

one_stationary_noisy_false Experiment Report

Matthew Swartwout

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This is a summary of the data from the one_stationary_noisy_false 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.
## 2.442e-06 2.626e-06 2.671e-06 2.671e-06 2.716e-06 3.046e-06
```

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

```
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## 2.233e-10 1.746e-08 3.520e-08 3.441e-08 5.180e-08 7.140e-08
```

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

```
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## 2.443e-06 2.626e-06 2.671e-06 2.672e-06 2.717e-06 3.047e-06
```

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

```
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## 1.044e-06 2.944e-06 5.323e-06 5.073e-06 7.208e-06 9.100e-06
```

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

```
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## 1.110e-10 2.284e-08 5.159e-08 6.536e-08 9.798e-08 2.272e-07
```

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

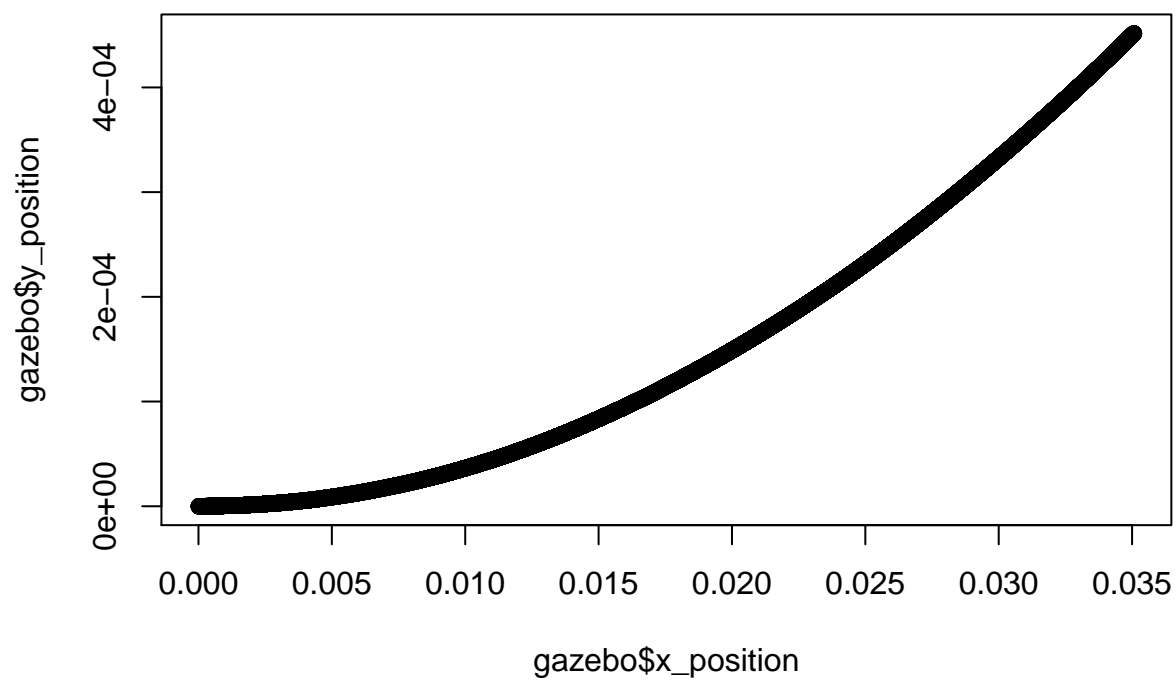
```
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## 1.044e-06 2.944e-06 5.323e-06 5.074e-06 7.209e-06 9.100e-06
```

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

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

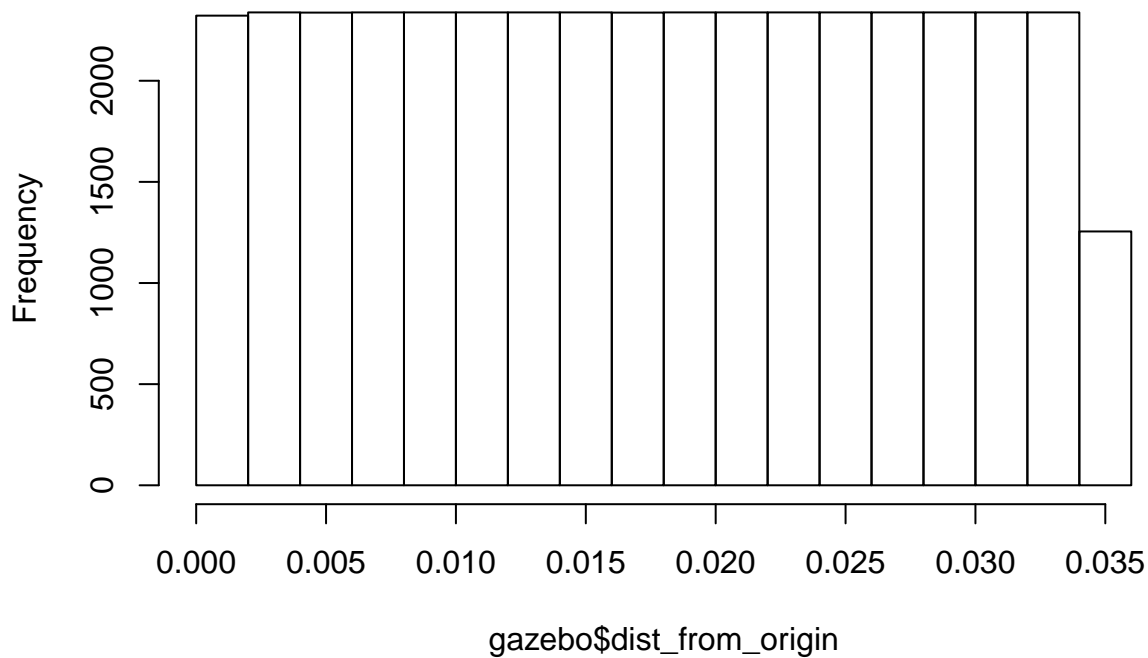
```
plot(gazebo$x_position, gazebo$y_position,
     main = "Ground truth visited locations of robots")
```

Ground truth visited locations of robots



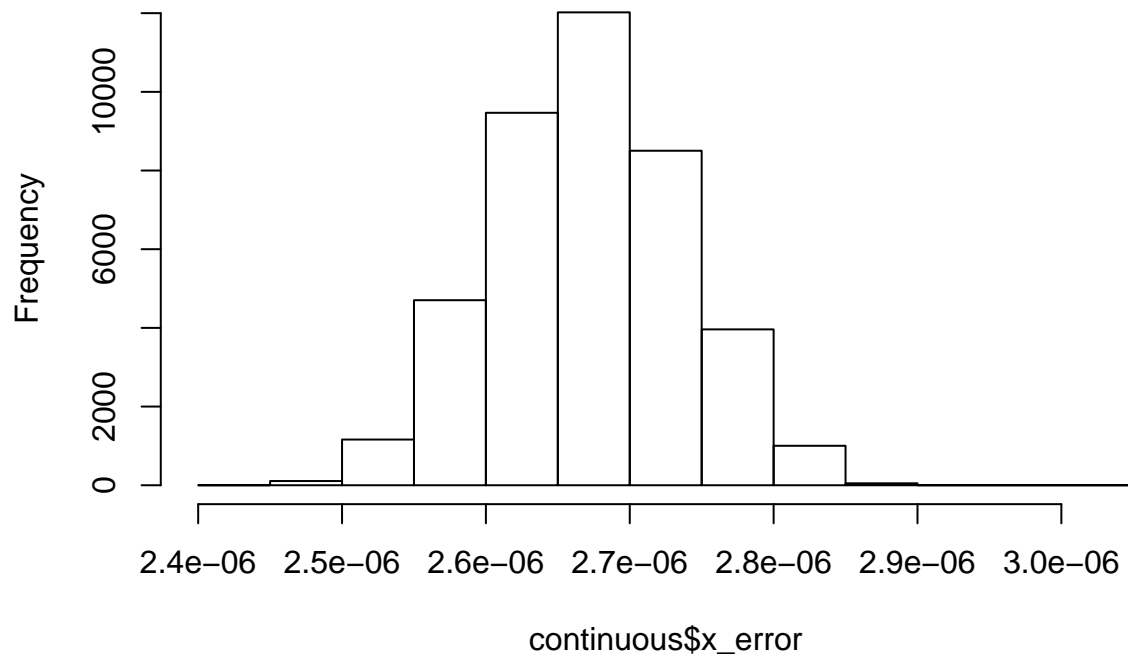
```
hist(gazebo$dist_from_origin,  
     main = "Distance from origin vs. time")
```

Distance from origin vs. time



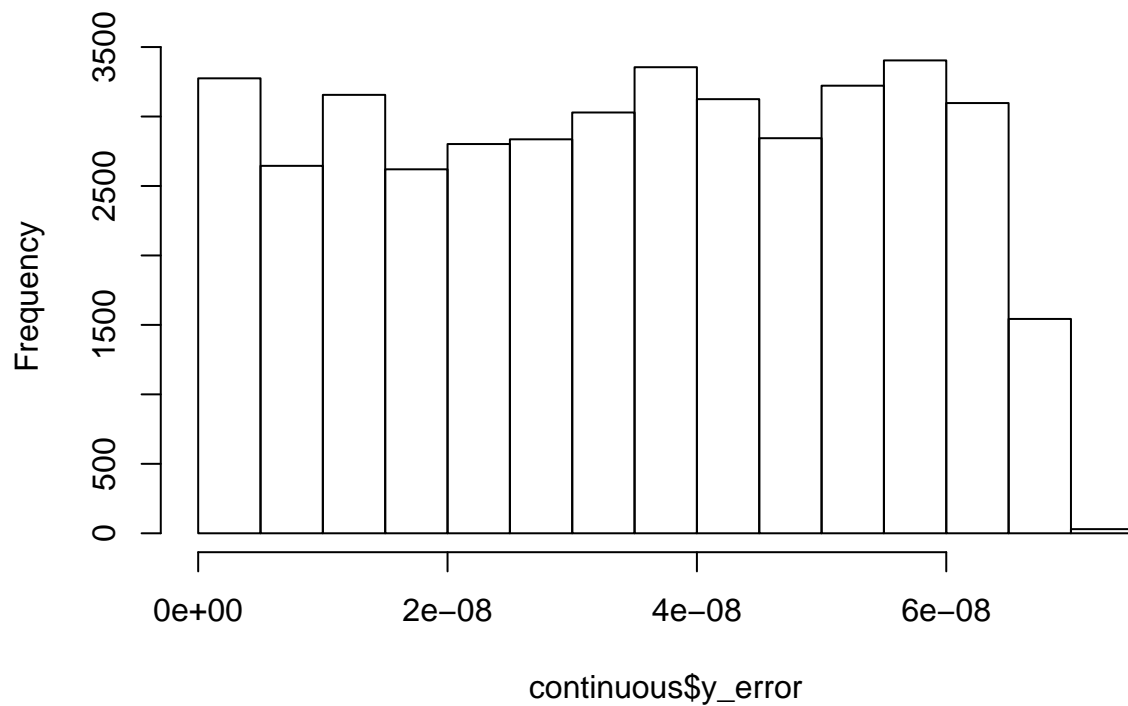
```
hist(continuous$x_error,  
     main = "Continuous x_error")
```

Continuous x_error



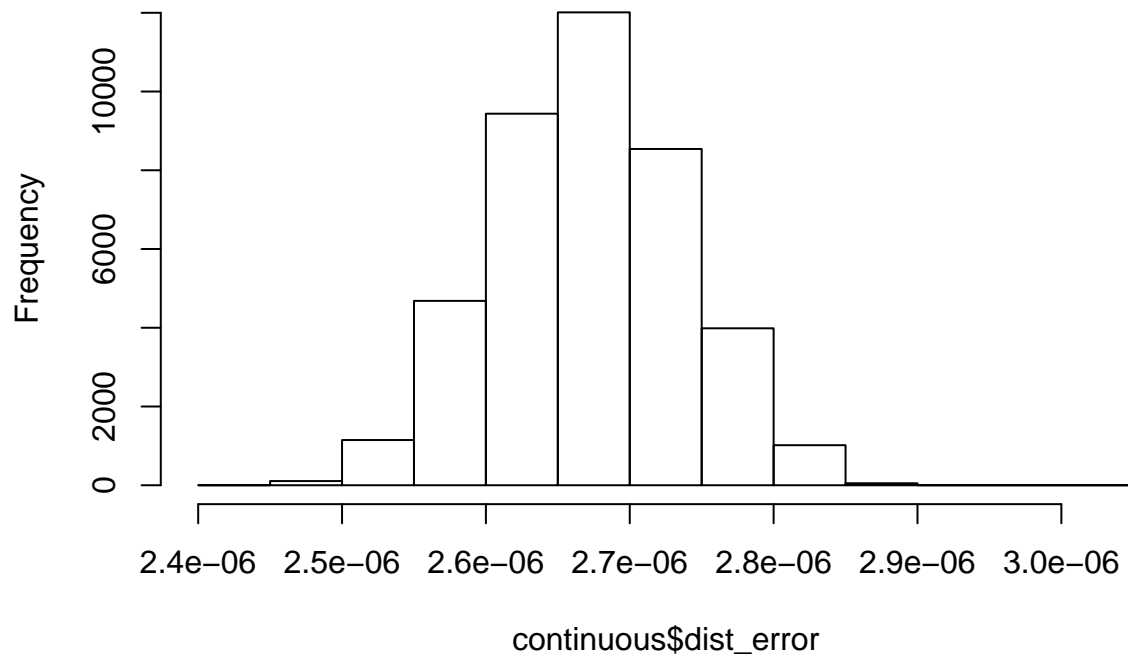
```
hist(continuous$y_error,  
     main = "Continuous y_error")
```

Continuous y_error



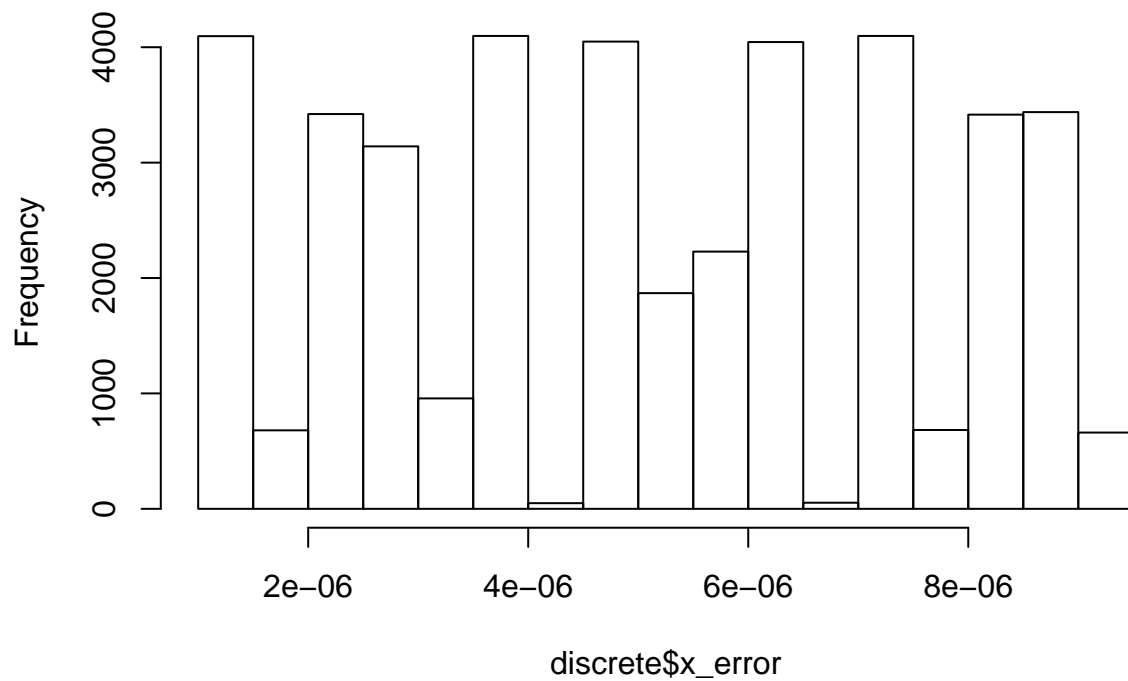
```
hist(continuous$dist_error,  
     main = "Continuous total distance error")
```

Continuous total distance error



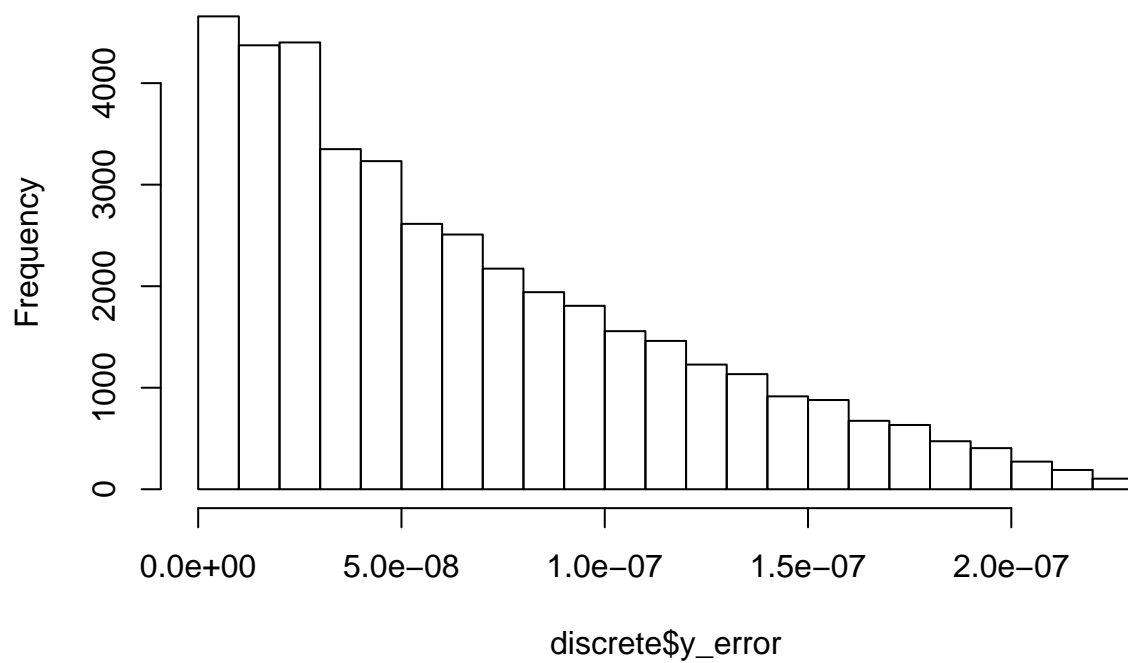
```
hist(discrete$x_error,  
     main = "Discrete x_error")
```

Discrete x_error



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

Discrete y_error



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

Discrete total distance error

