

# one\_mobile Turtlebot 1 Report

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This is a summary of the data from the one\_mobile experiment, Turtlebot #1.

The runtime of this experiment was 0 hours, 0 minutes, and 58.3 seconds.

The total number of external pose measurements recieved by the robot during this time was 0 which means poses were received at an average of 0 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.
## -4.394e-02 -1.544e-03  6.435e-05  4.040e-03  1.065e-02  4.643e-02
```

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

```
##      Min.    1st Qu.      Median        Mean     3rd Qu.      Max.
## -2.355e-02 -9.989e-05  1.908e-03  7.570e-03  1.753e-02  5.393e-02
```

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

```
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
## -6.28300 -0.22620 -0.02501 -0.01359 0.03669  6.23000
```

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

```
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
## 2.100e-07 8.731e-04 1.447e-02 1.632e-02 2.881e-02 5.412e-02
```

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

```
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
## -0.332000 -0.002622 0.000013 0.012630 0.014370 0.358000
```

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

```
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
## -0.2226000 -0.0001666 0.0002314 0.0048770 0.0105300 0.4109000
```

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

```
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
## -2.588000 -0.503700 -0.005680 0.004375 0.031330 6.222000
```

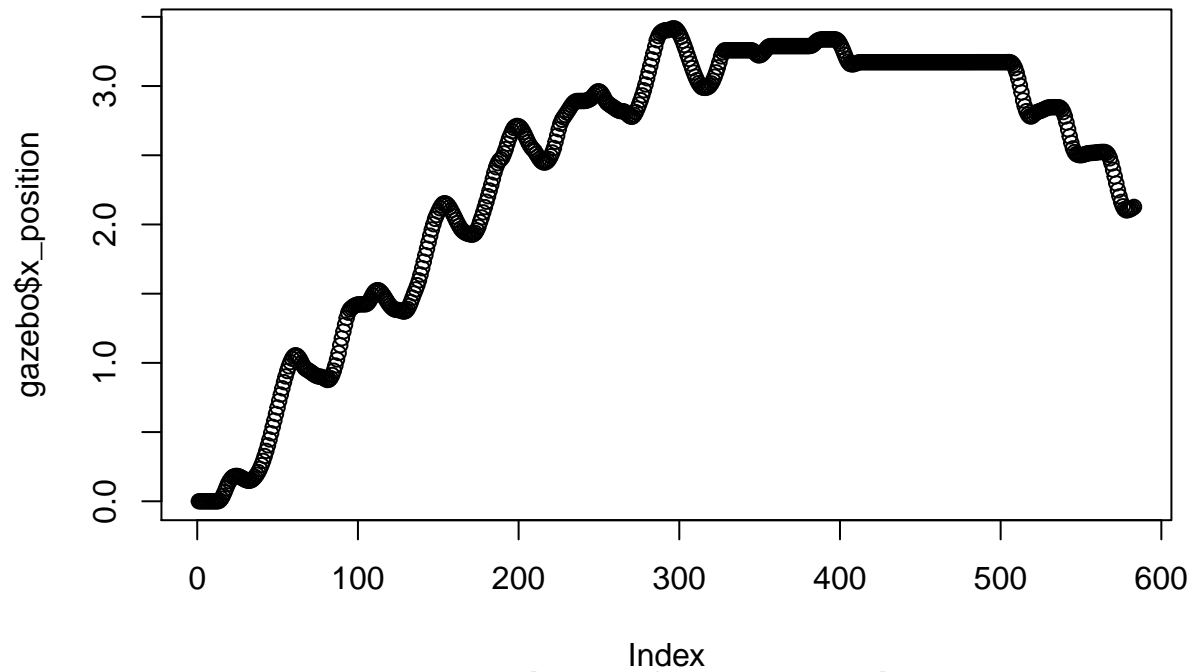
```
summary(discrete$dist_error)
```

```
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
## 0.0000000 0.0006044 0.0159300 0.0374900 0.0333800 0.4492000
```

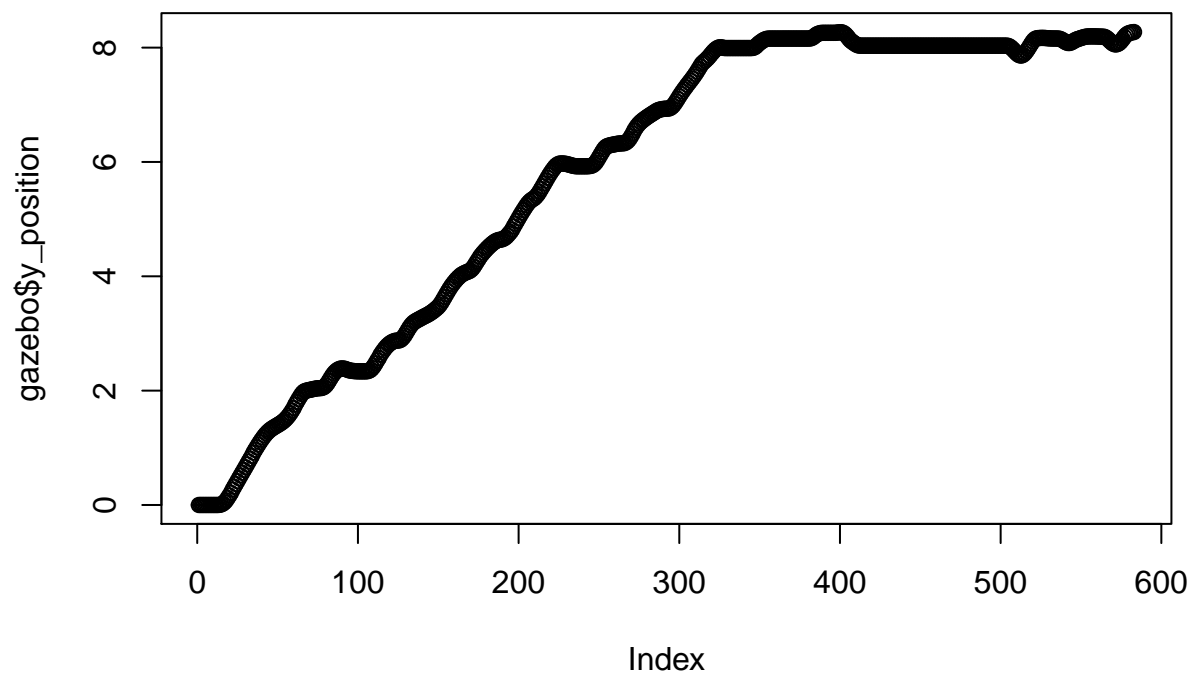
```
#sum(continuous$dist_error <= 0.25) / length(continuous$dist_error)
```

```
#sum(discrete$dist_error <= 0.25) / length(discrete$dist_error)
```

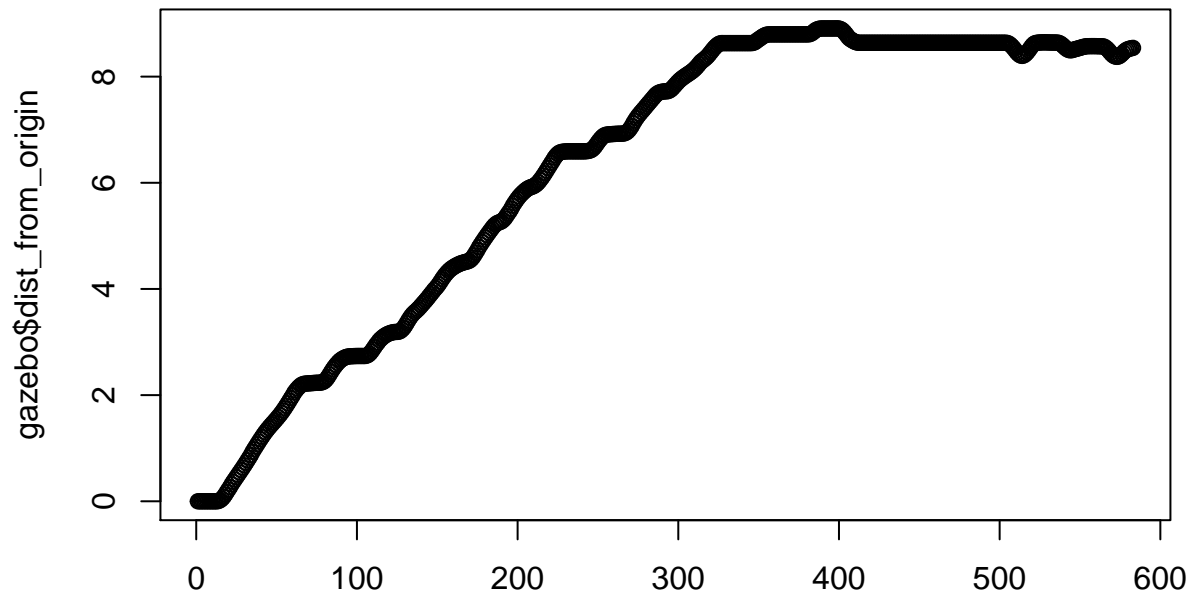
**X coordinate of robot over time**



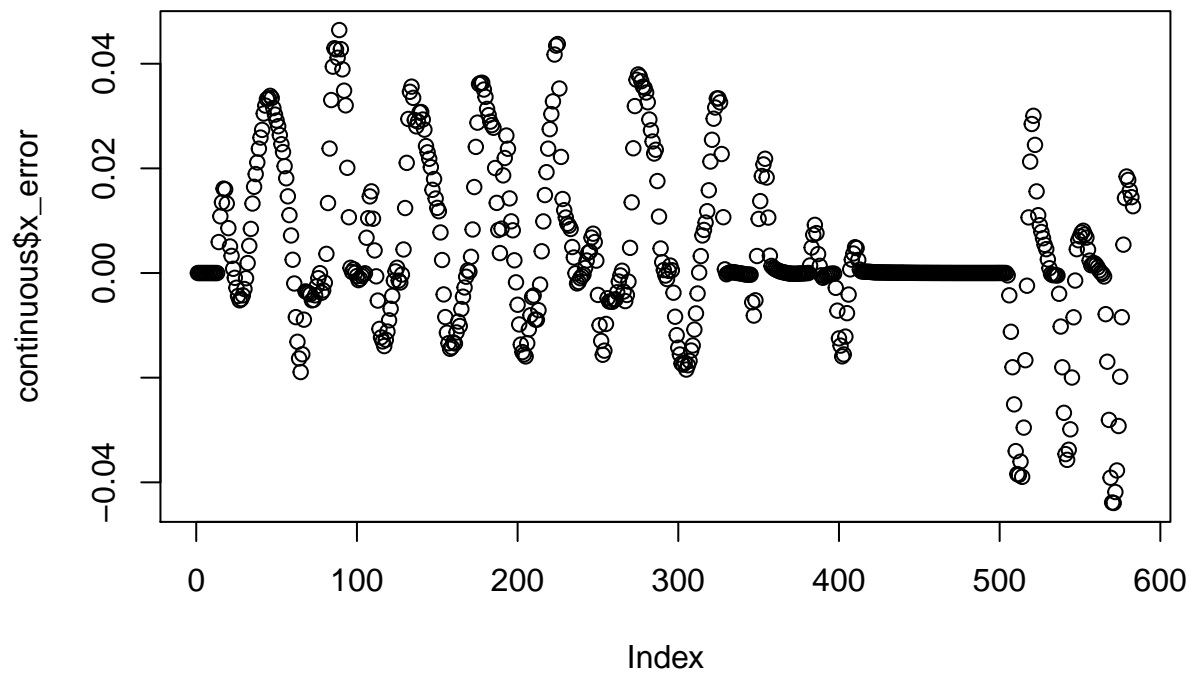
**Y coordinate of robot over time**



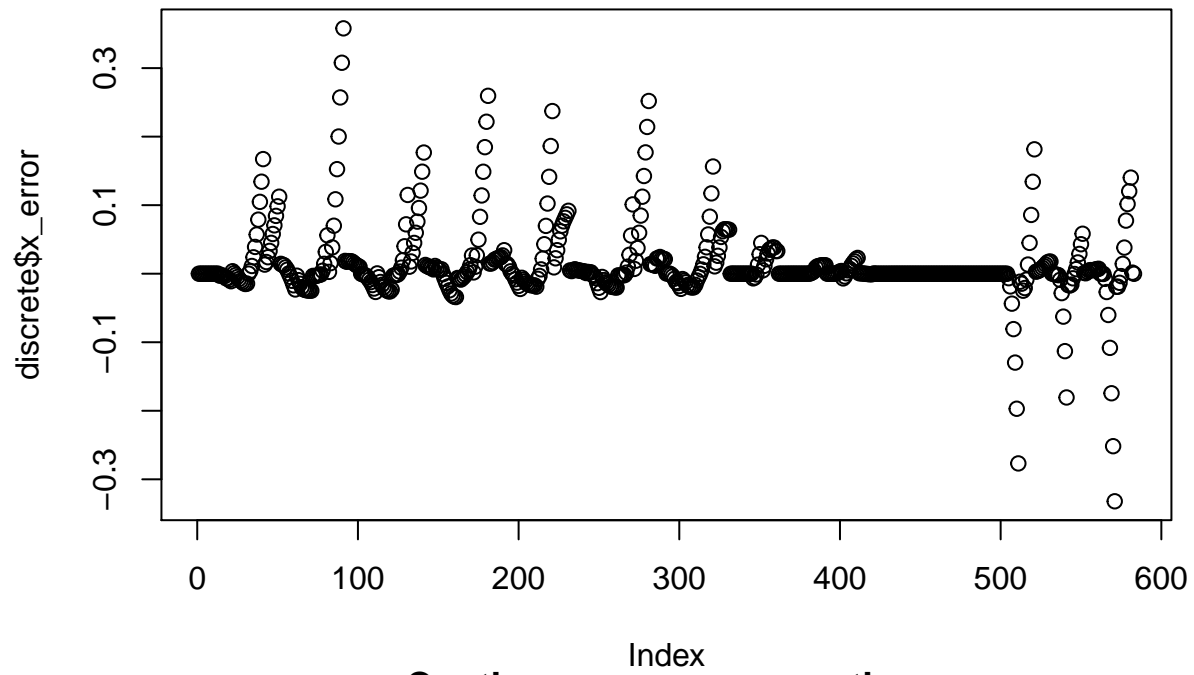
**Distance from origin vs. time**



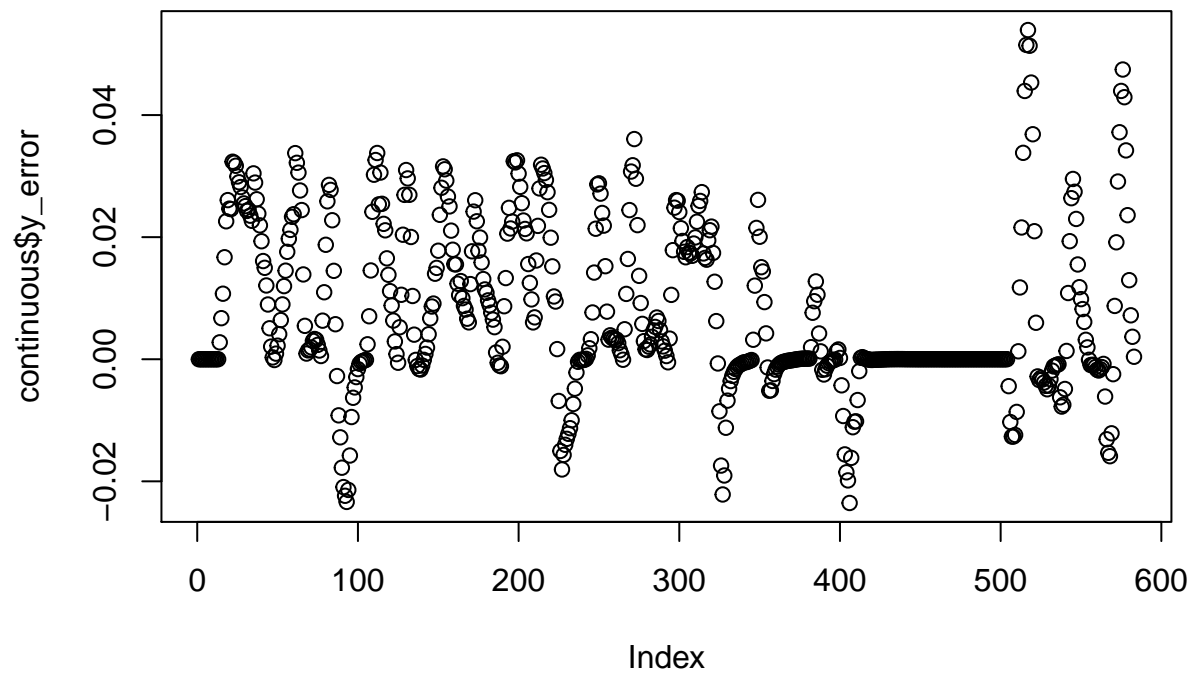
**Continuous x\_error over time**



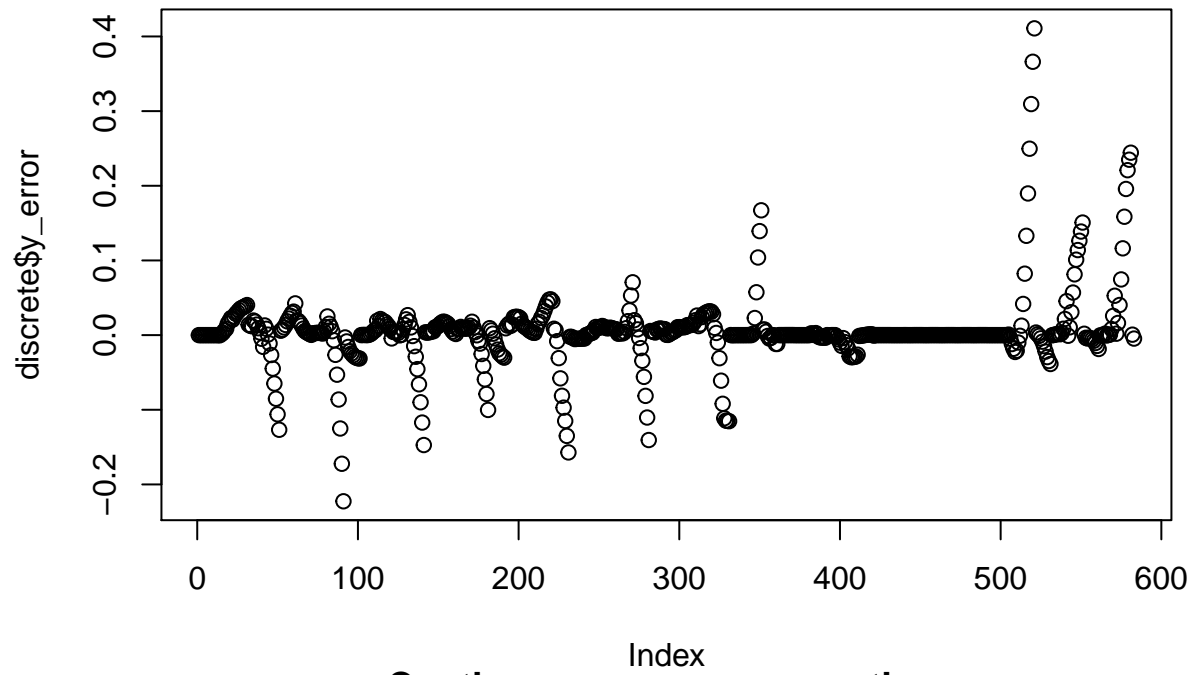
**Discrete  $x_{\text{error}}$  over time**



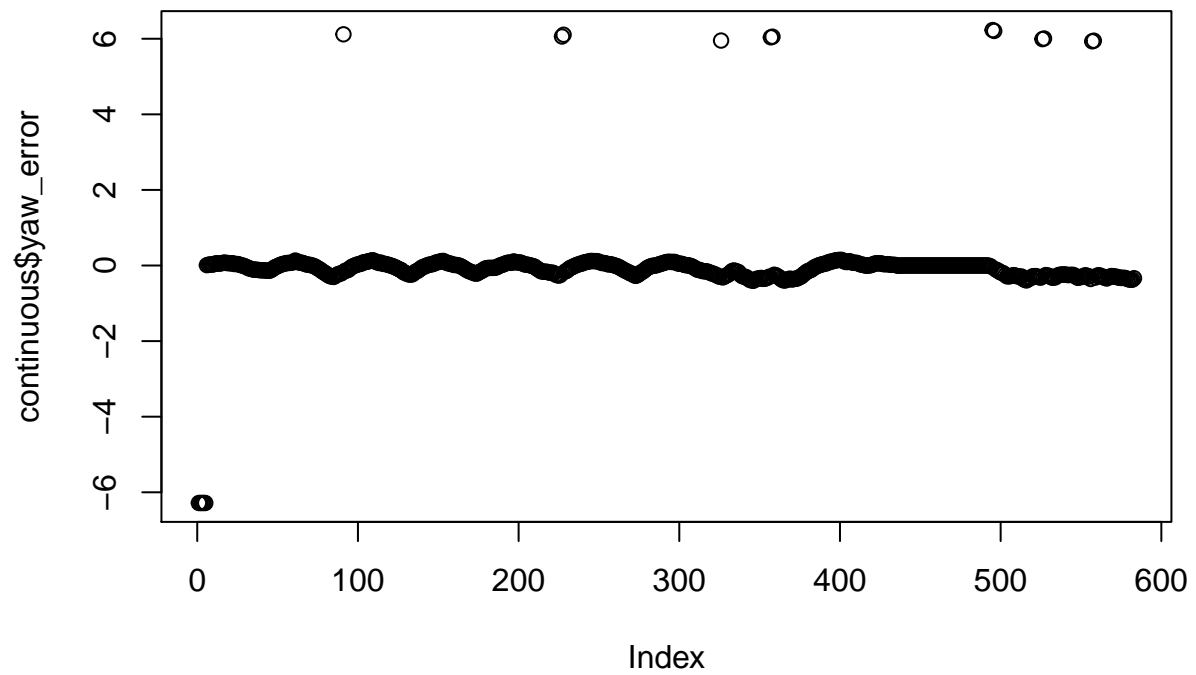
**Continuous  $y_{\text{error}}$  over time**



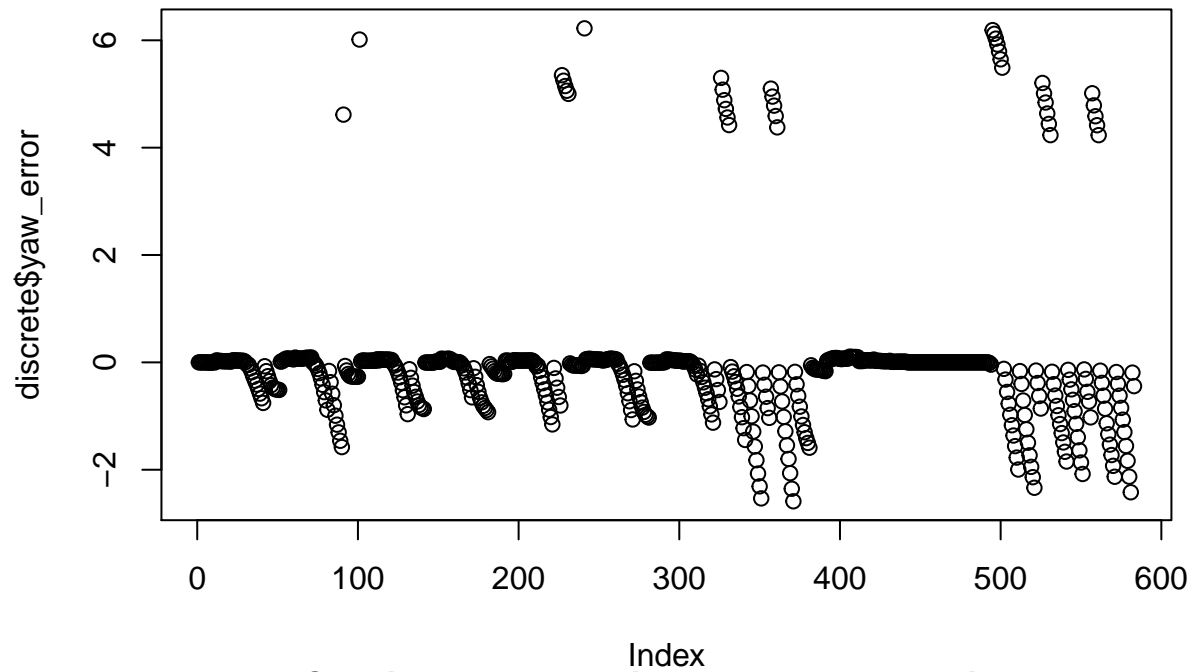
**Discrete y\_error over time**



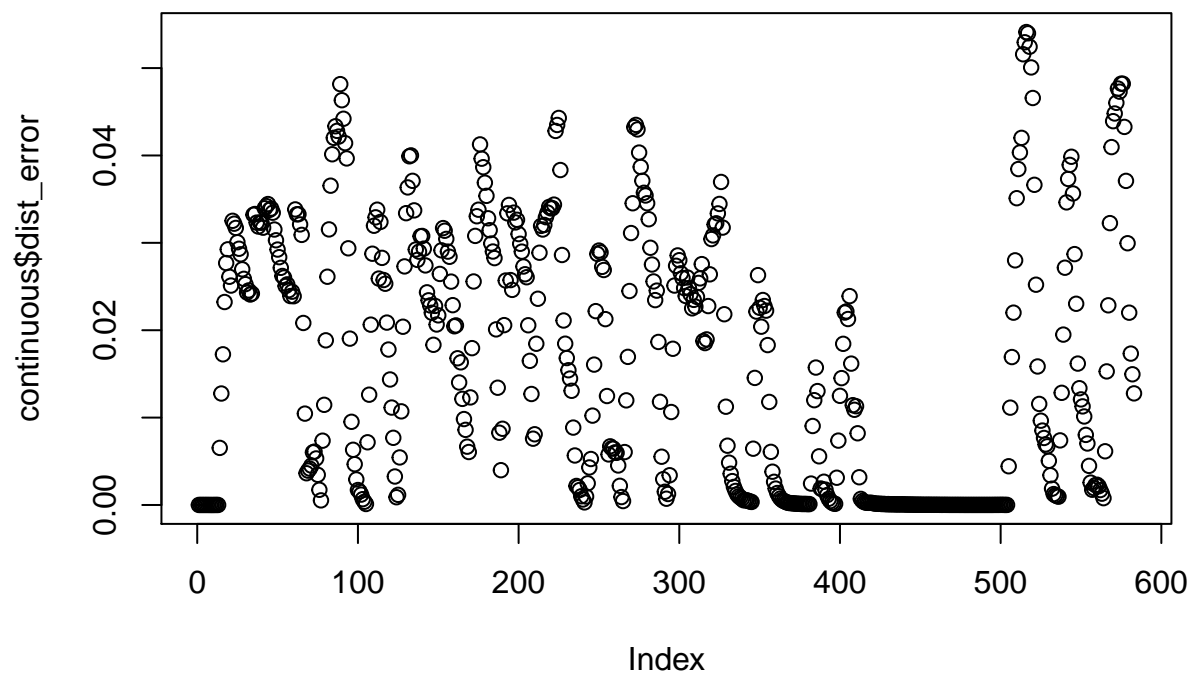
**Continuous yaw error over time**



**Discrete yaw error over time**



**Continuous total distance error over time**



**Discrete total distance error over time**

