

one_mobile Experiment Report

Matthew Swartwout

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This is a summary of the data from the one_mobile experiment.

Shown below is the summary of the error of all robots combined 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$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$dist_error)
```

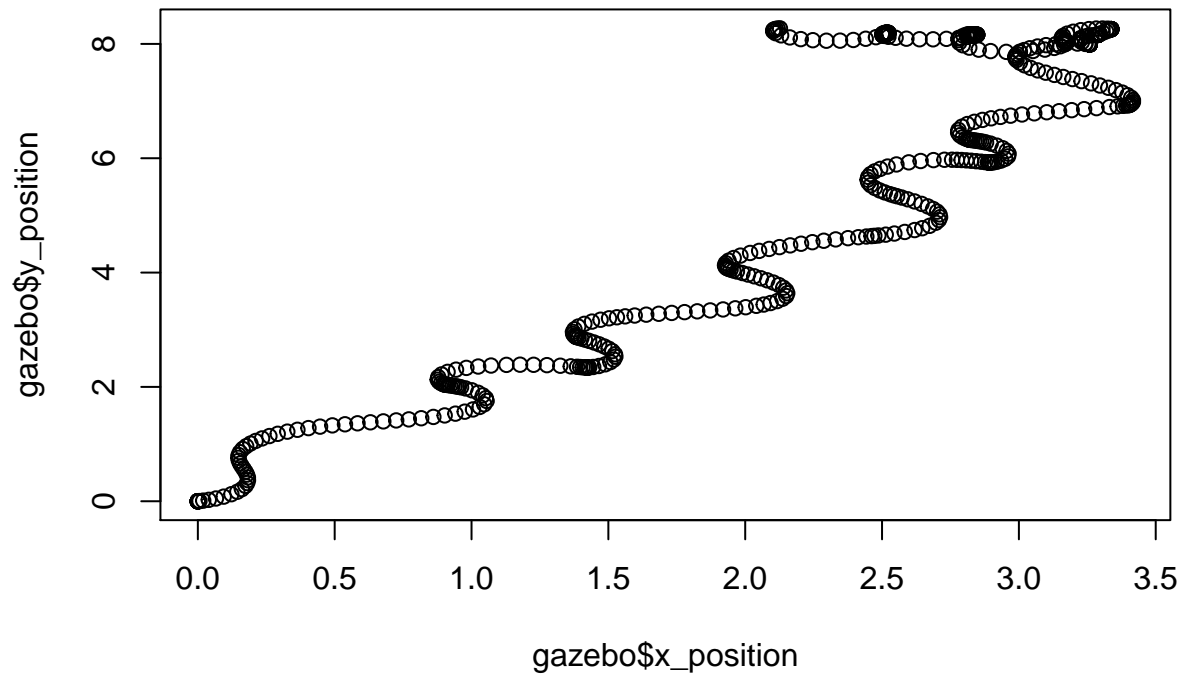
##	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
##	0.0000000	0.0006044	0.0159300	0.0374900	0.0333800	0.4492000

```
if (params$robot >= 2) {  
  summary(external_data_averages)  
}
```

Shown below are plots representing the robot's motion and error over time.

```
plot(gazebo$x_position, gazebo$y_position,  
     main = "Ground truth visited locations of robots")
```

Ground truth visited locations of robots



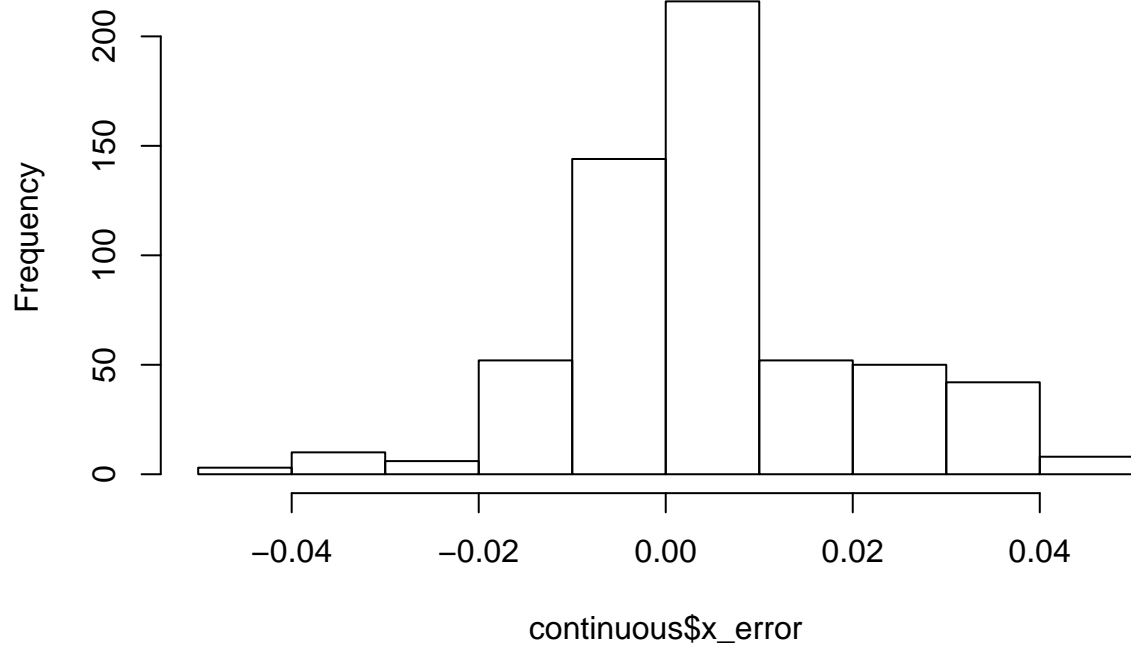
```
hist(gazebo$dist_from_origin,  
     main = "Distance from origin vs. time")
```

Distance from origin vs. time



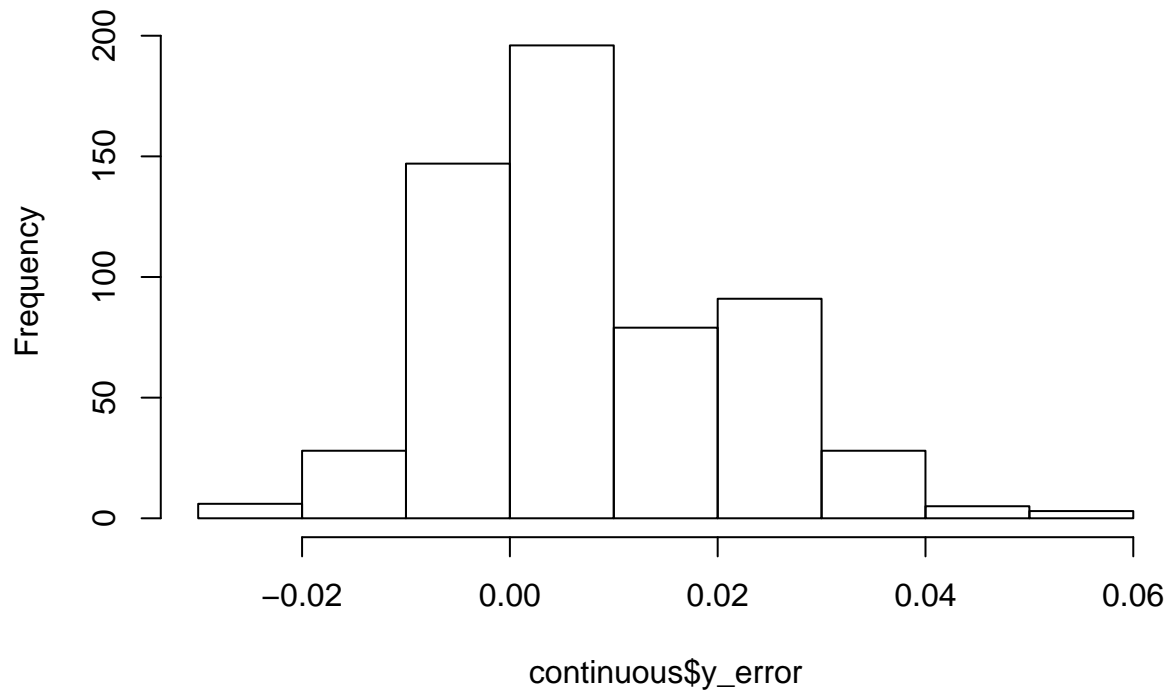
```
hist(continuous$x_error,  
     main = "Continuous x_error")
```

Continuous x_error



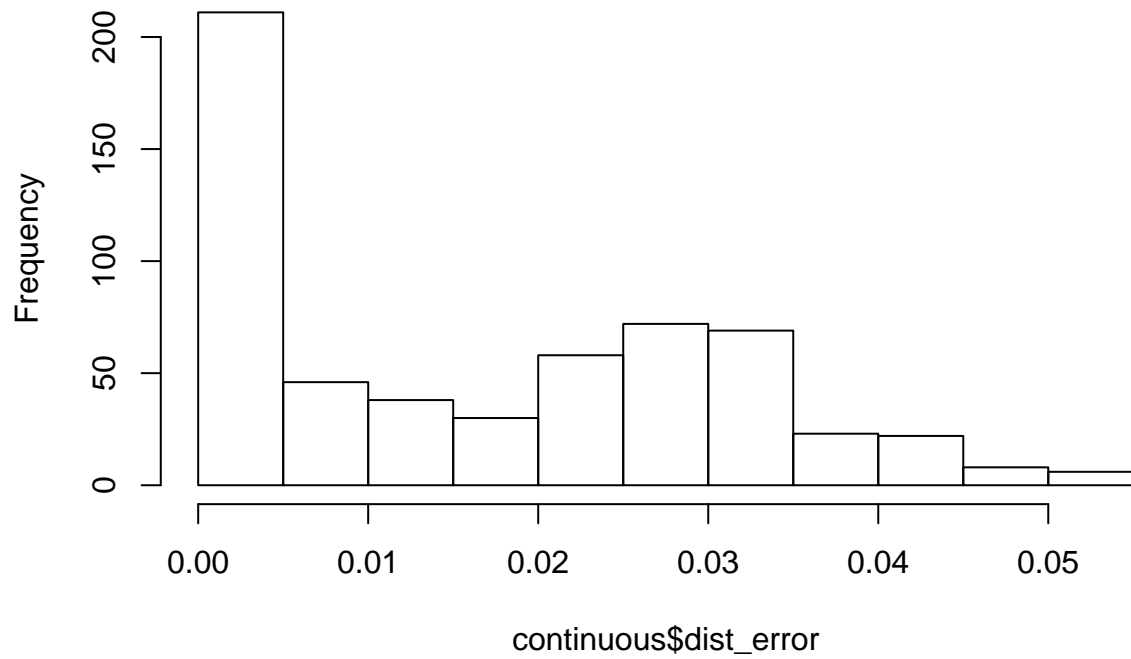
```
hist(continuous$y_error,  
     main = "Continuous y_error")
```

Continuous y_error



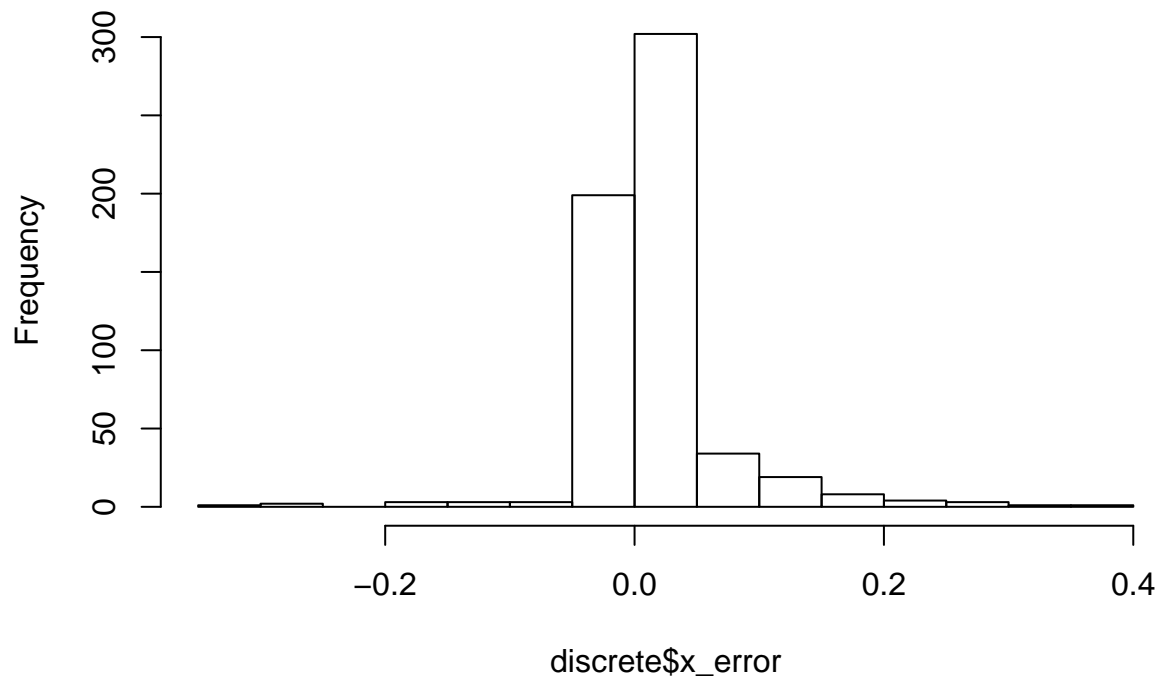
```
hist(continuous$dist_error,  
     main = "Continuous total distance error")
```

Continuous total distance error

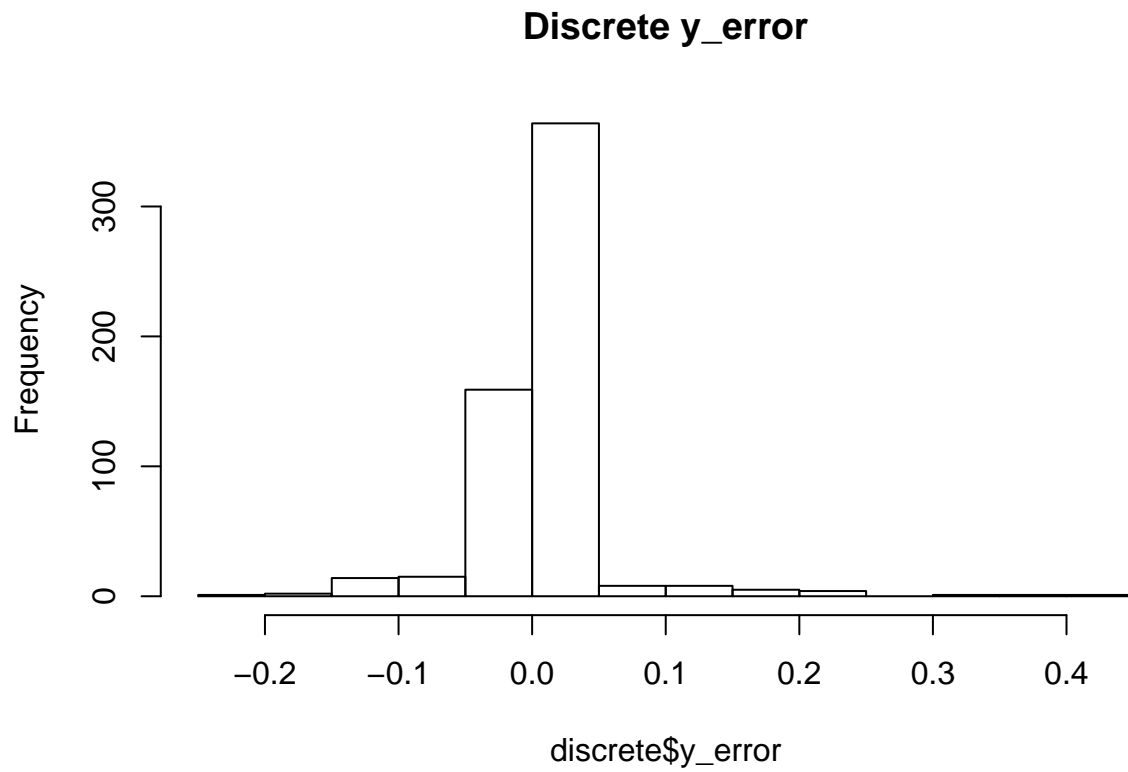


```
hist(discrete$x_error,  
      main = "Discrete x_error")
```

Discrete x_error



```
hist(discrete$y_error,  
      main = "Discrete y_error")
```



```
hist (discrete$dist_error,  
      main = "Discrete total distance error")
```

