

five_mobile_noisy_true Experiment Report

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This is a summary of the data from the five_mobile_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.
## -7.855e-02 -4.203e-03  3.970e-06  2.619e-05  4.252e-03  7.971e-02

summary(continuous$y_error)

##      Min.   1st Qu.    Median     Mean   3rd Qu.   Max.
## -7.886e-02 -4.240e-03 -3.270e-06 -1.032e-05  4.222e-03  7.855e-02

summary(continuous$dist_error)

##      Min.   1st Qu.    Median     Mean   3rd Qu.   Max.
## 0.0000176 0.0042500 0.0070480 0.0116800 0.0131400 0.0859300

summary(discrete$x_error)

##      Min.   1st Qu.    Median     Mean   3rd Qu.   Max.
## -18.420000 -0.130600  0.000015  0.077730  0.284600  21.150000

summary(discrete$y_error)

##      Min.   1st Qu.    Median     Mean   3rd Qu.   Max.
## -24.920000 -0.182200 -0.000001 -0.124200  0.158100  20.760000

summary(discrete$dist_error)

##      Min.   1st Qu.    Median     Mean   3rd Qu.   Max.
## 0.00000  0.01496  0.36980  3.45500  6.76500 27.49000

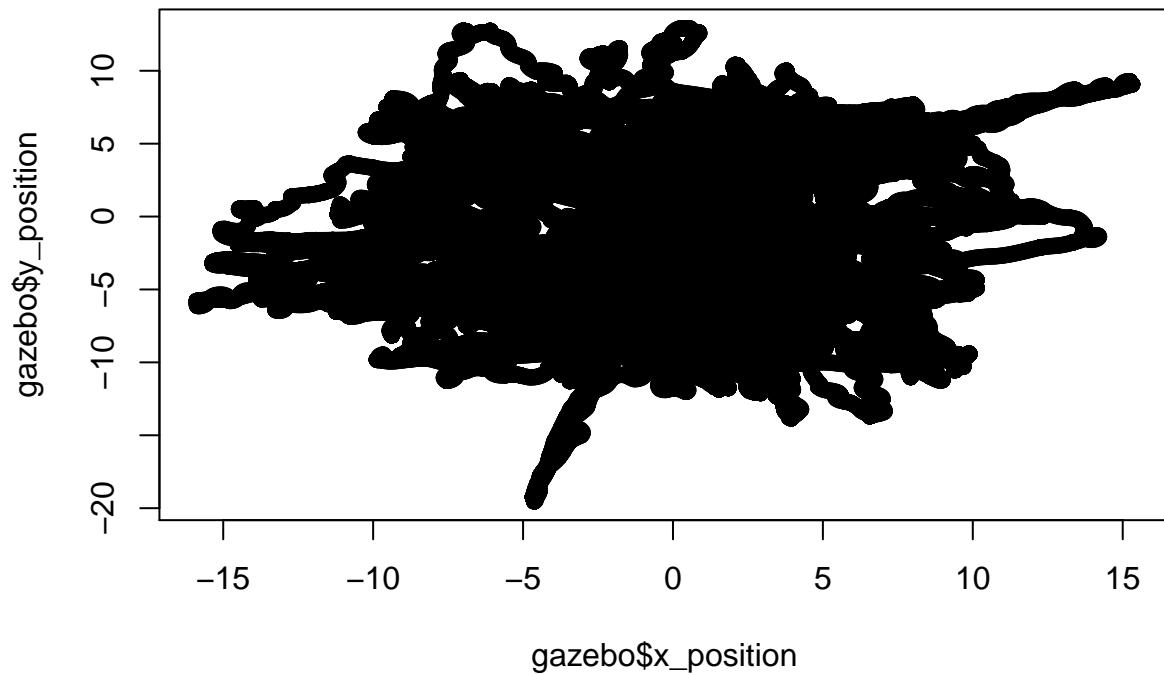
if (params$robot >= 2) {
  summary(external_data_averages)
}

##      Length Class Mode
## [1,] 1    -none- numeric
## [2,] 1    -none- numeric
## [3,] 1    -none- numeric
## [4,] 1    -none- numeric
## [5,] 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



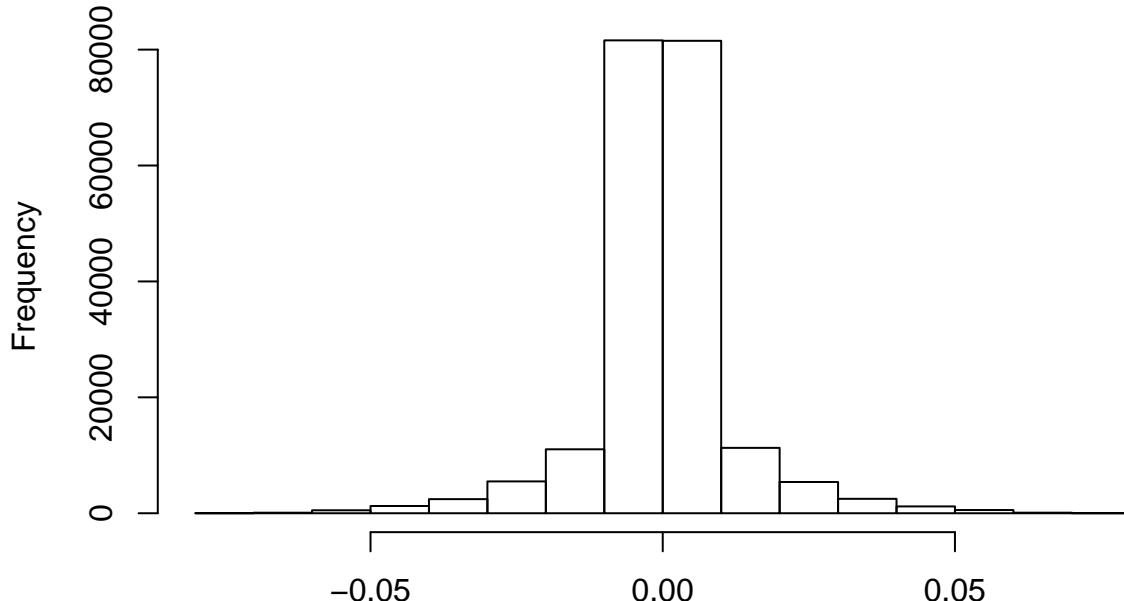
```
hist(gazebo$dist_from_origin,  
     main = "Distance from origin vs. time")
```

Distance from origin vs. time



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

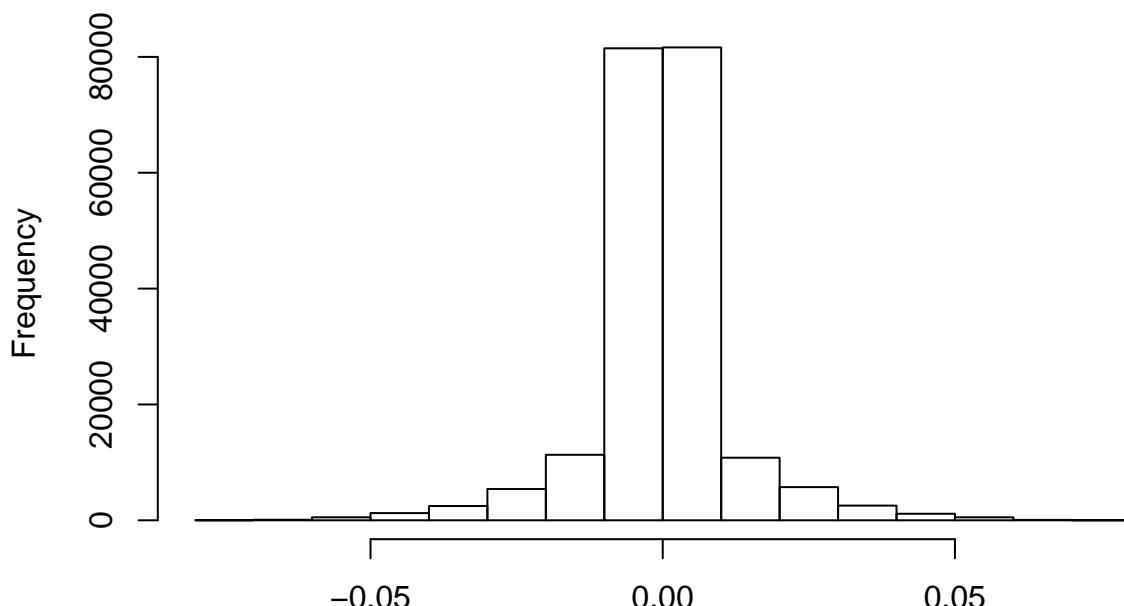
Continuous x_error



continuous\$x_error

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

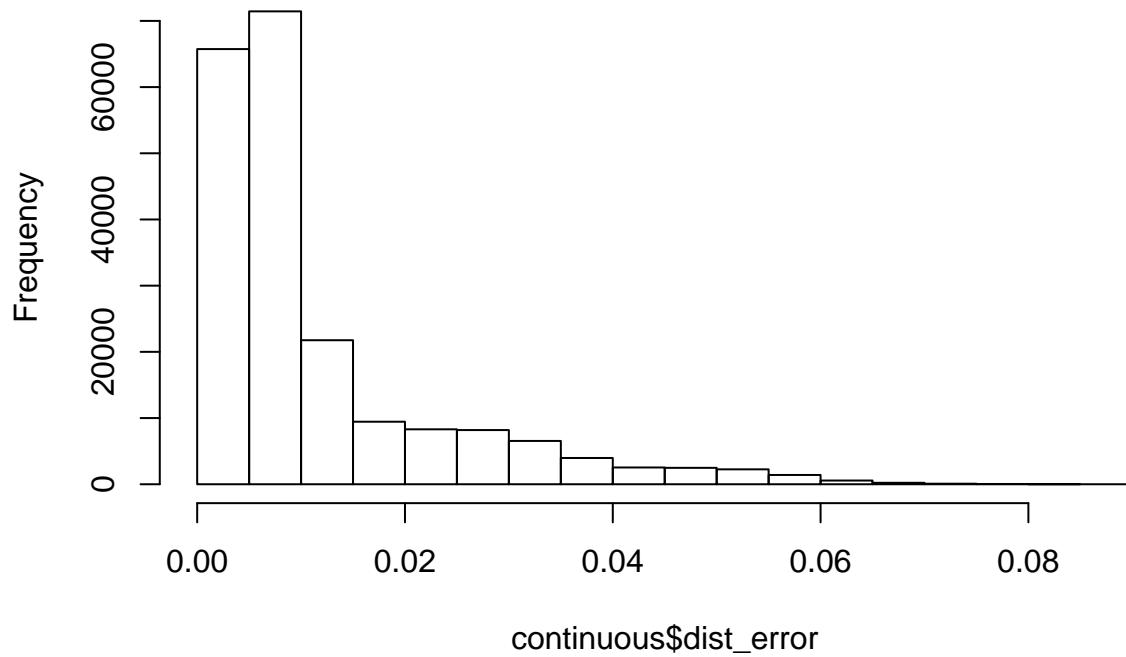
Continuous y_error



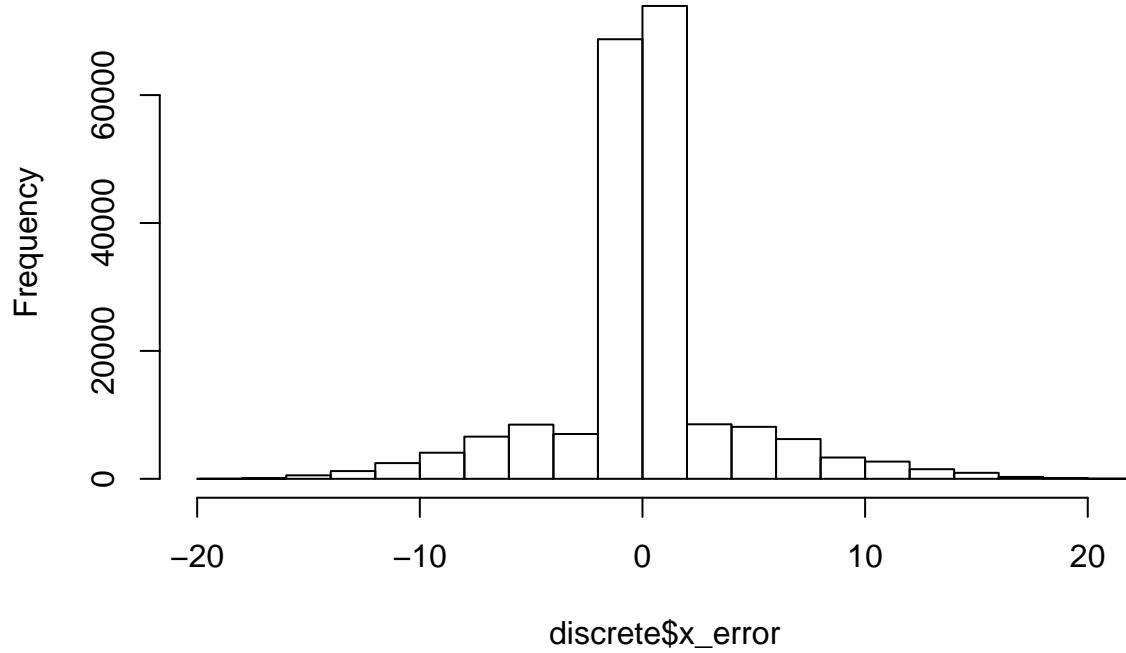
continuous\$y_error

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

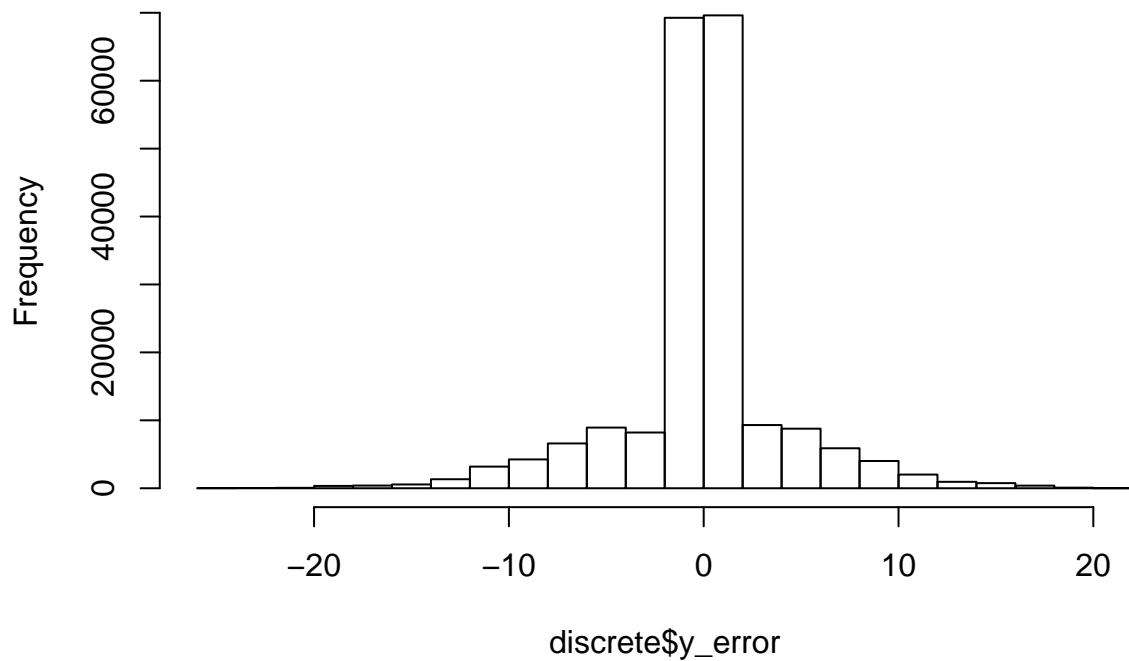
Continuous total distance error



Discrete x_error



Discrete y_error



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

Discrete total distance error

