

one_stationary Experiment Report

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This is a summary of the data from the one_stationary 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.
## 2.999e-06 1.458e-05 1.830e-05 1.770e-05 2.139e-05 3.752e-05
```

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

```
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## -9.339e-09 4.456e-08 8.527e-08 1.181e-07 1.853e-07 4.544e-07
```

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

```
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## 2.999e-06 1.458e-05 1.830e-05 1.770e-05 2.139e-05 3.753e-05
```

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

```
##      Min. 1st Qu.  Median     Mean 3rd Qu.     Max.
## -4.37900 -0.45480  0.01812  0.07371 0.64580  2.95300
```

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

```
##      Min. 1st Qu.  Median     Mean 3rd Qu.     Max.
## -4.336000 -0.564000  0.007488  0.061680 0.670600  3.743000
```

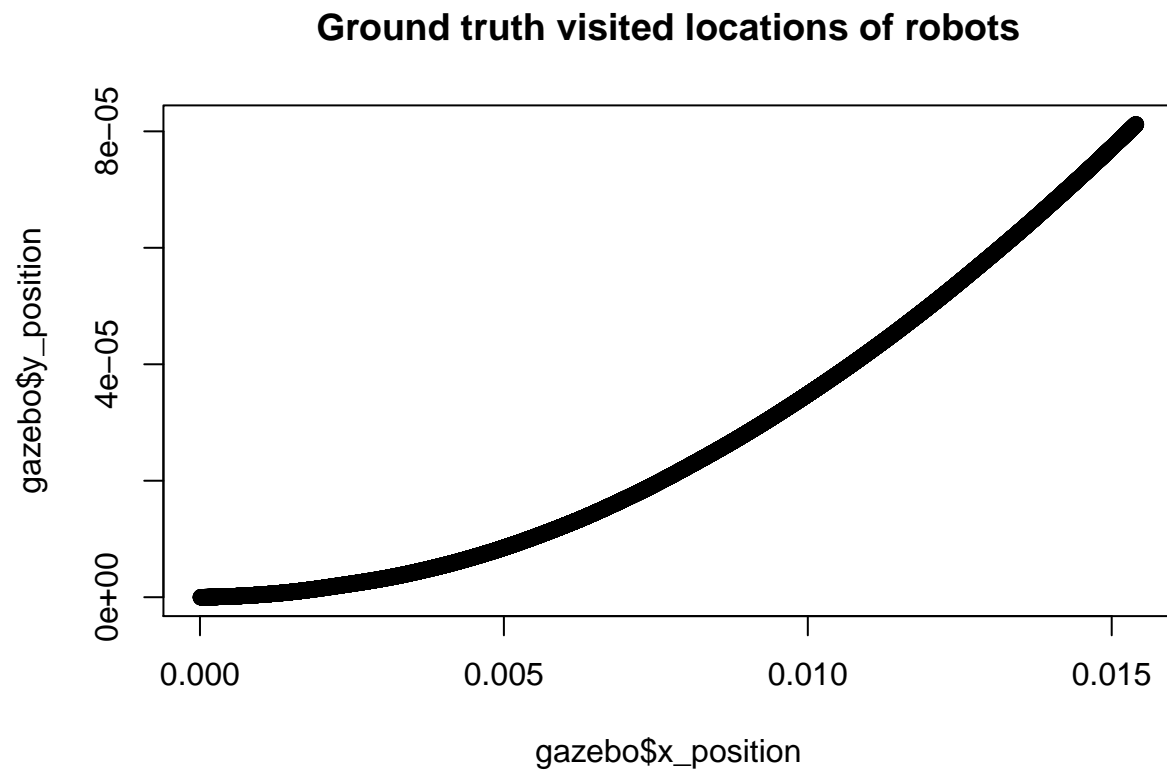
```
summary(discrete$dist_error)
```

```
##      Min. 1st Qu.  Median     Mean 3rd Qu.     Max.
## 0.000014 0.503700 1.043000 1.277000 1.917000 4.790000
```

```
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")
```



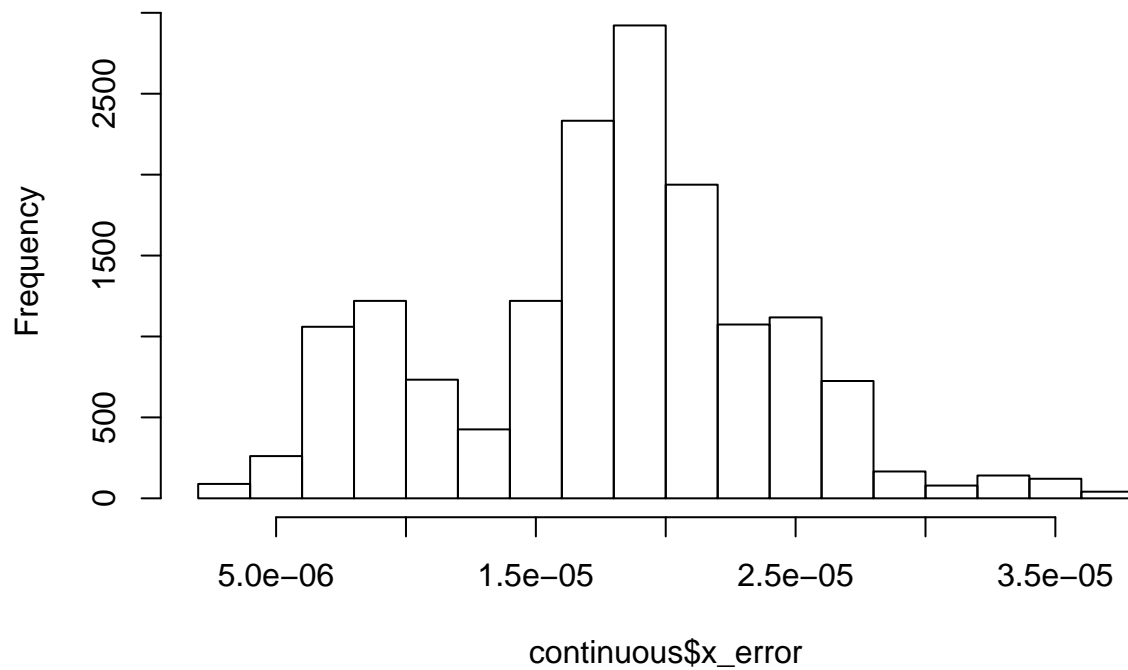
```
hist(gazebo$dist_from_origin,  
     main = "Distance from origin vs. time")
```

Distance from origin vs. time

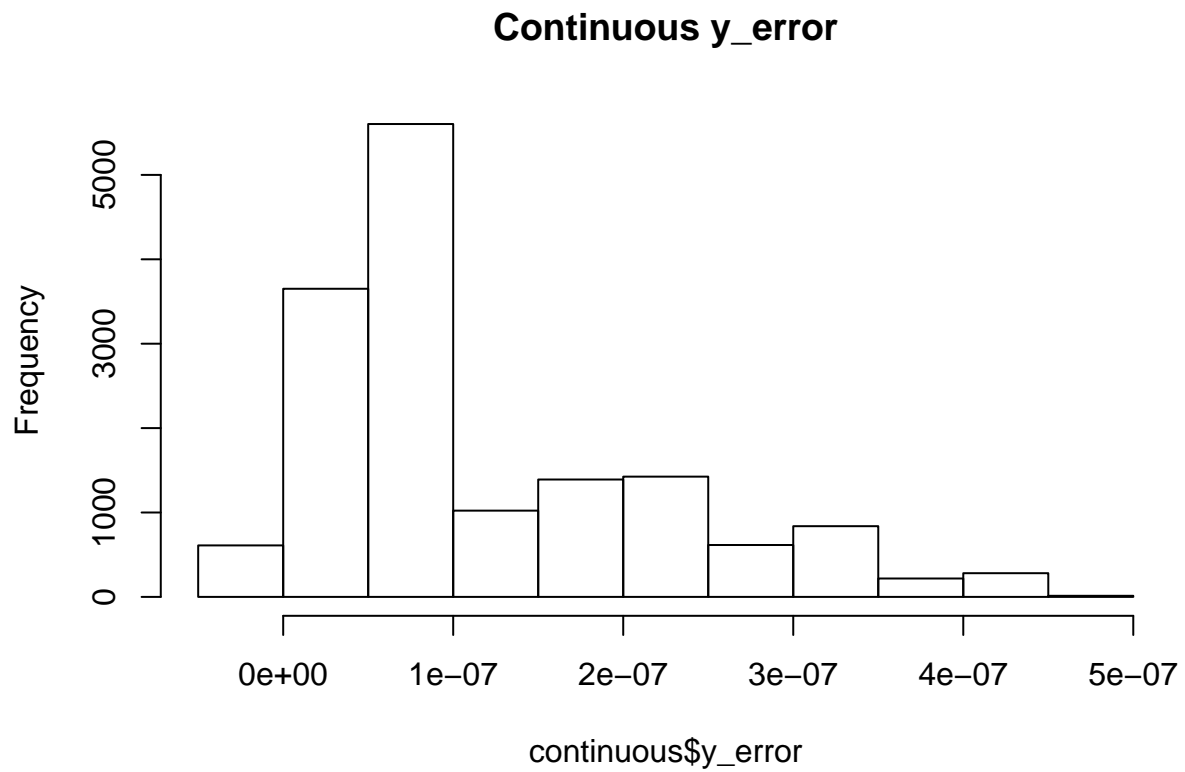


```
hist(continuous$x_error,  
     main = "Continuous x_error")
```

Continuous x_error

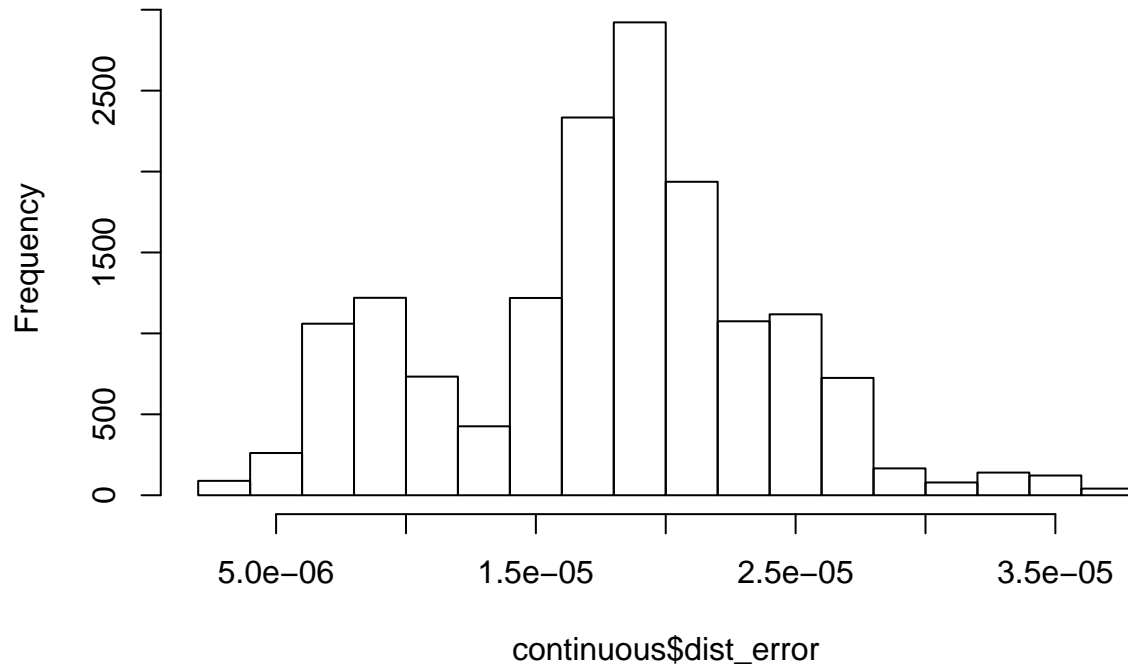


```
hist(continuous$y_error,  
     main = "Continuous y_error")
```



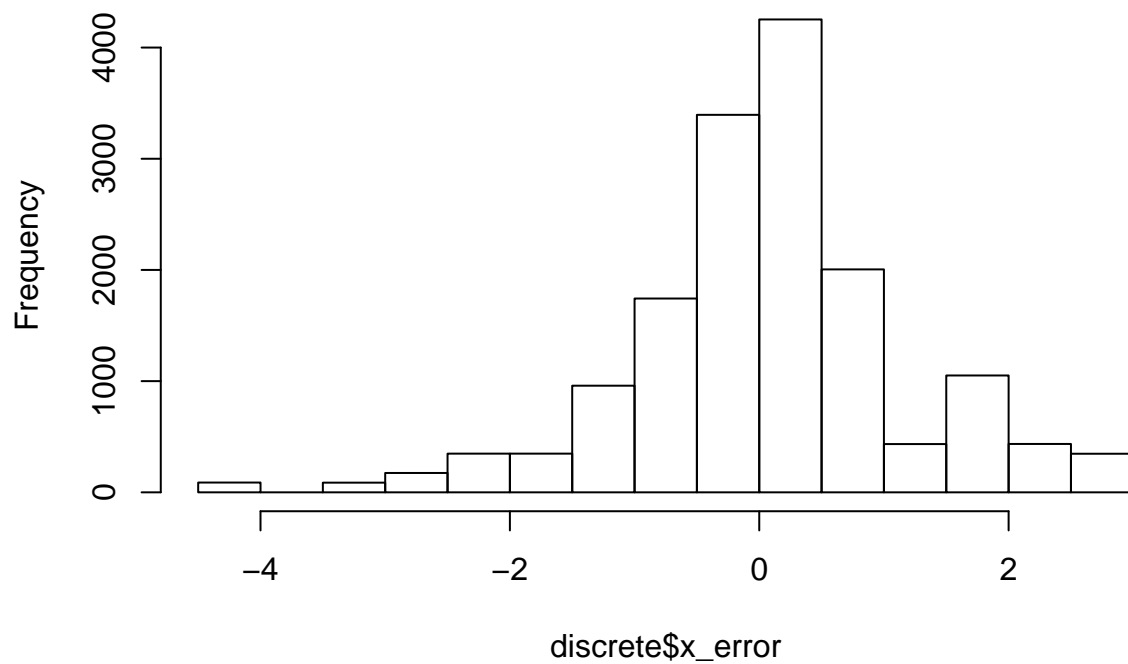
```
hist(continuous$dist_error,  
     main = "Continuous total distance error")
```

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")
```

