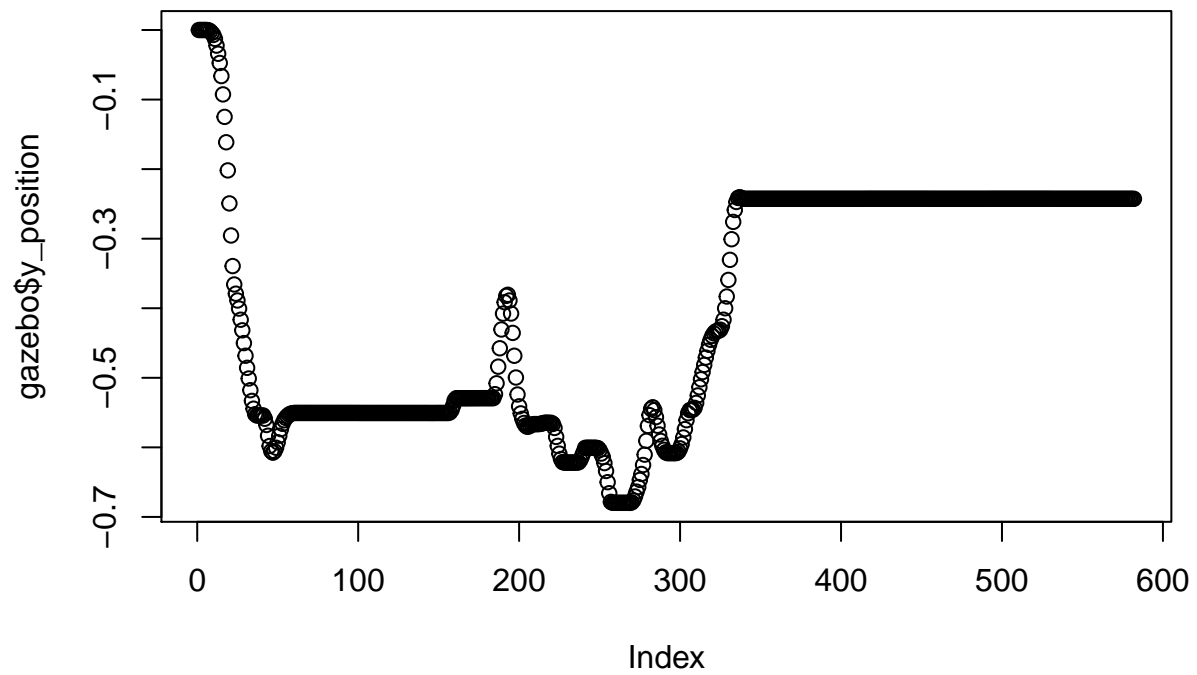
```
#sum(continuous$dist_error <= 0.25) / length(continuous$dist_error)
#sum(discrete$dist_error <= 0.25) / length(discrete$dist_error)
```

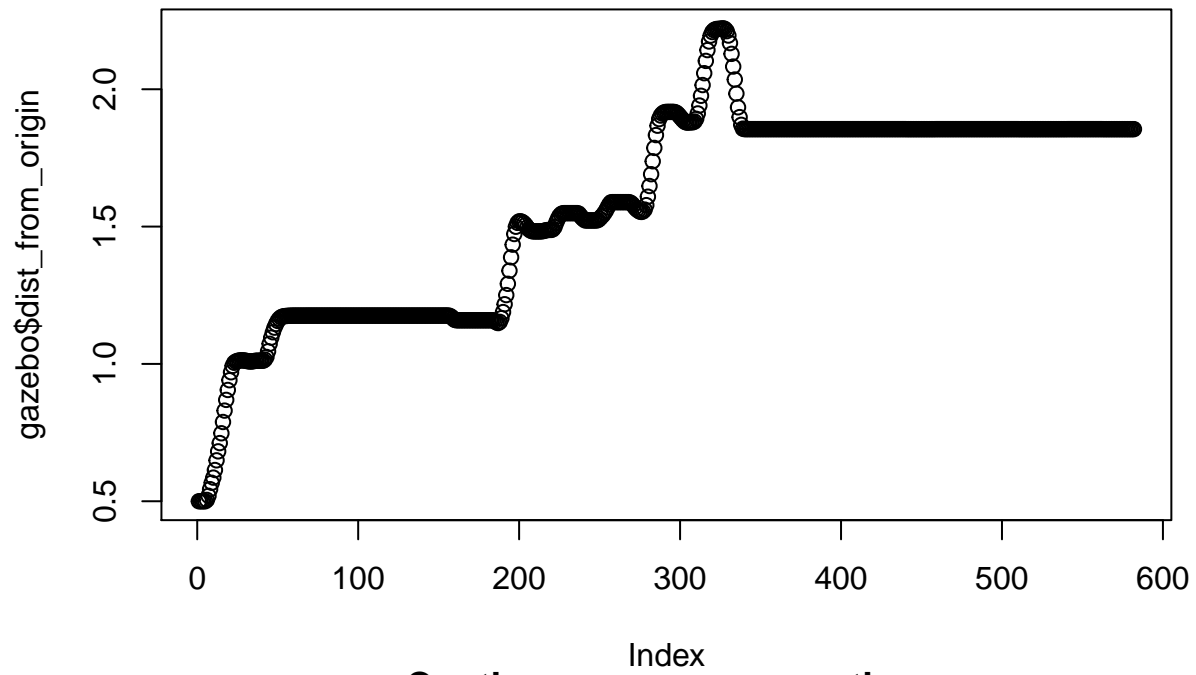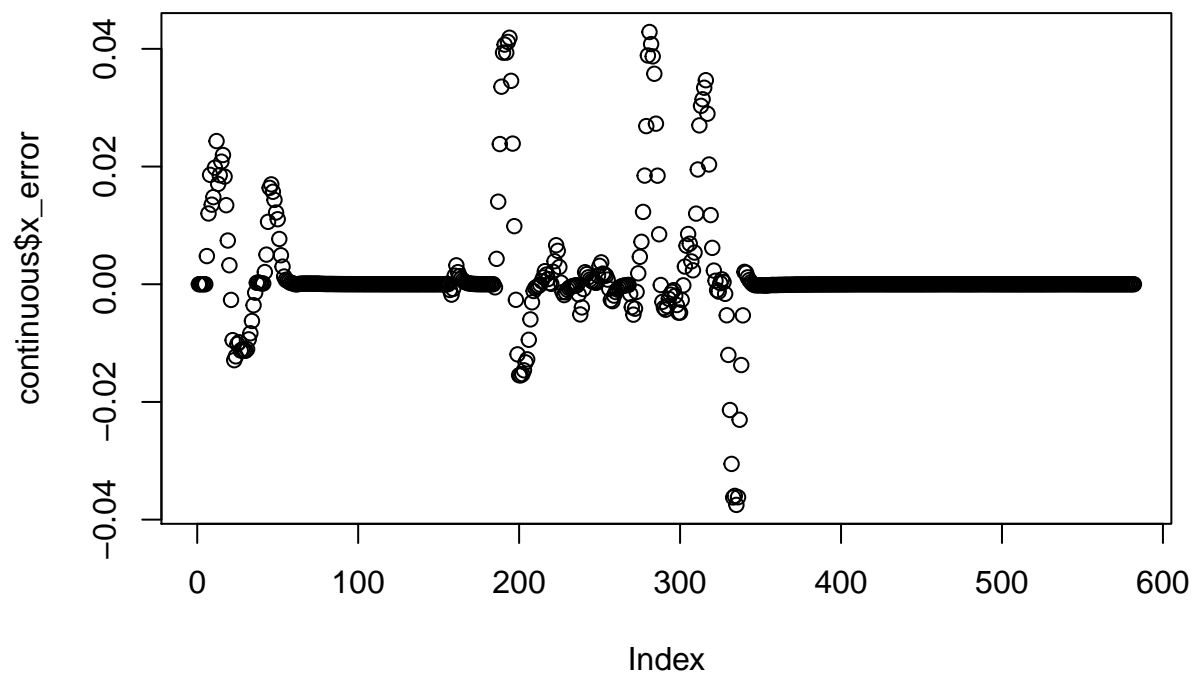**X coordinate of robot over time**

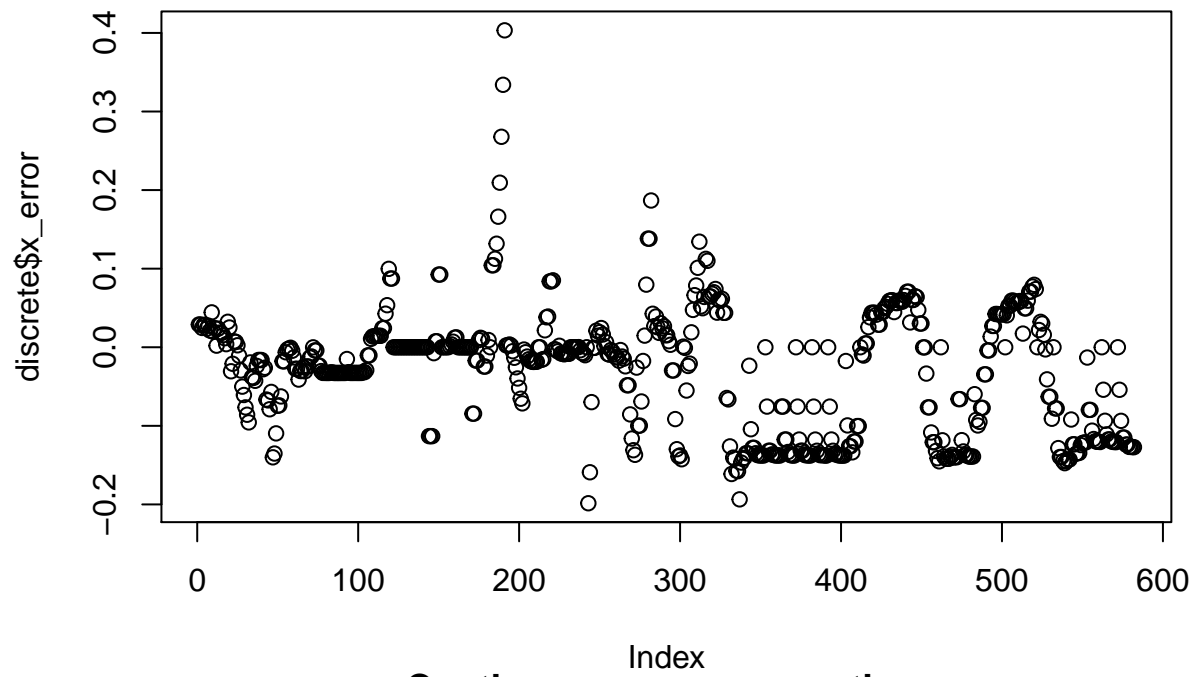**Y coordinate of robot over time**
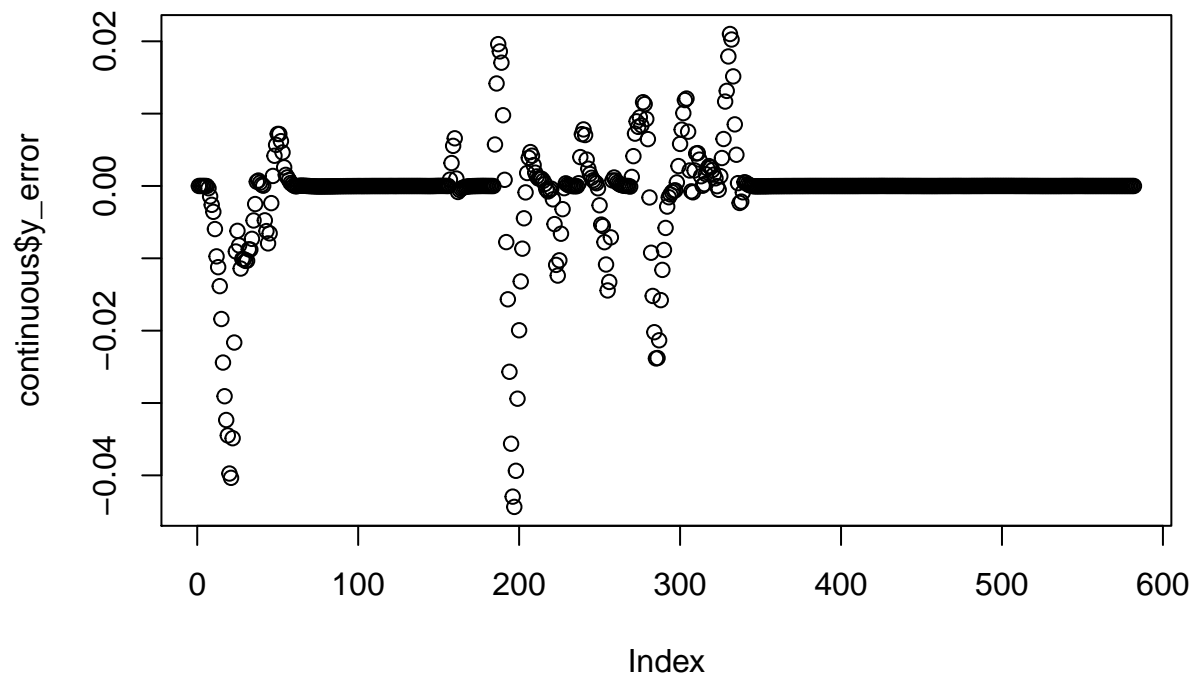
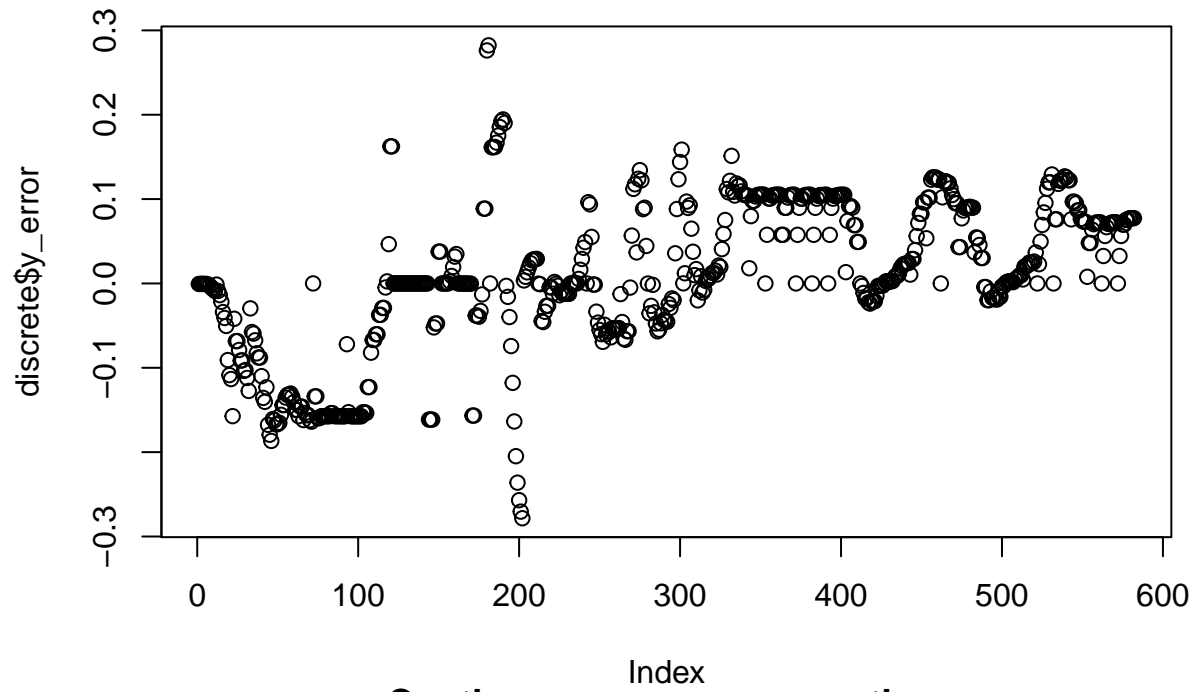## Distance from origin vs. time

Continuous x_error over time
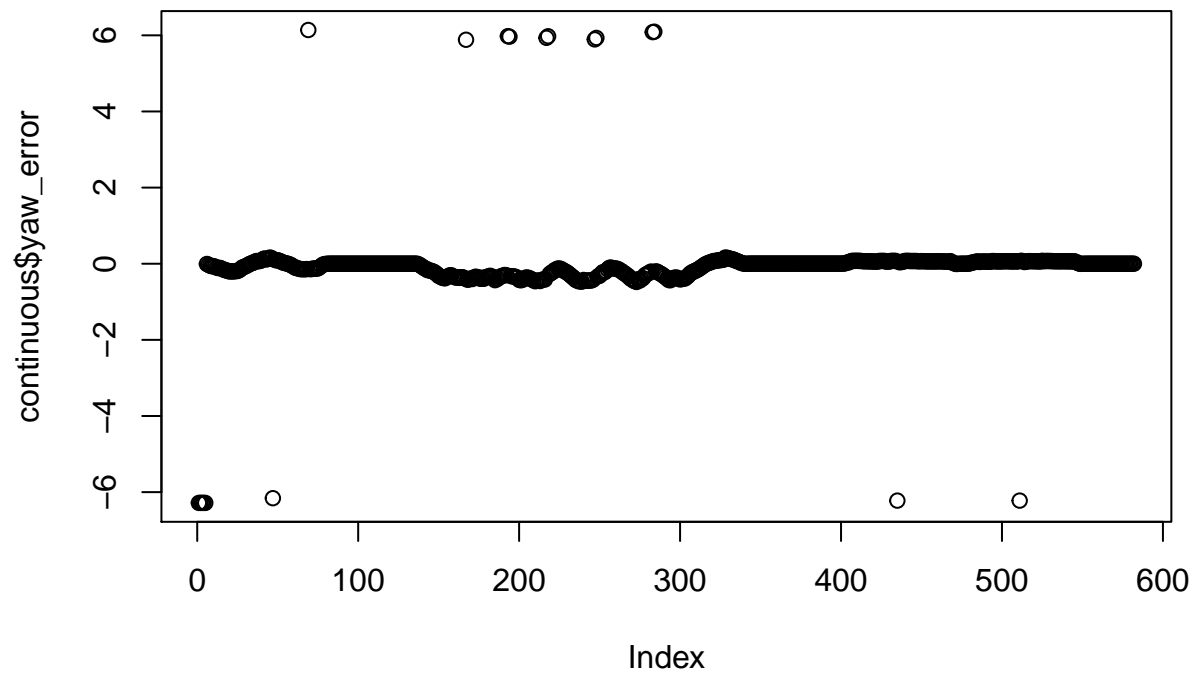
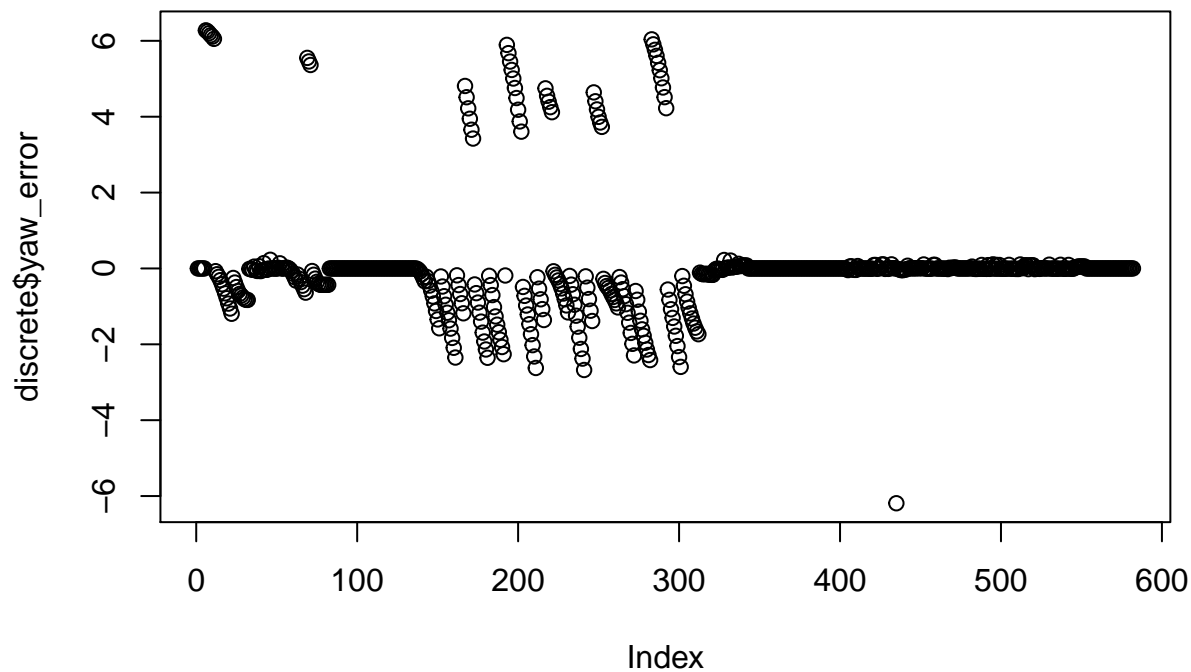# Discrete x_error over time

Continuous y_error over time

Discrete y_error over time

Continuous yaw error over time

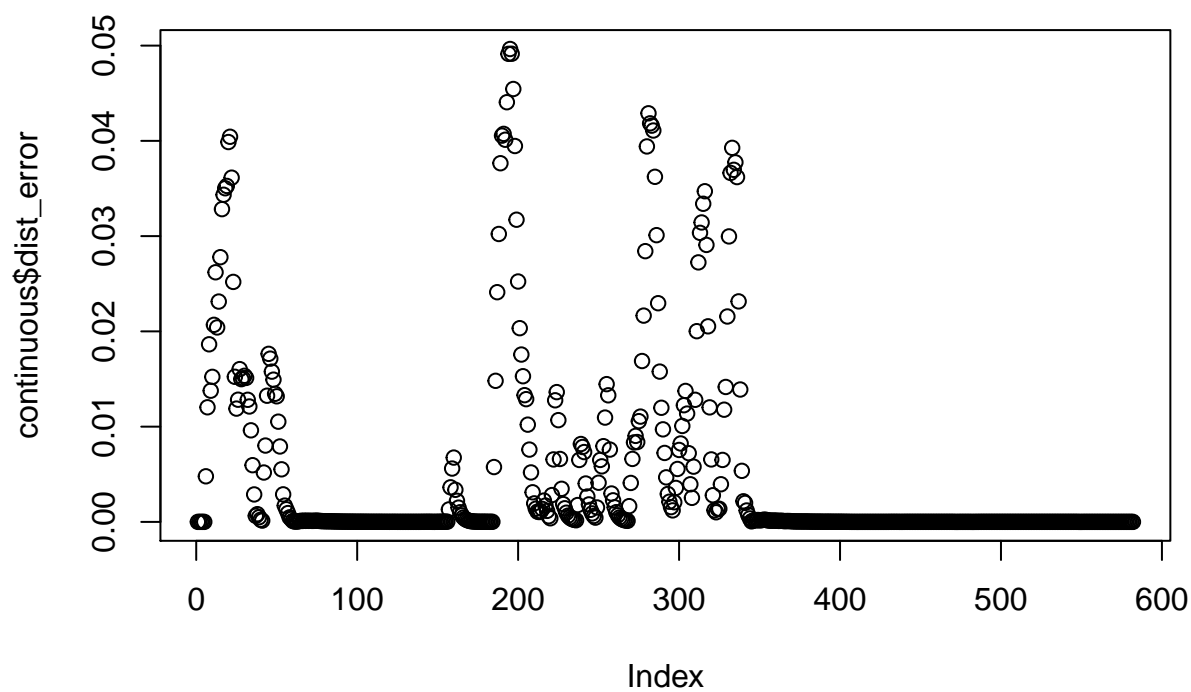## Discrete yaw error over time

Continuous total distance error over time

Discrete total distance error over time