

two_stationary_noisy_true Experiment Report

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This is a summary of the data from the two_stationary_noisy_true 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.
## -1.904e-02 -2.956e-03  1.381e-05  1.173e-05  2.977e-03  2.102e-02
```

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

```
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
## -1.882e-02 -2.945e-03  1.394e-05  2.644e-05  2.990e-03  1.996e-02
```

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

```
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
## 0.0000107 0.0033060 0.0051570 0.0055010 0.0073300 0.0226800
```

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

```
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
## -5.907e-06  3.538e-06  7.817e-06  1.331e-02  3.020e-02  3.056e-02
```

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

```
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
## -2.627e-02 -1.277e-02  1.000e-09 -6.418e-03  4.200e-08  3.033e-06
```

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

```
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
## 0.000e+00 3.540e-06 7.820e-06 1.498e-02 3.221e-02 4.025e-02
```

```
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



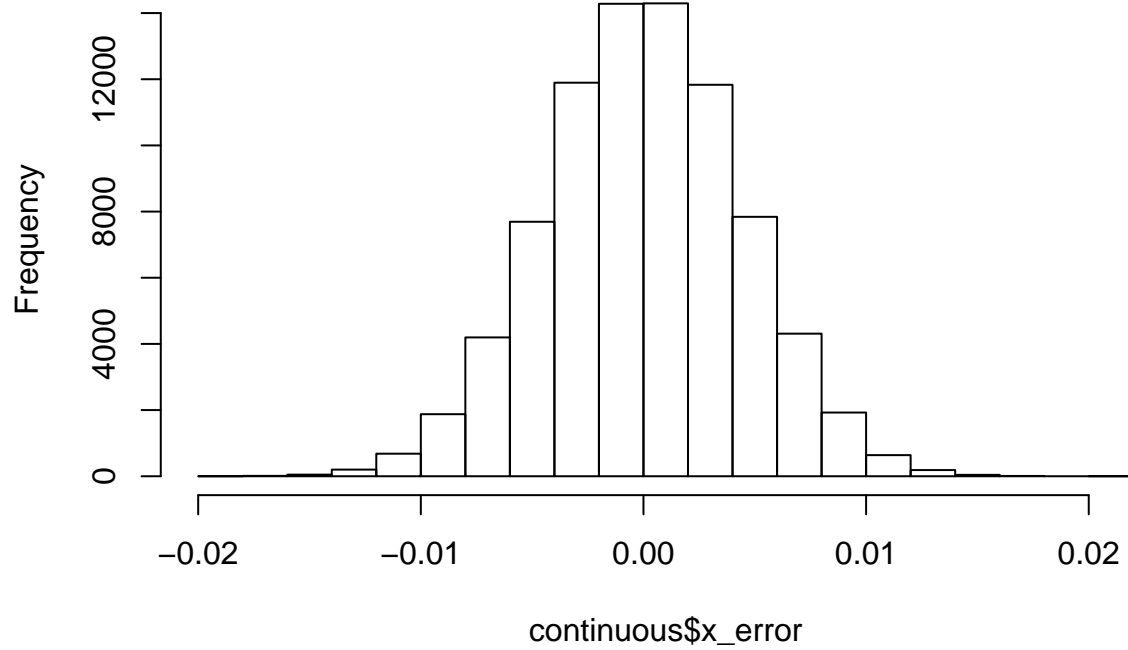
```
hist(gazebo$dist_from_origin,  
     main = "Distance from origin vs. time")
```

Distance from origin vs. time



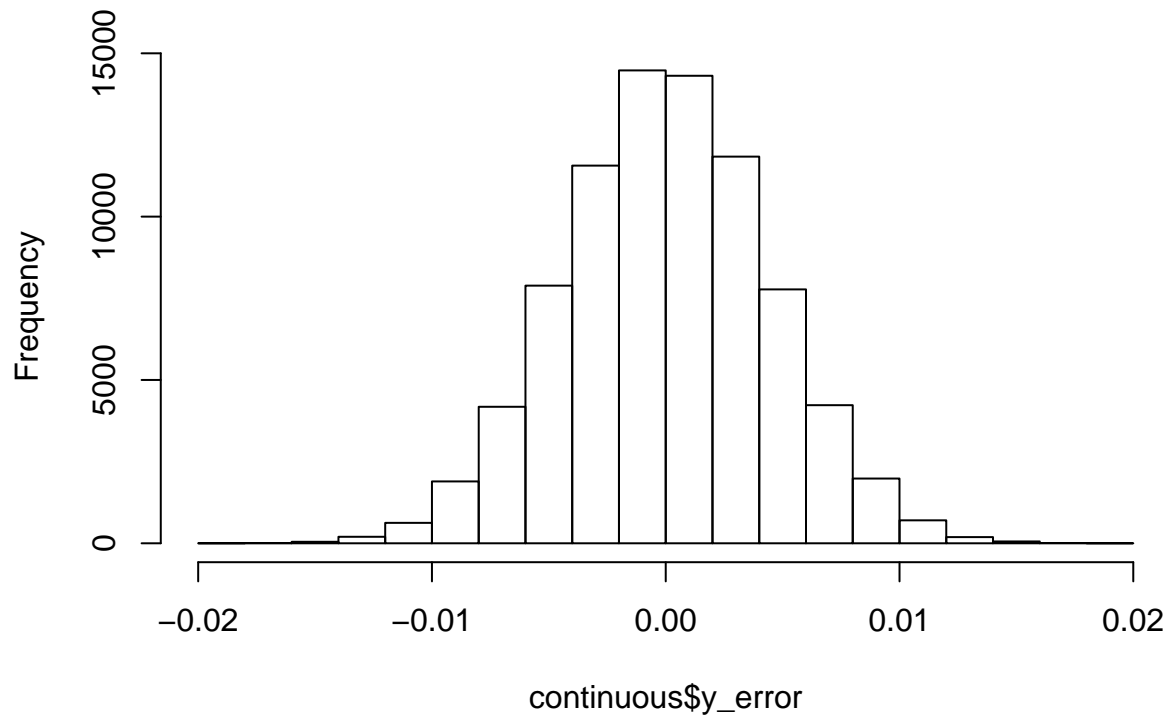
```
hist(continuous$x_error,  
     main = "Continuous x_error")
```

Continuous x_error



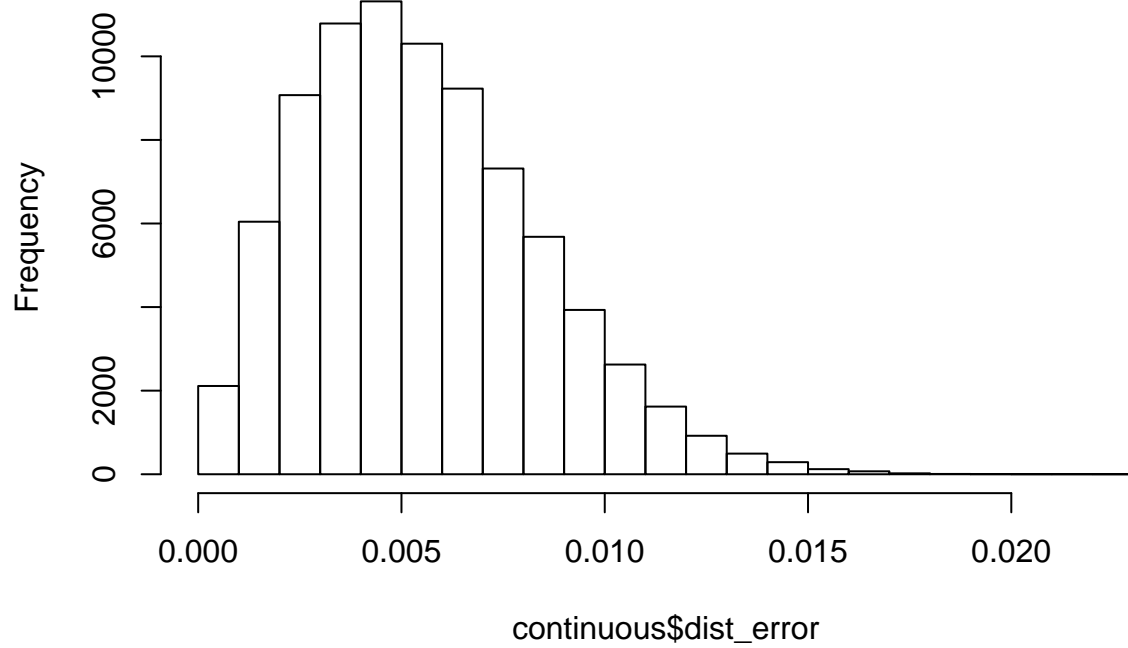
```
hist(continuous$y_error,  
     main = "Continuous y_error")
```

Continuous y_error



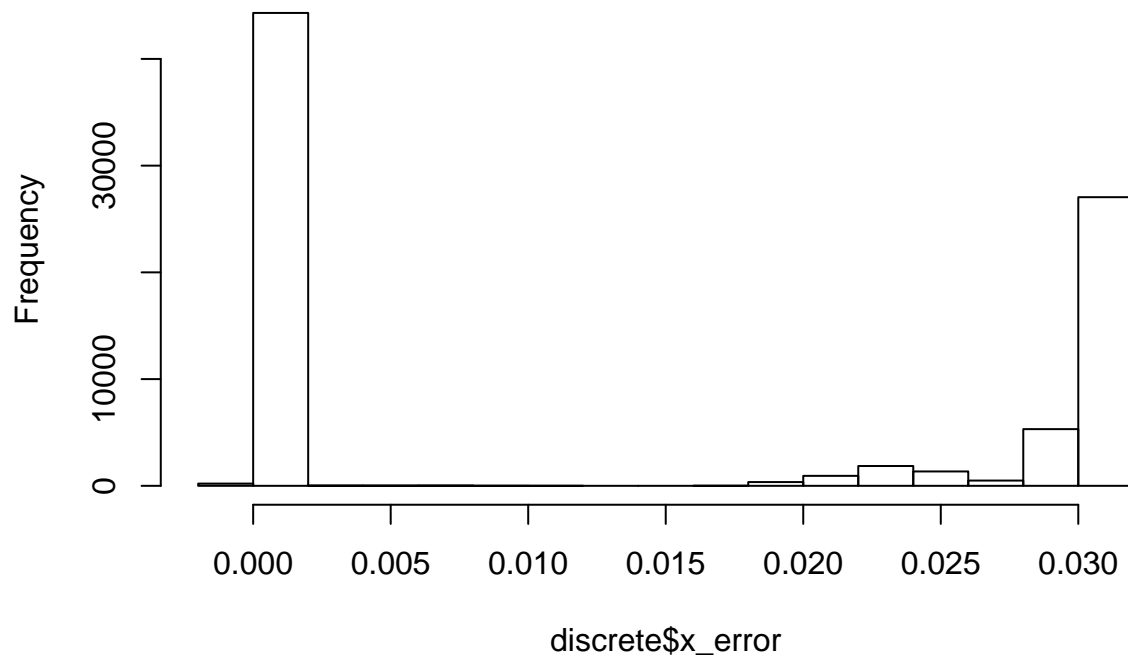
```
hist(continuous$dist_error,  
     main = "Continuous total distance error")
```

Continuous total distance error



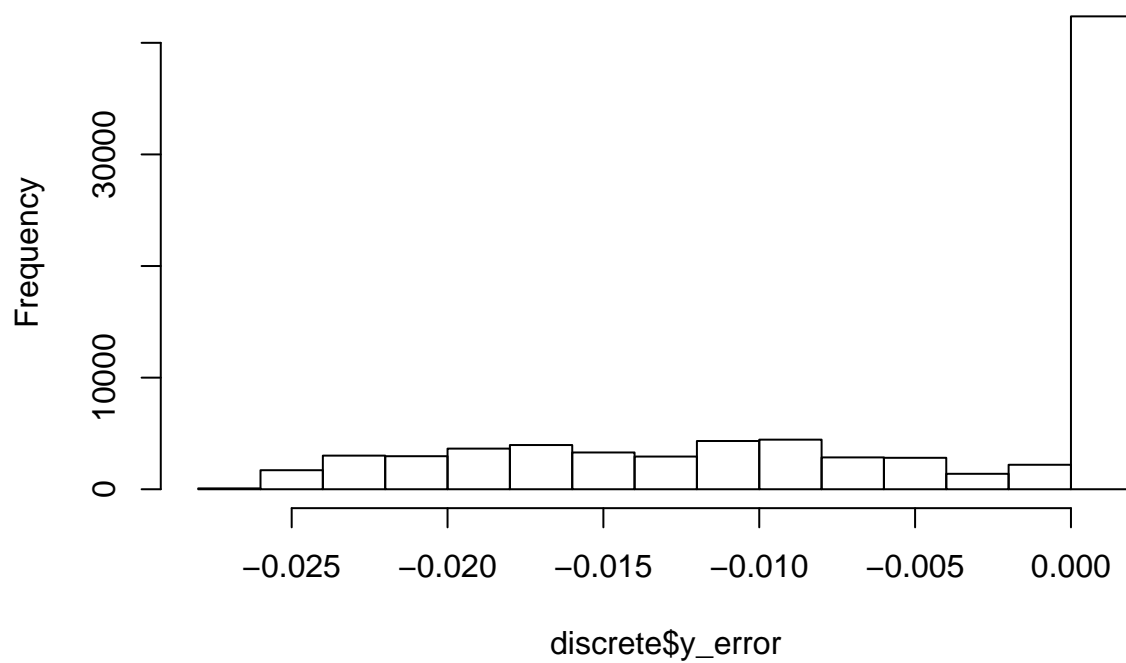
```
hist(discrete$x_error,  
      main = "Discrete x_error")
```

Discrete x_error



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

Discrete y_error



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

Discrete total distance error

