

two_mobile_restricted Experiment Report

Matthew Swartwout

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This is a summary of the data from the two_mobile_restricted 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.
## -3.750e-02 -2.420e-06  2.140e-06  1.427e-03  4.451e-05  4.859e-02
```

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

```
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
## -4.436e-02 -1.250e-05 -1.430e-06 -5.128e-04  1.160e-06  2.566e-02
```

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

```
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##  4.400e-07  2.660e-06  1.534e-05  3.597e-03  1.289e-03  4.964e-02
```

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

```
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
## -0.198500 -0.016630  0.000002  0.007922  0.023230  0.403300
```

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

```
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
## -2.783e-01 -1.046e-02 -7.400e-07 -5.011e-04  4.275e-02  2.823e-01
```

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

```
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
## 0.00000001 0.0000253 0.0502200 0.0810700 0.1608000 0.4459000
```

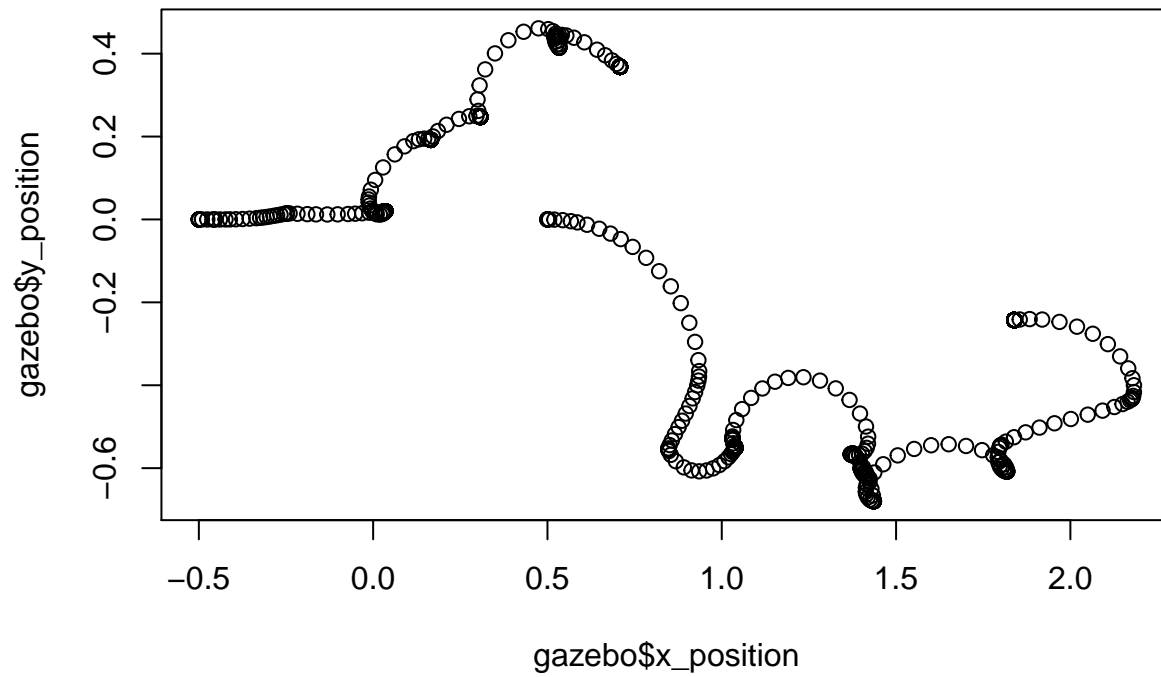
```
if (params$robot >= 2) {
  summary(external_data_averages)
}
```

```
##      Length Class  Mode
## [1,] 1      -none- numeric
## [2,] 1      -none- numeric
```

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

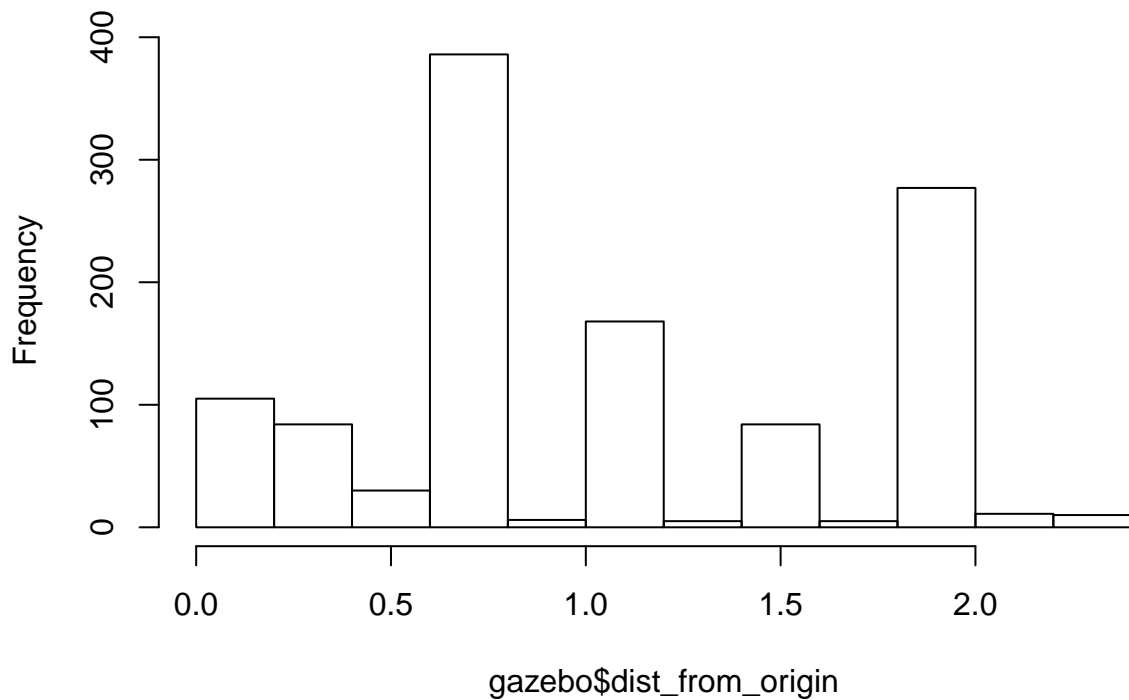
```
plot(gazebo$x_position, gazebo$y_position,
     main = "Ground truth visited locations of robots")
```

Ground truth visited locations of robots



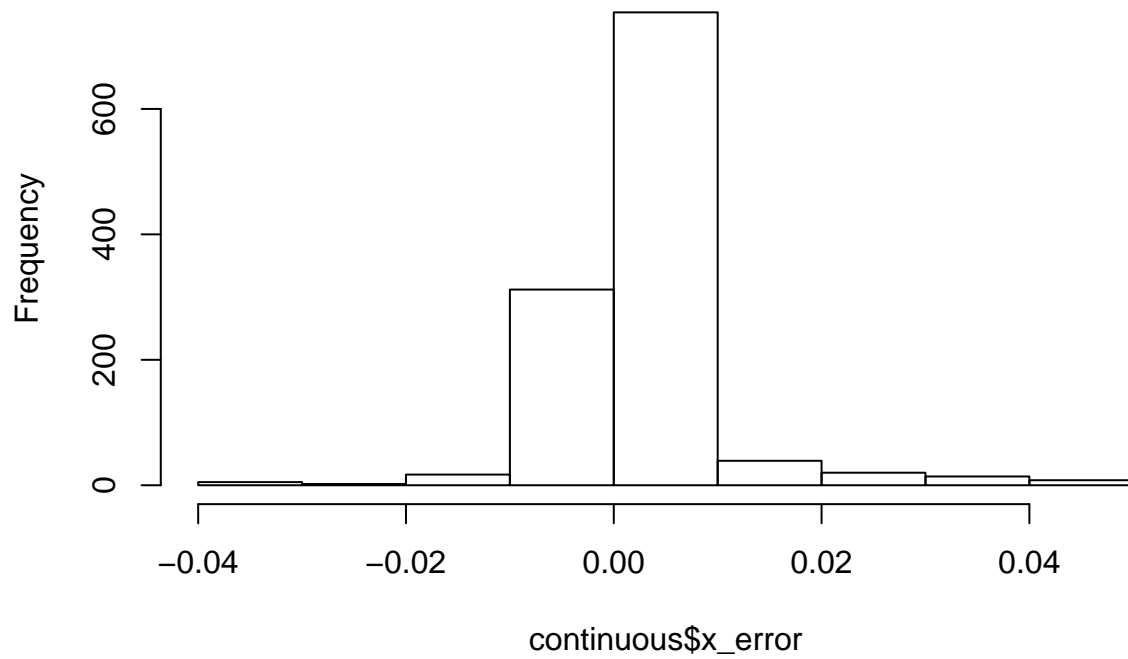
```
hist(gazebo$dist_from_origin,  
     main = "Distance from origin vs. time")
```

Distance from origin vs. time



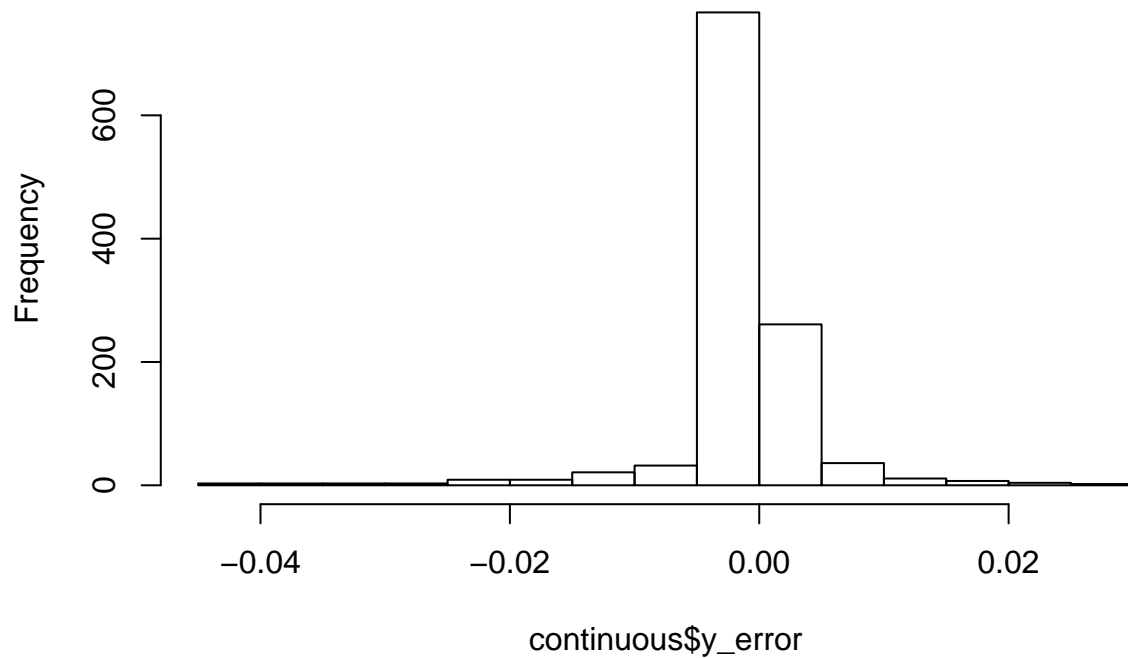
```
hist(continuous$x_error,  
     main = "Continuous x_error")
```

Continuous x_error



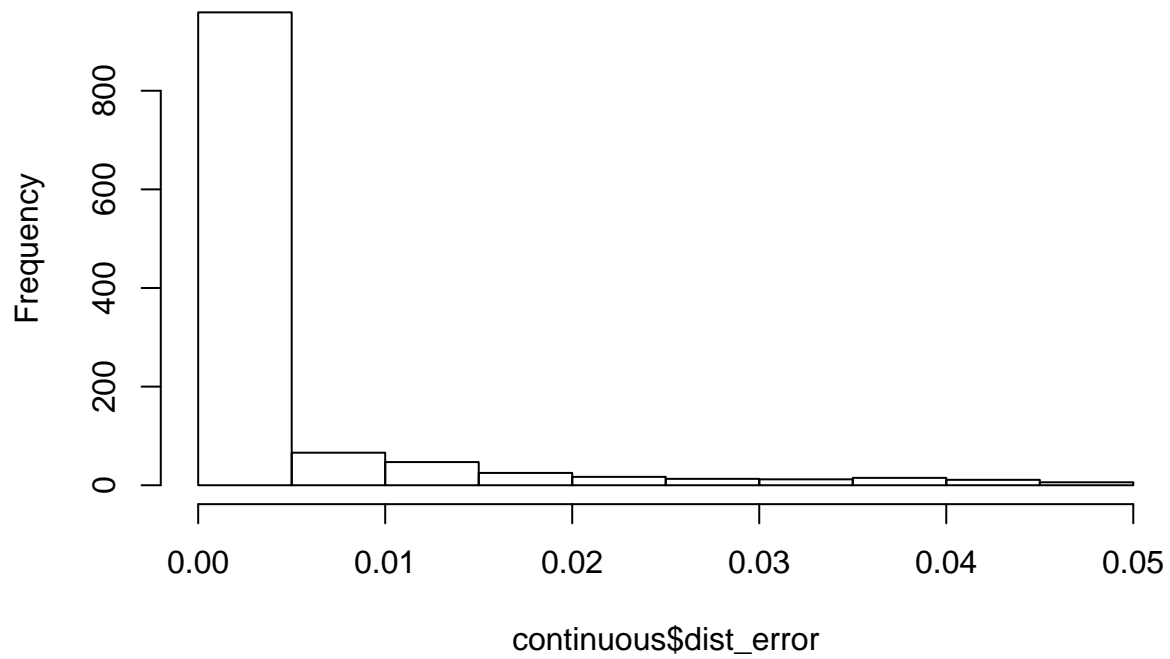
```
hist(continuous$y_error,  
     main = "Continuous y_error")
```

Continuous y_error



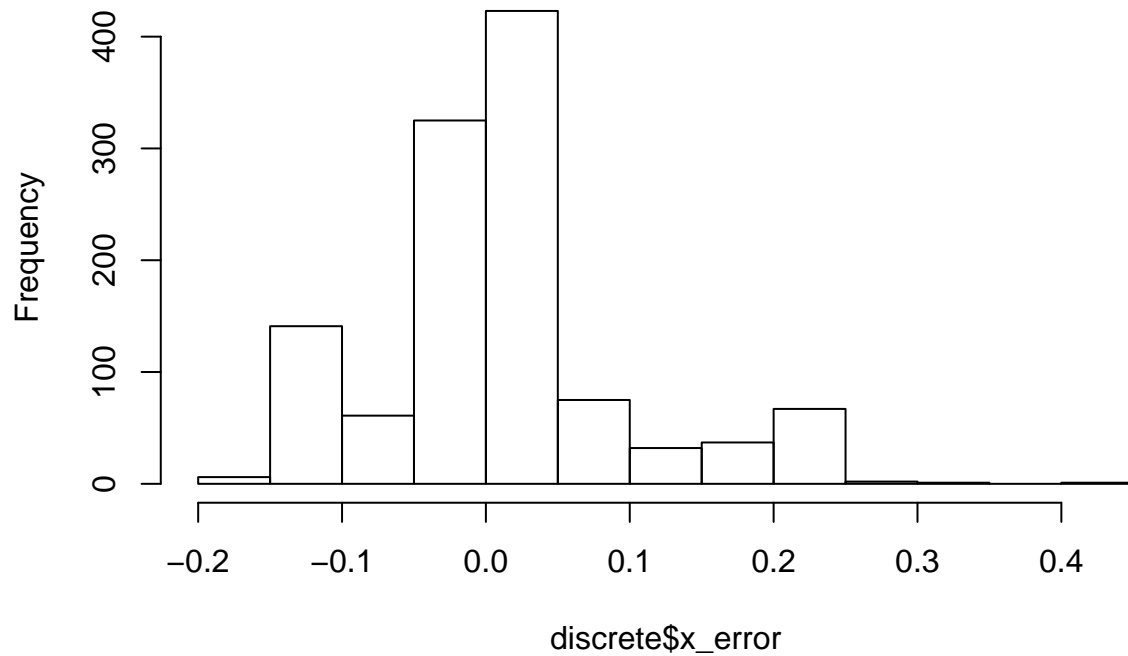
```
hist(continuous$dist_error,  
     main = "Continuous total distance error")
```

Continuous total distance error

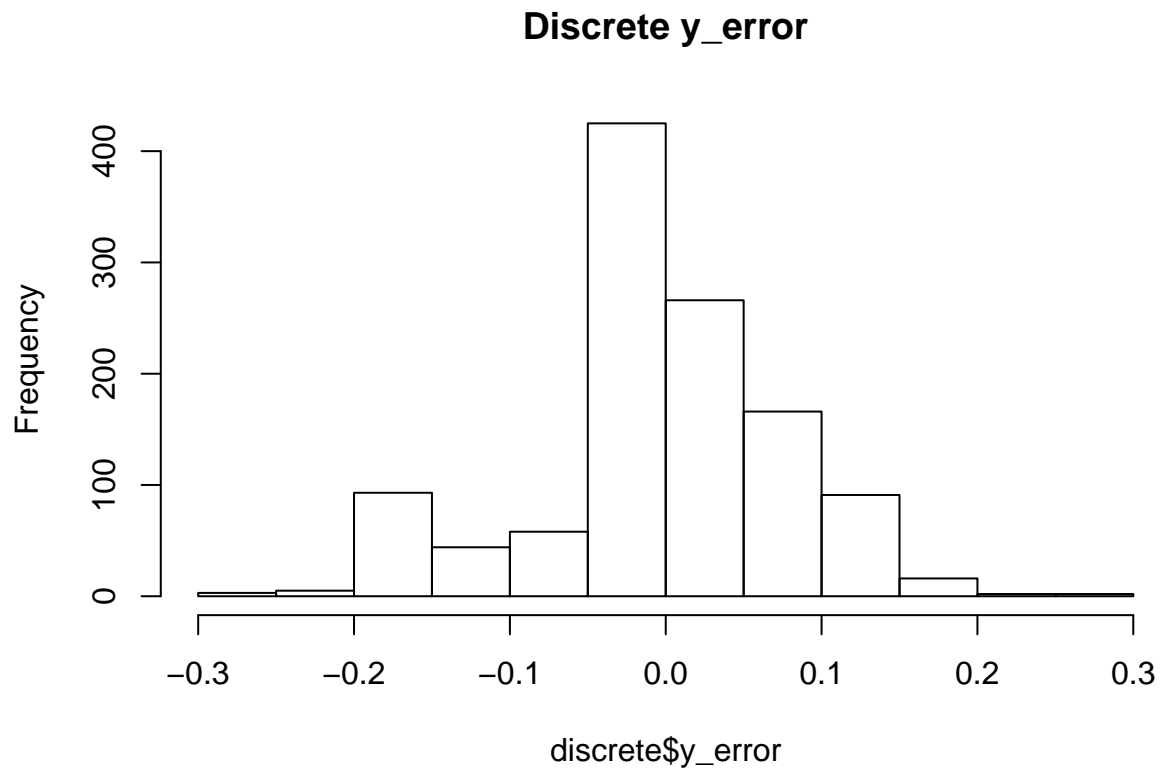


```
hist(discrete$x_error,  
      main = "Discrete x_error")
```

Discrete x_error



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



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

