
PROBLEM 1

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```
clc; clear all; close all;
```

OPEN TABLES

```
data_table_acc_1_1 = readtable('Accelerometer_1_1.csv');  
data_table_gyro_1_1 = readtable('Gyroscope_1_1.csv');  
data_table_mag_1_1 = readtable('Magnetometer_1_1.csv');
```

```
g = 9.80328;  
tru_acc_1 = [0;0;g];  
tru_gyro_1 = [0;0;0];  
tru_mag_1 = [-19.729; -4.9369; -47.6421];
```

Warning: Column headers from the file were modified to make them valid MATLAB identifiers before creating variable names for the table. The original column headers are saved in the VariableDescriptions property.

Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

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Accelerometers

```
acc_x_1_1 = data_table_acc_1_1{:,2};  
acc_y_1_1 = data_table_acc_1_1{:,3};  
acc_z_1_1 = data_table_acc_1_1{:,4};
```

```
mu_acc_x_1_1 = mean(acc_x_1_1);  
sig2_acc_x_1_1 = var(acc_x_1_1);
```

```

mu_acc_y_1_1 = mean(acc_y_1_1);
sig2_acc_y_1_1 = var(acc_y_1_1);

mu_acc_z_1_1 = mean(acc_z_1_1);
sig2_acc_z_1_1 = var(acc_z_1_1);

mu_acc_1_1      = [mu_acc_x_1_1; mu_acc_y_1_1; mu_acc_z_1_1];
bias_acc_1_1     = [mu_acc_x_1_1; mu_acc_y_1_1; mu_acc_z_1_1] - [0;0;g]
                ;% m/s/s
var_acc_1_1      = diag([sig2_acc_x_1_1 sig2_acc_y_1_1 sig2_acc_z_1_1]);

```

Gyroscopes

```

gyro_x_1_1 = data_table_gyro_1_1{:, 2};
gyro_y_1_1 = data_table_gyro_1_1{:, 3};
gyro_z_1_1 = data_table_gyro_1_1{:, 4};

mu_gyro_x_1_1 = mean(gyro_x_1_1);
sig2_gyro_x_1_1 = var(gyro_x_1_1);

mu_gyro_y_1_1 = mean(gyro_y_1_1);
sig2_gyro_y_1_1 = var(gyro_y_1_1);

mu_gyro_z_1_1 = mean(gyro_z_1_1);
sig2_gyro_z_1_1 = var(gyro_z_1_1);

mu_gyro_1_1      = [mu_gyro_x_1_1; mu_gyro_y_1_1; mu_gyro_z_1_1];
bias_gyro_1_1     = -[mu_gyro_x_1_1; mu_gyro_y_1_1; mu_gyro_z_1_1]      ;%
                rad/s
var_gyro_1_1      = diag([sig2_gyro_x_1_1 sig2_gyro_y_1_1
                sig2_gyro_z_1_1]);

```

Magnetometers

```

mag_x_1_1 = data_table_mag_1_1{:, 2};
mag_y_1_1 = data_table_mag_1_1{:, 3};
mag_z_1_1 = data_table_mag_1_1{:, 4};

mu_mag_x_1_1 = mean(mag_x_1_1);
sig2_mag_x_1_1 = var(mag_x_1_1);

mu_mag_y_1_1 = mean(mag_y_1_1);
sig2_mag_y_1_1 = var(mag_y_1_1);

mu_mag_z_1_1 = mean(mag_z_1_1);
sig2_mag_z_1_1 = var(mag_z_1_1);

mu_mag_1_1      = [mu_mag_x_1_1; mu_mag_y_1_1; mu_mag_z_1_1];
bias_mag_1_1     = [mu_mag_x_1_1; mu_mag_y_1_1; mu_mag_z_1_1] -
                [0;19.729;-47.6421] ;% muT

```

```
var_mag_1_1 = diag([sig2_mag_x_1_1 sig2_mag_y_1_1 sig2_mag_z_1_1]);

xlswrite('Data.xls',[mu_acc_1_1 tru_acc_1 bias_acc_1_1
    var_acc_1_1],'sheet1','E4');
xlswrite('Data.xls',[mu_gyro_1_1 tru_gyro_1 bias_gyro_1_1
    var_gyro_1_1],'sheet2','E4');
xlswrite('Data.xls',[mu_mag_1_1 tru_mag_1 bias_mag_1_1
    var_mag_1_1],'sheet3','E4');
```

OPEN TABLES

```
data_table_acc_1_2 = readtable('Accelerometer_1_2.csv');
data_table_gyro_1_2 = readtable('Gyroscope_1_2.csv');
data_table_mag_1_2 = readtable('Magnetometer_1_2.csv');
```

```
g = 9.80328;
tru_acc_1 = [0;0;g];
tru_gyro_1 = [0;0;0];
tru_mag_1 = [-19.729; -4.9369; -47.6421];
```

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Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

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Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_1_2 = data_table_acc_1_2{:,2};
acc_y_1_2 = data_table_acc_1_2{:,3};
```

```

acc_z_1_2    = data_table_acc_1_2{:,4};

mu_acc_x_1_2 = mean(acc_x_1_2);
sig2_acc_x_1_2 = var(acc_x_1_2);

mu_acc_y_1_2 = mean(acc_y_1_2);
sig2_acc_y_1_2 = var(acc_y_1_2);

mu_acc_z_1_2 = mean(acc_z_1_2);
sig2_acc_z_1_2 = var(acc_z_1_2);

mu_acc_1_2    = [mu_acc_x_1_2; mu_acc_y_1_2; mu_acc_z_1_2];
bias_acc_1_2   = [mu_acc_x_1_2; mu_acc_y_1_2; mu_acc_z_1_2] - [0;0;g]
               ;% m/s/s
var_acc_1_2    = diag([sig2_acc_x_1_2 sig2_acc_y_1_2 sig2_acc_z_1_2]);

```

Gyroscopes

```

gyro_x_1_2 = data_table_gyro_1_2{:, 2};
gyro_y_1_2 = data_table_gyro_1_2{:, 3};
gyro_z_1_2 = data_table_gyro_1_2{:, 4};

mu_gyro_x_1_2 = mean(gyro_x_1_2);
sig2_gyro_x_1_2 = var(gyro_x_1_2);

mu_gyro_y_1_2 = mean(gyro_y_1_2);
sig2_gyro_y_1_2 = var(gyro_y_1_2);

mu_gyro_z_1_2 = mean(gyro_z_1_2);
sig2_gyro_z_1_2 = var(gyro_z_1_2);

mu_gyro_1_2    = [mu_gyro_x_1_2; mu_gyro_y_1_2; mu_gyro_z_1_2];
bias_gyro_1_2   = -[mu_gyro_x_1_2; mu_gyro_y_1_2; mu_gyro_z_1_2] ;%
               rad/s
var_gyro_1_2    = diag([sig2_gyro_x_1_2 sig2_gyro_y_1_2
               sig2_gyro_z_1_2]);

```

Magnetometers

```

mag_x_1_2 = data_table_mag_1_2{:, 2};
mag_y_1_2 = data_table_mag_1_2{:, 3};
mag_z_1_2 = data_table_mag_1_2{:, 4};

mu_mag_x_1_2 = mean(mag_x_1_2);
sig2_mag_x_1_2 = var(mag_x_1_2);

mu_mag_y_1_2 = mean(mag_y_1_2);
sig2_mag_y_1_2 = var(mag_y_1_2);

mu_mag_z_1_2 = mean(mag_z_1_2);
sig2_mag_z_1_2 = var(mag_z_1_2);

```

```

mu_mag_1_2      = [mu_mag_x_1_2;mu_mag_y_1_2;mu_mag_z_1_2];
bias_mag_1_2 = [mu_mag_x_1_2;mu_mag_y_1_2;mu_mag_z_1_2] -
    [0;19.729;-47.6421] ;% muT
var_mag_1_2  = diag([sig2_mag_x_1_2 sig2_mag_y_1_2 sig2_mag_z_1_2]);

xlswrite('Data.xls',[mu_acc_1_2 tru_acc_1 bias_acc_1_2
    var_acc_1_2],'sheet1','E7');
xlswrite('Data.xls',[mu_gyro_1_2 tru_gyro_1 bias_gyro_1_2
    var_gyro_1_2],'sheet2','E7');
xlswrite('Data.xls',[mu_mag_1_2 tru_mag_1 bias_mag_1_2
    var_mag_1_2],'sheet3','E7');

```

OPEN TABLES

```

data_table_acc_1_3 = readtable('Accelerometer_1.3.csv');
data_table_gyro_1_3 = readtable('Gyroscope_1.3.csv');
data_table_mag_1_3 = readtable('Magnetometer_1.3.csv');

```

```

g = 9.80328;
tru_acc_1 = [0;0;g];
tru_gyro_1 = [0;0;0];
tru_mag_1 = [-19.729; -4.9369; -47.6421];

```

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Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_1_3 = data_table_acc_1_3{:,2};
acc_y_1_3 = data_table_acc_1_3{:,3};
acc_z_1_3 = data_table_acc_1_3{:,4};

mu_acc_x_1_3 = mean(acc_x_1_3);
sig2_acc_x_1_3 = var(acc_x_1_3);

mu_acc_y_1_3 = mean(acc_y_1_3);
sig2_acc_y_1_3 = var(acc_y_1_3);

mu_acc_z_1_3 = mean(acc_z_1_3);
sig2_acc_z_1_3 = var(acc_z_1_3);

mu_acc_1_3 = [mu_acc_x_1_3; mu_acc_y_1_3; mu_acc_z_1_3];
bias_acc_1_3 = [mu_acc_x_1_3; mu_acc_y_1_3; mu_acc_z_1_3] - [0;0;g]
               ;% m/s/s
var_acc_1_3 = diag([sig2_acc_x_1_3 sig2_acc_y_1_3 sig2_acc_z_1_3]);
```

Gyroscopes

```
gyro_x_1_3 = data_table_gyro_1_3{:, 2};
gyro_y_1_3 = data_table_gyro_1_3{:, 3};
gyro_z_1_3 = data_table_gyro_1_3{:, 4};

mu_gyro_x_1_3 = mean(gyro_x_1_3);
sig2_gyro_x_1_3 = var(gyro_x_1_3);

mu_gyro_y_1_3 = mean(gyro_y_1_3);
sig2_gyro_y_1_3 = var(gyro_y_1_3);

mu_gyro_z_1_3 = mean(gyro_z_1_3);
sig2_gyro_z_1_3 = var(gyro_z_1_3);

mu_gyro_1_3 = [mu_gyro_x_1_3; mu_gyro_y_1_3; mu_gyro_z_1_3];
bias_gyro_1_3 = -[mu_gyro_x_1_3; mu_gyro_y_1_3; mu_gyro_z_1_3] ;%
                 rad/s
var_gyro_1_3 = diag([sig2_gyro_x_1_3 sig2_gyro_y_1_3
                    sig2_gyro_z_1_3]);
```

Magnetometers

```
mag_x_1_3 = data_table_mag_1_3{:, 2};
mag_y_1_3 = data_table_mag_1_3{:, 3};
mag_z_1_3 = data_table_mag_1_3{:, 4};

mu_mag_x_1_3 = mean(mag_x_1_3);
sig2_mag_x_1_3 = var(mag_x_1_3);
```



```

mu_mag_y_1_3 = mean(mag_y_1_3);
sig2_mag_y_1_3 = var(mag_y_1_3);

mu_mag_z_1_3 = mean(mag_z_1_3);
sig2_mag_z_1_3 = var(mag_z_1_3);

mu_mag_1_3      = [mu_mag_x_1_3;mu_mag_y_1_3;mu_mag_z_1_3];
bias_mag_1_3 = [mu_mag_x_1_3;mu_mag_y_1_3;mu_mag_z_1_3] -
    [0;19.729;-47.6421] ;% muT
var_mag_1_3 = diag([sig2_mag_x_1_3 sig2_mag_y_1_3 sig2_mag_z_1_3]);

xlswrite('Data.xls',[mu_acc_1_3 tru_acc_1 bias_acc_1_3
    var_acc_1_3],'sheet1','E10');
xlswrite('Data.xls',[mu_gyro_1_3 tru_gyro_1 bias_gyro_1_3
    var_gyro_1_3],'sheet2','E10');
xlswrite('Data.xls',[mu_mag_1_3 tru_mag_1 bias_mag_1_3
    var_mag_1_3],'sheet3','E10');

```

OPEN TABLES

```

data_table_acc_1_4 = readtable('Accelerometer_1_4.csv');
data_table_gyro_1_4 = readtable('Gyroscope_1_4.csv');
data_table_mag_1_4 = readtable('Magnetometer_1_4.csv');

```

```

g = 9.80328;
tru_acc_1 = [0;0;g];
tru_gyro_1 = [0;0;0];
tru_mag_1 = [-19.729; -4.9369; -47.6421];

```

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Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

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are saved in the `VariableDescriptions` property.
 Set `'PreserveVariableNames'` to `true` to use the original column headers as table variable names.

Accelerometers

```
acc_x_1_4 = data_table_acc_1_4(:,2);
acc_y_1_4 = data_table_acc_1_4(:,3);
acc_z_1_4 = data_table_acc_1_4(:,4);

mu_acc_x_1_4 = mean(acc_x_1_4);
sig2_acc_x_1_4 = var(acc_x_1_4);

mu_acc_y_1_4 = mean(acc_y_1_4);
sig2_acc_y_1_4 = var(acc_y_1_4);

mu_acc_z_1_4 = mean(acc_z_1_4);
sig2_acc_z_1_4 = var(acc_z_1_4);

mu_acc_1_4 = [mu_acc_x_1_4; mu_acc_y_1_4; mu_acc_z_1_4];
bias_acc_1_4 = [mu_acc_x_1_4; mu_acc_y_1_4; mu_acc_z_1_4] - [0;0;g]
               ;% m/s/s
var_acc_1_4 = diag([sig2_acc_x_1_4 sig2_acc_y_1_4 sig2_acc_z_1_4]);
```

Gyroscopes

```
gyro_x_1_4 = data_table_gyro_1_4(:, 2);
gyro_y_1_4 = data_table_gyro_1_4(:, 3);
gyro_z_1_4 = data_table_gyro_1_4(:, 4);

mu_gyro_x_1_4 = mean(gyro_x_1_4);
sig2_gyro_x_1_4 = var(gyro_x_1_4);

mu_gyro_y_1_4 = mean(gyro_y_1_4);
sig2_gyro_y_1_4 = var(gyro_y_1_4);

mu_gyro_z_1_4 = mean(gyro_z_1_4);
sig2_gyro_z_1_4 = var(gyro_z_1_4);

mu_gyro_1_4 = [mu_gyro_x_1_4; mu_gyro_y_1_4; mu_gyro_z_1_4];
bias_gyro_1_4 = -[mu_gyro_x_1_4; mu_gyro_y_1_4; mu_gyro_z_1_4] ;%
                 rad/s
var_gyro_1_4 = diag([sig2_gyro_x_1_4 sig2_gyro_y_1_4
                    sig2_gyro_z_1_4]);
```

Magnetometers

```
mag_x_1_4 = data_table_mag_1_4(:, 2);
mag_y_1_4 = data_table_mag_1_4(:, 3);
```

```

mag_z_1_4 = data_table_mag_1_4{:, 4};

mu_mag_x_1_4 = mean(mag_x_1_4);
sig2_mag_x_1_4 = var(mag_x_1_4);

mu_mag_y_1_4 = mean(mag_y_1_4);
sig2_mag_y_1_4 = var(mag_y_1_4);

mu_mag_z_1_4 = mean(mag_z_1_4);
sig2_mag_z_1_4 = var(mag_z_1_4);

mu_mag_1_4      = [mu_mag_x_1_4;mu_mag_y_1_4;mu_mag_z_1_4];
bias_mag_1_4 = [mu_mag_x_1_4;mu_mag_y_1_4;mu_mag_z_1_4] -
    [0;19.729;-47.6421] ;% muT
var_mag_1_4 = diag([sig2_mag_x_1_4 sig2_mag_y_1_4 sig2_mag_z_1_4]);

xlswrite('Data.xls',[mu_acc_1_4 tru_acc_1 bias_acc_1_4
    var_acc_1_4],'sheet1','E13');
xlswrite('Data.xls',[mu_gyro_1_4 tru_gyro_1 bias_gyro_1_4
    var_gyro_1_4],'sheet2','E13');
xlswrite('Data.xls',[mu_mag_1_4 tru_mag_1 bias_mag_1_4
    var_mag_1_4],'sheet3','E13');

```

OPEN TABLES

```

data_table_acc_1_5 = readtable('Accelerometer_1_5.csv');
data_table_gyro_1_5 = readtable('Gyroscope_1_5.csv');
data_table_mag_1_5 = readtable('Magnetometer_1_5.csv');

```

```

g = 9.80328;
tru_acc_1 = [0;0;g];
tru_gyro_1 = [0;0;0];
tru_mag_1 = [-19.729; -4.9369; -47.6421];

```

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Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_1_5 = data_table_acc_1_5{:,2};
acc_y_1_5 = data_table_acc_1_5{:,3};
acc_z_1_5 = data_table_acc_1_5{:,4};

mu_acc_x_1_5 = mean(acc_x_1_5);
sig2_acc_x_1_5 = var(acc_x_1_5);

mu_acc_y_1_5 = mean(acc_y_1_5);
sig2_acc_y_1_5 = var(acc_y_1_5);

mu_acc_z_1_5 = mean(acc_z_1_5);
sig2_acc_z_1_5 = var(acc_z_1_5);

mu_acc_1_5 = [mu_acc_x_1_5; mu_acc_y_1_5; mu_acc_z_1_5];
bias_acc_1_5 = [mu_acc_x_1_5; mu_acc_y_1_5; mu_acc_z_1_5] - [0;0;g]
              ;% m/s/s
var_acc_1_5 = diag([sig2_acc_x_1_5 sig2_acc_y_1_5 sig2_acc_z_1_5]);
```

Gyroscopes

```
gyro_x_1_5 = data_table_gyro_1_5{:, 2};
gyro_y_1_5 = data_table_gyro_1_5{:, 3};
gyro_z_1_5 = data_table_gyro_1_5{:, 4};

mu_gyro_x_1_5 = mean(gyro_x_1_5);
sig2_gyro_x_1_5 = var(gyro_x_1_5);

mu_gyro_y_1_5 = mean(gyro_y_1_5);
sig2_gyro_y_1_5 = var(gyro_y_1_5);

mu_gyro_z_1_5 = mean(gyro_z_1_5);
sig2_gyro_z_1_5 = var(gyro_z_1_5);

mu_gyro_1_5 = [mu_gyro_x_1_5; mu_gyro_y_1_5; mu_gyro_z_1_5];
bias_gyro_1_5 = -[mu_gyro_x_1_5; mu_gyro_y_1_5; mu_gyro_z_1_5] ;%
                 rad/s
var_gyro_1_5 = diag([sig2_gyro_x_1_5 sig2_gyro_y_1_5
                    sig2_gyro_z_1_5]);
```

Magnetometers

```
mag_x_1_5 = data_table_mag_1_5{:, 2};
mag_y_1_5 = data_table_mag_1_5{:, 3};
mag_z_1_5 = data_table_mag_1_5{:, 4};

mu_mag_x_1_5 = mean(mag_x_1_5);
sig2_mag_x_1_5 = var(mag_x_1_5);

mu_mag_y_1_5 = mean(mag_y_1_5);
sig2_mag_y_1_5 = var(mag_y_1_5);

mu_mag_z_1_5 = mean(mag_z_1_5);
sig2_mag_z_1_5 = var(mag_z_1_5);

mu_mag_1_5      = [mu_mag_x_1_5;mu_mag_y_1_5;mu_mag_z_1_5];
bias_mag_1_5 = [mu_mag_x_1_5;mu_mag_y_1_5;mu_mag_z_1_5] -
    [0;19.729;-47.6421] ;% muT
var_mag_1_5 = diag([sig2_mag_x_1_5 sig2_mag_y_1_5 sig2_mag_z_1_5]);

xlswrite('Data.xls',[mu_acc_1_5 tru_acc_1 bias_acc_1_5
    var_acc_1_5],'sheet1','E16');
xlswrite('Data.xls',[mu_gyro_1_5 tru_gyro_1 bias_gyro_1_5
    var_gyro_1_5],'sheet2','E16');
xlswrite('Data.xls',[mu_mag_1_5 tru_mag_1 bias_mag_1_5
    var_mag_1_5],'sheet3','E16');
```

OPEN TABLES

```
data_table_acc_2_1 = readtable('Accelerometer_2_1.csv');
data_table_gyro_2_1 = readtable('Gyroscope_2_1.csv');
data_table_mag_2_1 = readtable('Magnetometer_2_1.csv');
```

```
g = 9.80328;
tru_acc_2 = [0;g;0];
tru_gyro_2 = [0;0;0];
tru_mag_2 = [-19.729;-47.6421;4.9369];
```

Warning: Column headers from the file were modified to make them valid MATLAB identifiers before creating variable names for the table. The original column headers are saved in the VariableDescriptions property.

Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

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Warning: Column headers from the file were modified to make them valid MATLAB identifiers before creating variable names for the table. The original column headers are saved in the VariableDescriptions property.
Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_2_1 = data_table_acc_2_1{:,2};
acc_y_2_1 = data_table_acc_2_1{:,3};
acc_z_2_1 = data_table_acc_2_1{:,4};

mu_acc_x_2_1 = mean(acc_x_2_1);
sig2_acc_x_2_1 = var(acc_x_2_1);

mu_acc_y_2_1 = mean(acc_y_2_1);
sig2_acc_y_2_1 = var(acc_y_2_1);

mu_acc_z_2_1 = mean(acc_z_2_1);
sig2_acc_z_2_1 = var(acc_z_2_1);

mu_acc_2_1 = [mu_acc_x_2_1; mu_acc_y_2_1; mu_acc_z_2_1];
bias_acc_2_1 = [mu_acc_x_2_1; mu_acc_y_2_1; mu_acc_z_2_1] - [0;0;g]
              ;% m/s/s
var_acc_2_1 = diag([sig2_acc_x_2_1 sig2_acc_y_2_1 sig2_acc_z_2_1]);
```

Gyroscopes

```
gyro_x_2_1 = data_table_gyro_2_1{:, 2};
gyro_y_2_1 = data_table_gyro_2_1{:, 3};
gyro_z_2_1 = data_table_gyro_2_1{:, 4};

mu_gyro_x_2_1 = mean(gyro_x_2_1);
sig2_gyro_x_2_1 = var(gyro_x_2_1);

mu_gyro_y_2_1 = mean(gyro_y_2_1);
sig2_gyro_y_2_1 = var(gyro_y_2_1);

mu_gyro_z_2_1 = mean(gyro_z_2_1);
sig2_gyro_z_2_1 = var(gyro_z_2_1);
```

```
mu_gyro_2_1 = [mu_gyro_x_2_1; mu_gyro_y_2_1; mu_gyro_z_2_1];
bias_gyro_2_1 = -[mu_gyro_x_2_1; mu_gyro_y_2_1; mu_gyro_z_2_1] ;%
rad/s
var_gyro_2_1 = diag([sig2_gyro_x_2_1 sig2_gyro_y_2_1
sig2_gyro_z_2_1]);
```

Magnetometers

```
mag_x_2_1 = data_table_mag_2_1{:, 2};
mag_y_2_1 = data_table_mag_2_1{:, 3};
mag_z_2_1 = data_table_mag_2_1{:, 4};

mu_mag_x_2_1 = mean(mag_x_2_1);
sig2_mag_x_2_1 = var(mag_x_2_1);

mu_mag_y_2_1 = mean(mag_y_2_1);
sig2_mag_y_2_1 = var(mag_y_2_1);

mu_mag_z_2_1 = mean(mag_z_2_1);
sig2_mag_z_2_1 = var(mag_z_2_1);

mu_mag_2_1 = [mu_mag_x_2_1; mu_mag_y_2_1; mu_mag_z_2_1];
bias_mag_2_1 = [mu_mag_x_2_1; mu_mag_y_2_1; mu_mag_z_2_1] -
[0; 19.729; -47.6421] ;% muT
var_mag_2_1 = diag([sig2_mag_x_2_1 sig2_mag_y_2_1 sig2_mag_z_2_1]);

xlswrite('Data.xls', [mu_acc_2_1 tru_acc_2 bias_acc_2_1
var_acc_2_1], 'sheet1', 'E19');
xlswrite('Data.xls', [mu_gyro_2_1 tru_gyro_2 bias_gyro_2_1
var_gyro_2_1], 'sheet2', 'E19');
xlswrite('Data.xls', [mu_mag_2_1 tru_mag_2 bias_mag_2_1
var_mag_2_1], 'sheet3', 'E19');
```

OPEN TABLES

```
data_table_acc_2_2 = readtable('Accelerometer_2_2.csv');
data_table_gyro_2_2 = readtable('Gyroscope_2_2.csv');
data_table_mag_2_2 = readtable('Magnetometer_2_2.csv');
```

```
g = 9.80328;
tru_acc_2 = [0; g; 0];
tru_gyro_2 = [0; 0; 0];
tru_mag_2 = [-19.729; -47.6421; 4.9369];
```

Warning: Column headers from the file were modified to make them valid MATLAB identifiers before creating variable names for the table. The original column headers are saved in the VariableDescriptions property.
Set 'PreserveVariableNames' to true to use

the original column headers as table variable names.
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Warning: Column headers from the file were modified to make them valid MATLAB identifiers before creating variable names for the table. The original column headers are saved in the VariableDescriptions property.
Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_2_2 = data_table_acc_2_2{:,2};
acc_y_2_2 = data_table_acc_2_2{:,3};
acc_z_2_2 = data_table_acc_2_2{:,4};

mu_acc_x_2_2 = mean(acc_x_2_2);
sig2_acc_x_2_2 = var(acc_x_2_2);

mu_acc_y_2_2 = mean(acc_y_2_2);
sig2_acc_y_2_2 = var(acc_y_2_2);

mu_acc_z_2_2 = mean(acc_z_2_2);
sig2_acc_z_2_2 = var(acc_z_2_2);

mu_acc_2_2 = [mu_acc_x_2_2; mu_acc_y_2_2; mu_acc_z_2_2];
bias_acc_2_2 = [mu_acc_x_2_2; mu_acc_y_2_2; mu_acc_z_2_2] - [0;0;g]
              ;% m/s/s
var_acc_2_2 = diag([sig2_acc_x_2_2 sig2_acc_y_2_2 sig2_acc_z_2_2]);
```

Gyroscopes

```
gyro_x_2_2 = data_table_gyro_2_2{:, 2};
gyro_y_2_2 = data_table_gyro_2_2{:, 3};
gyro_z_2_2 = data_table_gyro_2_2{:, 4};

mu_gyro_x_2_2 = mean(gyro_x_2_2);
sig2_gyro_x_2_2 = var(gyro_x_2_2);

mu_gyro_y_2_2 = mean(gyro_y_2_2);
```



```

sig2_gyro_y_2_2 = var(gyro_y_2_2);

mu_gyro_z_2_2 = mean(gyro_z_2_2);
sig2_gyro_z_2_2 = var(gyro_z_2_2);

mu_gyro_2_2      = [mu_gyro_x_2_2; mu_gyro_y_2_2; mu_gyro_z_2_2];
bias_gyro_2_2    = -[mu_gyro_x_2_2; mu_gyro_y_2_2; mu_gyro_z_2_2]    ;%
    rad/s
var_gyro_2_2     = diag([sig2_gyro_x_2_2 sig2_gyro_y_2_2
    sig2_gyro_z_2_2]);

```

Magnetometers

```

mag_x_2_2 = data_table_mag_2_2(:, 2);
mag_y_2_2 = data_table_mag_2_2(:, 3);
mag_z_2_2 = data_table_mag_2_2(:, 4);

mu_mag_x_2_2 = mean(mag_x_2_2);
sig2_mag_x_2_2 = var(mag_x_2_2);

mu_mag_y_2_2 = mean(mag_y_2_2);
sig2_mag_y_2_2 = var(mag_y_2_2);

mu_mag_z_2_2 = mean(mag_z_2_2);
sig2_mag_z_2_2 = var(mag_z_2_2);

mu_mag_2_2      = [mu_mag_x_2_2; mu_mag_y_2_2; mu_mag_z_2_2];
bias_mag_2_2     = [mu_mag_x_2_2; mu_mag_y_2_2; mu_mag_z_2_2] -
    [0; 19.729; -47.6421] ;%  $\mu T$ 
var_mag_2_2      = diag([sig2_mag_x_2_2 sig2_mag_y_2_2 sig2_mag_z_2_2]);

xlswrite('Data.xls', [mu_acc_2_2 tru_acc_2 bias_acc_2_2
    var_acc_2_2], 'sheet1', 'E22');
xlswrite('Data.xls', [mu_gyro_2_2 tru_gyro_2 bias_gyro_2_2
    var_gyro_2_2], 'sheet2', 'E22');
xlswrite('Data.xls', [mu_mag_2_2 tru_mag_2 bias_mag_2_2
    var_mag_2_2], 'sheet3', 'E22');

```

OPEN TABLES

```

data_table_acc_2_3 = readtable('Accelerometer_2_3.csv');
data_table_gyro_2_3 = readtable('Gyroscope_2_3.csv');
data_table_mag_2_3 = readtable('Magnetometer_2_3.csv');

```

```

g = 9.80328;
tru_acc_2 = [0; g; 0];
tru_gyro_2 = [0; 0; 0];
tru_mag_2 = [-19.729; -47.6421; 4.9369];

```

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Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_2_3 = data_table_acc_2_3{:,2};
acc_y_2_3 = data_table_acc_2_3{:,3};
acc_z_2_3 = data_table_acc_2_3{:,4};

mu_acc_x_2_3 = mean(acc_x_2_3);
sig2_acc_x_2_3 = var(acc_x_2_3);

mu_acc_y_2_3 = mean(acc_y_2_3);
sig2_acc_y_2_3 = var(acc_y_2_3);

mu_acc_z_2_3 = mean(acc_z_2_3);
sig2_acc_z_2_3 = var(acc_z_2_3);

mu_acc_2_3 = [mu_acc_x_2_3; mu_acc_y_2_3; mu_acc_z_2_3];
bias_acc_2_3 = [mu_acc_x_2_3; mu_acc_y_2_3; mu_acc_z_2_3] - [0;0;g]
               ;% m/s/s
var_acc_2_3 = diag([sig2_acc_x_2_3 sig2_acc_y_2_3 sig2_acc_z_2_3]);
```

Gyroscopes

```
gyro_x_2_3 = data_table_gyro_2_3{:, 2};
gyro_y_2_3 = data_table_gyro_2_3{:, 3};
gyro_z_2_3 = data_table_gyro_2_3{:, 4};
```

```

mu_gyro_x_2_3 = mean(gyro_x_2_3);
sig2_gyro_x_2_3 = var(gyro_x_2_3);

mu_gyro_y_2_3 = mean(gyro_y_2_3);
sig2_gyro_y_2_3 = var(gyro_y_2_3);

mu_gyro_z_2_3 = mean(gyro_z_2_3);
sig2_gyro_z_2_3 = var(gyro_z_2_3);

mu_gyro_2_3      = [mu_gyro_x_2_3; mu_gyro_y_2_3; mu_gyro_z_2_3];
bias_gyro_2_3    = -[mu_gyro_x_2_3; mu_gyro_y_2_3; mu_gyro_z_2_3]    ;%
                 rad/s
var_gyro_2_3     = diag([sig2_gyro_x_2_3 sig2_gyro_y_2_3
                        sig2_gyro_z_2_3]);

```

Magnetometers

```

mag_x_2_3 = data_table_mag_2_3{:, 2};
mag_y_2_3 = data_table_mag_2_3{:, 3};
mag_z_2_3 = data_table_mag_2_3{:, 4};

mu_mag_x_2_3 = mean(mag_x_2_3);
sig2_mag_x_2_3 = var(mag_x_2_3);

mu_mag_y_2_3 = mean(mag_y_2_3);
sig2_mag_y_2_3 = var(mag_y_2_3);

mu_mag_z_2_3 = mean(mag_z_2_3);
sig2_mag_z_2_3 = var(mag_z_2_3);

mu_mag_2_3      = [mu_mag_x_2_3; mu_mag_y_2_3; mu_mag_z_2_3];
bias_mag_2_3    = [mu_mag_x_2_3; mu_mag_y_2_3; mu_mag_z_2_3] -
                 [0; 19.729; -47.6421] ;% muT
var_mag_2_3     = diag([sig2_mag_x_2_3 sig2_mag_y_2_3 sig2_mag_z_2_3]);

xlswrite('Data.xls', [mu_acc_2_3 tru_acc_2 bias_acc_2_3
                      var_acc_2_3], 'sheet1', 'E25');
xlswrite('Data.xls', [mu_gyro_2_3 tru_gyro_2 bias_gyro_2_3
                      var_gyro_2_3], 'sheet2', 'E25');
xlswrite('Data.xls', [mu_mag_2_3 tru_mag_2 bias_mag_2_3
                      var_mag_2_3], 'sheet3', 'E25');

```

OPEN TABLES

```

data_table_acc_2_4 = readtable('Accelerometer_2_4.csv');
data_table_gyro_2_4 = readtable('Gyroscope_2_4.csv');
data_table_mag_2_4 = readtable('Magnetometer_2_4.csv');

g = 9.80328;
tru_acc_2 = [0; g; 0];
tru_gyro_2 = [0; 0; 0];

```

```
tru_mag_2 = [-19.729;-47.6421;4.9369];
```

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Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_2_4 = data_table_acc_2_4{:,2};
acc_y_2_4 = data_table_acc_2_4{:,3};
acc_z_2_4 = data_table_acc_2_4{:,4};
```

```
mu_acc_x_2_4 = mean(acc_x_2_4);
sig2_acc_x_2_4 = var(acc_x_2_4);
```

```
mu_acc_y_2_4 = mean(acc_y_2_4);
sig2_acc_y_2_4 = var(acc_y_2_4);
```

```
mu_acc_z_2_4 = mean(acc_z_2_4);
sig2_acc_z_2_4 = var(acc_z_2_4);
```

```
mu_acc_2_4 = [mu_acc_x_2_4; mu_acc_y_2_4; mu_acc_z_2_4];
bias_acc_2_4 = [mu_acc_x_2_4; mu_acc_y_2_4; mu_acc_z_2_4] - [0;0;g]
              ;% m/s/s
var_acc_2_4 = diag([sig2_acc_x_2_4 sig2_acc_y_2_4 sig2_acc_z_2_4]);
```

Gyroscopes

```
gyro_x_2_4 = data_table_gyro_2_4{:, 2};
```

```

gyro_y_2_4 = data_table_gyro_2_4{:, 3};
gyro_z_2_4 = data_table_gyro_2_4{:, 4};

mu_gyro_x_2_4 = mean(gyro_x_2_4);
sig2_gyro_x_2_4 = var(gyro_x_2_4);

mu_gyro_y_2_4 = mean(gyro_y_2_4);
sig2_gyro_y_2_4 = var(gyro_y_2_4);

mu_gyro_z_2_4 = mean(gyro_z_2_4);
sig2_gyro_z_2_4 = var(gyro_z_2_4);

mu_gyro_2_4      = [mu_gyro_x_2_4; mu_gyro_y_2_4; mu_gyro_z_2_4];
bias_gyro_2_4    = -[mu_gyro_x_2_4; mu_gyro_y_2_4; mu_gyro_z_2_4]    ;%
                 rad/s
var_gyro_2_4     = diag([sig2_gyro_x_2_4 sig2_gyro_y_2_4
                        sig2_gyro_z_2_4]);

```

Magnetometers

```

mag_x_2_4 = data_table_mag_2_4{:, 2};
mag_y_2_4 = data_table_mag_2_4{:, 3};
mag_z_2_4 = data_table_mag_2_4{:, 4};

mu_mag_x_2_4 = mean(mag_x_2_4);
sig2_mag_x_2_4 = var(mag_x_2_4);

mu_mag_y_2_4 = mean(mag_y_2_4);
sig2_mag_y_2_4 = var(mag_y_2_4);

mu_mag_z_2_4 = mean(mag_z_2_4);
sig2_mag_z_2_4 = var(mag_z_2_4);

mu_mag_2_4      = [mu_mag_x_2_4; mu_mag_y_2_4; mu_mag_z_2_4];
bias_mag_2_4    = [mu_mag_x_2_4; mu_mag_y_2_4; mu_mag_z_2_4] -
                 [0; 19.729; -47.6421] ;% mT
var_mag_2_4     = diag([sig2_mag_x_2_4 sig2_mag_y_2_4 sig2_mag_z_2_4]);

xlswrite('Data.xls', [mu_acc_2_4 tru_acc_2 bias_acc_2_4
                      var_acc_2_4], 'sheet1', 'E28');
xlswrite('Data.xls', [mu_gyro_2_4 tru_gyro_2 bias_gyro_2_4
                      var_gyro_2_4], 'sheet2', 'E28');
xlswrite('Data.xls', [mu_mag_2_4 tru_mag_2 bias_mag_2_4
                      var_mag_2_4], 'sheet3', 'E28');

```

OPEN TABLES

```

data_table_acc_2_5 = readtable('Accelerometer_2_5.csv');
data_table_gyro_2_5 = readtable('Gyroscope_2_5.csv');
data_table_mag_2_5 = readtable('Magnetometer_2_5.csv');

```

```
g = 9.80328;
tru_acc_2 = [0;g;0];
tru_gyro_2 = [0;0;0];
tru_mag_2 = [-19.729;-47.6421;4.9369];
```

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Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

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Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_2_5 = data_table_acc_2_5{:,2};
acc_y_2_5 = data_table_acc_2_5{:,3};
acc_z_2_5 = data_table_acc_2_5{:,4};
```

```
mu_acc_x_2_5 = mean(acc_x_2_5);
sig2_acc_x_2_5 = var(acc_x_2_5);
```

```
mu_acc_y_2_5 = mean(acc_y_2_5);
sig2_acc_y_2_5 = var(acc_y_2_5);
```

```
mu_acc_z_2_5 = mean(acc_z_2_5);
sig2_acc_z_2_5 = var(acc_z_2_5);
```

```
mu_acc_2_5 = [mu_acc_x_2_5; mu_acc_y_2_5; mu_acc_z_2_5];
bias_acc_2_5 = [mu_acc_x_2_5; mu_acc_y_2_5; mu_acc_z_2_5] - [0;0;g]
               ;% m/s/s
```

```
var_acc_2_5 = diag([sig2_acc_x_2_5 sig2_acc_y_2_5 sig2_acc_z_2_5]);
```

Gyroscopes

```
gyro_x_2_5 = data_table_gyro_2_5(:, 2);
gyro_y_2_5 = data_table_gyro_2_5(:, 3);
gyro_z_2_5 = data_table_gyro_2_5(:, 4);

mu_gyro_x_2_5 = mean(gyro_x_2_5);
sig2_gyro_x_2_5 = var(gyro_x_2_5);

mu_gyro_y_2_5 = mean(gyro_y_2_5);
sig2_gyro_y_2_5 = var(gyro_y_2_5);

mu_gyro_z_2_5 = mean(gyro_z_2_5);
sig2_gyro_z_2_5 = var(gyro_z_2_5);

mu_gyro_2_5      = [mu_gyro_x_2_5; mu_gyro_y_2_5; mu_gyro_z_2_5];
bias_gyro_2_5    = -[mu_gyro_x_2_5; mu_gyro_y_2_5; mu_gyro_z_2_5]    ;%
                 rad/s
var_gyro_2_5     = diag([sig2_gyro_x_2_5 sig2_gyro_y_2_5
                        sig2_gyro_z_2_5]);
```

Magnetometers

```
mag_x_2_5 = data_table_mag_2_5(:, 2);
mag_y_2_5 = data_table_mag_2_5(:, 3);
mag_z_2_5 = data_table_mag_2_5(:, 4);

mu_mag_x_2_5 = mean(mag_x_2_5);
sig2_mag_x_2_5 = var(mag_x_2_5);

mu_mag_y_2_5 = mean(mag_y_2_5);
sig2_mag_y_2_5 = var(mag_y_2_5);

mu_mag_z_2_5 = mean(mag_z_2_5);
sig2_mag_z_2_5 = var(mag_z_2_5);

mu_mag_2_5      = [mu_mag_x_2_5; mu_mag_y_2_5; mu_mag_z_2_5];
bias_mag_2_5    = [mu_mag_x_2_5; mu_mag_y_2_5; mu_mag_z_2_5] -
                 [0; 19.729; -47.6421] ;% muT
var_mag_2_5     = diag([sig2_mag_x_2_5 sig2_mag_y_2_5 sig2_mag_z_2_5]);

xlswrite('Data.xls', [mu_acc_2_5 tru_acc_2 bias_acc_2_5
                      var_acc_2_5], 'sheet1', 'E31');
xlswrite('Data.xls', [mu_gyro_2_5 tru_gyro_2 bias_gyro_2_5
                      var_gyro_2_5], 'sheet2', 'E31');
xlswrite('Data.xls', [mu_mag_2_5 tru_mag_2 bias_mag_2_5
                      var_mag_2_5], 'sheet3', 'E31');

clc
```

OPEN TABLES

```
data_table_acc_3_1 = readtable('Accelerometer_3_1.csv');  
data_table_gyro_3_1 = readtable('Gyroscope_3_1.csv');  
data_table_mag_3_1 = readtable('Magnetometer_3_1.csv');
```

```
g = 9.80328;  
tru_acc_3 = [g;0;0];  
tru_gyro_3 = [0;0;0];  
tru_mag_3 = [-47.6421;19.729;4.9369];
```

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Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

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Warning: Column headers from the file were modified to make them valid MATLAB identifiers before creating variable names for the table. The original column headers are saved in the VariableDescriptions property.

Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_3_1 = data_table_acc_3_1{:,2};  
acc_y_3_1 = data_table_acc_3_1{:,3};  
acc_z_3_1 = data_table_acc_3_1{:,4};
```

```
mu_acc_x_3_1 = mean(acc_x_3_1);  
sig2_acc_x_3_1 = var(acc_x_3_1);
```

```
mu_acc_y_3_1 = mean(acc_y_3_1);  
sig2_acc_y_3_1 = var(acc_y_3_1);
```

```
mu_acc_z_3_1 = mean(acc_z_3_1);
```



```

sig2_acc_z_3_1 = var(acc_z_3_1);

mu_acc_3_1      = [mu_acc_x_3_1; mu_acc_y_3_1; mu_acc_z_3_1];
bias_acc_3_1    = [mu_acc_x_3_1; mu_acc_y_3_1; mu_acc_z_3_1] - [0;0;g]
                ;% m/s/s
var_acc_3_1     = diag([sig2_acc_x_3_1 sig2_acc_y_3_1 sig2_acc_z_3_1]);

```

Gyroscopes

```

gyro_x_3_1 = data_table_gyro_3_1{:, 2};
gyro_y_3_1 = data_table_gyro_3_1{:, 3};
gyro_z_3_1 = data_table_gyro_3_1{:, 4};

mu_gyro_x_3_1 = mean(gyro_x_3_1);
sig2_gyro_x_3_1 = var(gyro_x_3_1);

mu_gyro_y_3_1 = mean(gyro_y_3_1);
sig2_gyro_y_3_1 = var(gyro_y_3_1);

mu_gyro_z_3_1 = mean(gyro_z_3_1);
sig2_gyro_z_3_1 = var(gyro_z_3_1);

mu_gyro_3_1      = [mu_gyro_x_3_1; mu_gyro_y_3_1; mu_gyro_z_3_1];
bias_gyro_3_1    = -[mu_gyro_x_3_1; mu_gyro_y_3_1; mu_gyro_z_3_1] ;%
                rad/s
var_gyro_3_1     = diag([sig2_gyro_x_3_1 sig2_gyro_y_3_1
                sig2_gyro_z_3_1]);

```

Magnetometers

```

mag_x_3_1 = data_table_mag_3_1{:, 2};
mag_y_3_1 = data_table_mag_3_1{:, 3};
mag_z_3_1 = data_table_mag_3_1{:, 4};

mu_mag_x_3_1 = mean(mag_x_3_1);
sig2_mag_x_3_1 = var(mag_x_3_1);

mu_mag_y_3_1 = mean(mag_y_3_1);
sig2_mag_y_3_1 = var(mag_y_3_1);

mu_mag_z_3_1 = mean(mag_z_3_1);
sig2_mag_z_3_1 = var(mag_z_3_1);

mu_mag_3_1      = [mu_mag_x_3_1; mu_mag_y_3_1; mu_mag_z_3_1];
bias_mag_3_1    = [mu_mag_x_3_1; mu_mag_y_3_1; mu_mag_z_3_1] -
                [0;19.729;-47.6421] ;% muT
var_mag_3_1     = diag([sig2_mag_x_3_1 sig2_mag_y_3_1 sig2_mag_z_3_1]);

xlswrite('Data.xls',[mu_acc_3_1 tru_acc_3 bias_acc_3_1
                var_acc_3_1], 'sheet1', 'E34');

```

```
xlswrite('Data.xls',[mu_gyro_3_1 tru_gyro_3 bias_gyro_3_1  
var_gyro_3_1],'sheet2','E34');  
xlswrite('Data.xls',[mu_mag_3_1 tru_mag_3 bias_mag_3_1  
var_mag_3_1],'sheet3','E34');
```

OPEN TABLES

```
data_table_acc_3_2 = readtable('Accelerometer_3_2.csv');  
data_table_gyro_3_2 = readtable('Gyroscope_3_2.csv');  
data_table_mag_3_2 = readtable('Magnetometer_3_2.csv');
```

```
g = 9.80328;  
tru_acc_3 = [g;0;0];  
tru_gyro_3 = [0;0;0];  
tru_mag_3 = [-47.6421;19.729;4.9369];
```

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Warning: Column headers from the file were modified to make them valid MATLAB identifiers before creating variable names for the table. The original column headers are saved in the VariableDescriptions property.

Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_3_2 = data_table_acc_3_2{:,2};  
acc_y_3_2 = data_table_acc_3_2{:,3};  
acc_z_3_2 = data_table_acc_3_2{:,4};
```

```
mu_acc_x_3_2 = mean(acc_x_3_2);  
sig2_acc_x_3_2 = var(acc_x_3_2);
```

```

mu_acc_y_3_2 = mean(acc_y_3_2);
sig2_acc_y_3_2 = var(acc_y_3_2);

mu_acc_z_3_2 = mean(acc_z_3_2);
sig2_acc_z_3_2 = var(acc_z_3_2);

mu_acc_3_2      = [mu_acc_x_3_2; mu_acc_y_3_2; mu_acc_z_3_2];
bias_acc_3_2     = [mu_acc_x_3_2; mu_acc_y_3_2; mu_acc_z_3_2] - [0;0;g]
                  ;% m/s/s
var_acc_3_2      = diag([sig2_acc_x_3_2 sig2_acc_y_3_2 sig2_acc_z_3_2]);

```

Gyroscopes

```

gyro_x_3_2 = data_table_gyro_3_2(:, 2);
gyro_y_3_2 = data_table_gyro_3_2(:, 3);
gyro_z_3_2 = data_table_gyro_3_2(:, 4);

mu_gyro_x_3_2 = mean(gyro_x_3_2);
sig2_gyro_x_3_2 = var(gyro_x_3_2);

mu_gyro_y_3_2 = mean(gyro_y_3_2);
sig2_gyro_y_3_2 = var(gyro_y_3_2);

mu_gyro_z_3_2 = mean(gyro_z_3_2);
sig2_gyro_z_3_2 = var(gyro_z_3_2);

mu_gyro_3_2      = [mu_gyro_x_3_2; mu_gyro_y_3_2; mu_gyro_z_3_2];
bias_gyro_3_2     = -[mu_gyro_x_3_2; mu_gyro_y_3_2; mu_gyro_z_3_2]      ;%
                  rad/s
var_gyro_3_2      = diag([sig2_gyro_x_3_2 sig2_gyro_y_3_2
                          sig2_gyro_z_3_2]);

```

Magnetometers

```

mag_x_3_2 = data_table_mag_3_2(:, 2);
mag_y_3_2 = data_table_mag_3_2(:, 3);
mag_z_3_2 = data_table_mag_3_2(:, 4);

mu_mag_x_3_2 = mean(mag_x_3_2);
sig2_mag_x_3_2 = var(mag_x_3_2);

mu_mag_y_3_2 = mean(mag_y_3_2);
sig2_mag_y_3_2 = var(mag_y_3_2);

mu_mag_z_3_2 = mean(mag_z_3_2);
sig2_mag_z_3_2 = var(mag_z_3_2);

mu_mag_3_2      = [mu_mag_x_3_2; mu_mag_y_3_2; mu_mag_z_3_2];
bias_mag_3_2     = [mu_mag_x_3_2; mu_mag_y_3_2; mu_mag_z_3_2] -
                  [0;19.729;-47.6421] ;% muT

```

```
var_mag_3_2 = diag([sig2_mag_x_3_2 sig2_mag_y_3_2 sig2_mag_z_3_2]);

xlswrite('Data.xls',[mu_acc_3_2 tru_acc_3 bias_acc_3_2
    var_acc_3_2],'sheet1','E37');
xlswrite('Data.xls',[mu_gyro_3_2 tru_gyro_3 bias_gyro_3_2
    var_gyro_3_2],'sheet2','E37');
xlswrite('Data.xls',[mu_mag_3_2 tru_mag_3 bias_mag_3_2
    var_mag_3_2],'sheet3','E37');
```

OPEN TABLES

```
data_table_acc_3_3 = readtable('Accelerometer_3_3.csv');
data_table_gyro_3_3 = readtable('Gyroscope_3_3.csv');
data_table_mag_3_3 = readtable('Magnetometer_3_3.csv');
```

```
g = 9.80328;
tru_acc_3 = [g;0;0];
tru_gyro_3 = [0;0;0];
tru_mag_3 = [-47.6421;19.729;4.9369];
```

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Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_3_3 = data_table_acc_3_3{:,2};
acc_y_3_3 = data_table_acc_3_3{:,3};
```

```

acc_z_3_3    = data_table_acc_3_3{:,4};

mu_acc_x_3_3 = mean(acc_x_3_3);
sig2_acc_x_3_3 = var(acc_x_3_3);

mu_acc_y_3_3 = mean(acc_y_3_3);
sig2_acc_y_3_3 = var(acc_y_3_3);

mu_acc_z_3_3 = mean(acc_z_3_3);
sig2_acc_z_3_3 = var(acc_z_3_3);

mu_acc_3_3    = [mu_acc_x_3_3; mu_acc_y_3_3; mu_acc_z_3_3];
bias_acc_3_3   = [mu_acc_x_3_3; mu_acc_y_3_3; mu_acc_z_3_3] - [0;0;g]
                ;% m/s/s
var_acc_3_3    = diag([sig2_acc_x_3_3 sig2_acc_y_3_3 sig2_acc_z_3_3]);

```

Gyroscopes

```

gyro_x_3_3 = data_table_gyro_3_3{:, 2};
gyro_y_3_3 = data_table_gyro_3_3{:, 3};
gyro_z_3_3 = data_table_gyro_3_3{:, 4};

mu_gyro_x_3_3 = mean(gyro_x_3_3);
sig2_gyro_x_3_3 = var(gyro_x_3_3);

mu_gyro_y_3_3 = mean(gyro_y_3_3);
sig2_gyro_y_3_3 = var(gyro_y_3_3);

mu_gyro_z_3_3 = mean(gyro_z_3_3);
sig2_gyro_z_3_3 = var(gyro_z_3_3);

mu_gyro_3_3    = [mu_gyro_x_3_3; mu_gyro_y_3_3; mu_gyro_z_3_3];
bias_gyro_3_3   = -[mu_gyro_x_3_3; mu_gyro_y_3_3; mu_gyro_z_3_3] ;%
                rad/s
var_gyro_3_3    = diag([sig2_gyro_x_3_3 sig2_gyro_y_3_3
                        sig2_gyro_z_3_3]);

```

Magnetometers

```

mag_x_3_3 = data_table_mag_3_3{:, 2};
mag_y_3_3 = data_table_mag_3_3{:, 3};
mag_z_3_3 = data_table_mag_3_3{:, 4};

mu_mag_x_3_3 = mean(mag_x_3_3);
sig2_mag_x_3_3 = var(mag_x_3_3);

mu_mag_y_3_3 = mean(mag_y_3_3);
sig2_mag_y_3_3 = var(mag_y_3_3);

mu_mag_z_3_3 = mean(mag_z_3_3);
sig2_mag_z_3_3 = var(mag_z_3_3);

```

```

mu_mag_3_3      = [mu_mag_x_3_3;mu_mag_y_3_3;mu_mag_z_3_3];
bias_mag_3_3 = [mu_mag_x_3_3;mu_mag_y_3_3;mu_mag_z_3_3] -
    [0;19.729;-47.6421] ;% muT
var_mag_3_3  = diag([sig2_mag_x_3_3 sig2_mag_y_3_3 sig2_mag_z_3_3]);

xlswrite('Data.xls',[mu_acc_3_3 tru_acc_3 bias_acc_3_3
    var_acc_3_3],'sheet1','E40');
xlswrite('Data.xls',[mu_gyro_3_3 tru_gyro_3 bias_gyro_3_3
    var_gyro_3_3],'sheet2','E40');
xlswrite('Data.xls',[mu_mag_3_3 tru_mag_3 bias_mag_3_3
    var_mag_3_3],'sheet3','E40');

```

OPEN TABLES

```

data_table_acc_3_4 = readtable('Accelerometer_3_4.csv');
data_table_gyro_3_4 = readtable('Gyroscope_3_4.csv');
data_table_mag_3_4 = readtable('Magnetometer_3_4.csv');

```

```

g = 9.80328;
tru_acc_3 = [g;0;0];
tru_gyro_3 = [0;0;0];
tru_mag_3 = [-47.6421;19.729;4.9369];

```

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Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_3_4 = data_table_acc_3_4{:,2};
acc_y_3_4 = data_table_acc_3_4{:,3};
acc_z_3_4 = data_table_acc_3_4{:,4};

mu_acc_x_3_4 = mean(acc_x_3_4);
sig2_acc_x_3_4 = var(acc_x_3_4);

mu_acc_y_3_4 = mean(acc_y_3_4);
sig2_acc_y_3_4 = var(acc_y_3_4);

mu_acc_z_3_4 = mean(acc_z_3_4);
sig2_acc_z_3_4 = var(acc_z_3_4);

mu_acc_3_4 = [mu_acc_x_3_4; mu_acc_y_3_4; mu_acc_z_3_4];
bias_acc_3_4 = [mu_acc_x_3_4; mu_acc_y_3_4; mu_acc_z_3_4] - [0;0;g]
               ;% m/s/s
var_acc_3_4 = diag([sig2_acc_x_3_4 sig2_acc_y_3_4 sig2_acc_z_3_4]);
```

Gyroscopes

```
gyro_x_3_4 = data_table_gyro_3_4{:, 2};
gyro_y_3_4 = data_table_gyro_3_4{:, 3};
gyro_z_3_4 = data_table_gyro_3_4{:, 4};

mu_gyro_x_3_4 = mean(gyro_x_3_4);
sig2_gyro_x_3_4 = var(gyro_x_3_4);

mu_gyro_y_3_4 = mean(gyro_y_3_4);
sig2_gyro_y_3_4 = var(gyro_y_3_4);

mu_gyro_z_3_4 = mean(gyro_z_3_4);
sig2_gyro_z_3_4 = var(gyro_z_3_4);

mu_gyro_3_4 = [mu_gyro_x_3_4; mu_gyro_y_3_4; mu_gyro_z_3_4];
bias_gyro_3_4 = -[mu_gyro_x_3_4; mu_gyro_y_3_4; mu_gyro_z_3_4] ;%
                 rad/s
var_gyro_3_4 = diag([sig2_gyro_x_3_4 sig2_gyro_y_3_4
                    sig2_gyro_z_3_4]);
```

Magnetometers

```
mag_x_3_4 = data_table_mag_3_4{:, 2};
mag_y_3_4 = data_table_mag_3_4{:, 3};
mag_z_3_4 = data_table_mag_3_4{:, 4};

mu_mag_x_3_4 = mean(mag_x_3_4);
sig2_mag_x_3_4 = var(mag_x_3_4);
```

```

mu_mag_y_3_4 = mean(mag_y_3_4);
sig2_mag_y_3_4 = var(mag_y_3_4);

mu_mag_z_3_4 = mean(mag_z_3_4);
sig2_mag_z_3_4 = var(mag_z_3_4);

mu_mag_3_4      = [mu_mag_x_3_4;mu_mag_y_3_4;mu_mag_z_3_4];
bias_mag_3_4 = [mu_mag_x_3_4;mu_mag_y_3_4;mu_mag_z_3_4] -
    [0;19.729;-47.6421] ;% muT
var_mag_3_4 = diag([sig2_mag_x_3_4 sig2_mag_y_3_4 sig2_mag_z_3_4]);

xlswrite('Data.xls',[mu_acc_3_4 tru_acc_3 bias_acc_3_4
    var_acc_3_4],'sheet1','E43');
xlswrite('Data.xls',[mu_gyro_3_4 tru_gyro_3 bias_gyro_3_4
    var_gyro_3_4],'sheet2','E43');
xlswrite('Data.xls',[mu_mag_3_4 tru_mag_3 bias_mag_3_4
    var_mag_3_4],'sheet3','E43');

```

OPEN TABLES

```

data_table_acc_3_5 = readtable('Accelerometer_3_5.csv');
data_table_gyro_3_5 = readtable('Gyroscope_3_5.csv');
data_table_mag_3_5 = readtable('Magnetometer_3_5.csv');

```

```

g = 9.80328;
tru_acc_3 = [g;0;0];
tru_gyro_3 = [0;0;0];
tru_mag_3 = [-47.6421;19.729;4.9369];

```

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Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

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are saved in the `VariableDescriptions` property.
Set `'PreserveVariableNames'` to `true` to use the original column headers as table variable names.

Accelerometers

```
acc_x_3_5 = data_table_acc_3_5{:,2};
acc_y_3_5 = data_table_acc_3_5{:,3};
acc_z_3_5 = data_table_acc_3_5{:,4};

mu_acc_x_3_5 = mean(acc_x_3_5);
sig2_acc_x_3_5 = var(acc_x_3_5);

mu_acc_y_3_5 = mean(acc_y_3_5);
sig2_acc_y_3_5 = var(acc_y_3_5);

mu_acc_z_3_5 = mean(acc_z_3_5);
sig2_acc_z_3_5 = var(acc_z_3_5);

mu_acc_3_5 = [mu_acc_x_3_5; mu_acc_y_3_5; mu_acc_z_3_5];
bias_acc_3_5 = [mu_acc_x_3_5; mu_acc_y_3_5; mu_acc_z_3_5] - [0;0;g]
               ;% m/s/s
var_acc_3_5 = diag([sig2_acc_x_3_5 sig2_acc_y_3_5 sig2_acc_z_3_5]);
```

Gyroscopes

```
gyro_x_3_5 = data_table_gyro_3_5{:, 2};
gyro_y_3_5 = data_table_gyro_3_5{:, 3};
gyro_z_3_5 = data_table_gyro_3_5{:, 4};

mu_gyro_x_3_5 = mean(gyro_x_3_5);
sig2_gyro_x_3_5 = var(gyro_x_3_5);

mu_gyro_y_3_5 = mean(gyro_y_3_5);
sig2_gyro_y_3_5 = var(gyro_y_3_5);

mu_gyro_z_3_5 = mean(gyro_z_3_5);
sig2_gyro_z_3_5 = var(gyro_z_3_5);

mu_gyro_3_5 = [mu_gyro_x_3_5; mu_gyro_y_3_5; mu_gyro_z_3_5];
bias_gyro_3_5 = -[mu_gyro_x_3_5; mu_gyro_y_3_5; mu_gyro_z_3_5] ;%
                 rad/s
var_gyro_3_5 = diag([sig2_gyro_x_3_5 sig2_gyro_y_3_5
                    sig2_gyro_z_3_5]);
```

Magnetometers

```
mag_x_3_5 = data_table_mag_3_5{:, 2};
mag_y_3_5 = data_table_mag_3_5{:, 3};
```

```

mag_z_3_5 = data_table_mag_3_5{:, 4};

mu_mag_x_3_5 = mean(mag_x_3_5);
sig2_mag_x_3_5 = var(mag_x_3_5);

mu_mag_y_3_5 = mean(mag_y_3_5);
sig2_mag_y_3_5 = var(mag_y_3_5);

mu_mag_z_3_5 = mean(mag_z_3_5);
sig2_mag_z_3_5 = var(mag_z_3_5);

mu_mag_3_5      = [mu_mag_x_3_5;mu_mag_y_3_5;mu_mag_z_3_5];
bias_mag_3_5 = [mu_mag_x_3_5;mu_mag_y_3_5;mu_mag_z_3_5] -
    [0;19.729;-47.6421] ;% muT
var_mag_3_5 = diag([sig2_mag_x_3_5 sig2_mag_y_3_5 sig2_mag_z_3_5]);

xlswrite('Data.xls',[mu_acc_3_5 tru_acc_3 bias_acc_3_5
    var_acc_3_5],'sheet1','E46');
xlswrite('Data.xls',[mu_gyro_3_5 tru_gyro_3 bias_gyro_3_5
    var_gyro_3_5],'sheet2','E46');
xlswrite('Data.xls',[mu_mag_3_5 tru_mag_3 bias_mag_3_5
    var_mag_3_5],'sheet3','E46');

```

OPEN TABLES

```

data_table_acc_4_1 = readtable('Accelerometer_4_1.csv');
data_table_gyro_4_1 = readtable('Gyroscope_4_1.csv');
data_table_mag_4_1 = readtable('Magnetometer_4_1.csv');

```

```

g = 9.80328;
tru_acc_4 = [0;0;g];
tru_gyro_4 = [0;0;0];
tru_mag_4 = [19.729;0;-47.6421];

```

Warning: Column headers from the file were modified to make them valid MATLAB identifiers before creating variable names for the table. The original column headers are saved in the VariableDescriptions property.

Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

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Set 'PreserveVariableNames' to true to use the original column headers as table

variable names.
Warning: Column headers from the file were modified to make them valid MATLAB identifiers before creating variable names for the table. The original column headers are saved in the VariableDescriptions property.
 Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_4_1 = data_table_acc_4_1{:,2};
acc_y_4_1 = data_table_acc_4_1{:,3};
acc_z_4_1 = data_table_acc_4_1{:,4};

mu_acc_x_4_1 = mean(acc_x_4_1);
sig2_acc_x_4_1 = var(acc_x_4_1);

mu_acc_y_4_1 = mean(acc_y_4_1);
sig2_acc_y_4_1 = var(acc_y_4_1);

mu_acc_z_4_1 = mean(acc_z_4_1);
sig2_acc_z_4_1 = var(acc_z_4_1);

mu_acc_4_1 = [mu_acc_x_4_1; mu_acc_y_4_1; mu_acc_z_4_1];
bias_acc_4_1 = [mu_acc_x_4_1; mu_acc_y_4_1; mu_acc_z_4_1] - [0;0;g]
              ;% m/s/s
var_acc_4_1 = diag([sig2_acc_x_4_1 sig2_acc_y_4_1 sig2_acc_z_4_1]);
```

Gyroscopes

```
gyro_x_4_1 = data_table_gyro_4_1{:, 2};
gyro_y_4_1 = data_table_gyro_4_1{:, 3};
gyro_z_4_1 = data_table_gyro_4_1{:, 4};

mu_gyro_x_4_1 = mean(gyro_x_4_1);
sig2_gyro_x_4_1 = var(gyro_x_4_1);

mu_gyro_y_4_1 = mean(gyro_y_4_1);
sig2_gyro_y_4_1 = var(gyro_y_4_1);

mu_gyro_z_4_1 = mean(gyro_z_4_1);
sig2_gyro_z_4_1 = var(gyro_z_4_1);

mu_gyro_4_1 = [mu_gyro_x_4_1; mu_gyro_y_4_1; mu_gyro_z_4_1];
bias_gyro_4_1 = -[mu_gyro_x_4_1; mu_gyro_y_4_1; mu_gyro_z_4_1] ;%
                 rad/s
var_gyro_4_1 = diag([sig2_gyro_x_4_1 sig2_gyro_y_4_1
                    sig2_gyro_z_4_1]);
```

Magnetometers

```
mag_x_4_1 = data_table_mag_4_1{:, 2};
mag_y_4_1 = data_table_mag_4_1{:, 3};
mag_z_4_1 = data_table_mag_4_1{:, 4};

mu_mag_x_4_1 = mean(mag_x_4_1);
sig2_mag_x_4_1 = var(mag_x_4_1);

mu_mag_y_4_1 = mean(mag_y_4_1);
sig2_mag_y_4_1 = var(mag_y_4_1);

mu_mag_z_4_1 = mean(mag_z_4_1);
sig2_mag_z_4_1 = var(mag_z_4_1);

mu_mag_4_1 = [mu_mag_x_4_1; mu_mag_y_4_1; mu_mag_z_4_1];
bias_mag_4_1 = [mu_mag_x_4_1; mu_mag_y_4_1; mu_mag_z_4_1] -
    [0; 19.729; -47.6421] ; % muT
var_mag_4_1 = diag([sig2_mag_x_4_1 sig2_mag_y_4_1 sig2_mag_z_4_1]);

xlswrite('Data.xls', [mu_acc_4_1 tru_acc_4 bias_acc_4_1
    var_acc_4_1], 'sheet1', 'E49');
xlswrite('Data.xls', [mu_gyro_4_1 tru_gyro_4 bias_gyro_4_1
    var_gyro_4_1], 'sheet2', 'E49');
xlswrite('Data.xls', [mu_mag_4_1 tru_mag_4 bias_mag_4_1
    var_mag_4_1], 'sheet3', 'E49');
```

OPEN TABLES

```
data_table_acc_4_2 = readtable('Accelerometer_4_2.csv');
data_table_gyro_4_2 = readtable('Gyroscope_4_2.csv');
data_table_mag_4_2 = readtable('Magnetometer_4_2.csv');
```

```
g = 9.80328;
tru_acc_4 = [0; 0; g];
tru_gyro_4 = [0; 0; 0];
tru_mag_4 = [19.729; 0; -47.6421];
```

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Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Warning: Column headers from the file were modified to make them valid MATLAB identifiers before creating variable names

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 Set 'PreserveVariableNames' to true to use the original column headers as table variable names.
 Warning: Column headers from the file were modified to make them valid MATLAB identifiers before creating variable names for the table. The original column headers are saved in the VariableDescriptions property.
 Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_4_2 = data_table_acc_4_2(:,2);
acc_y_4_2 = data_table_acc_4_2(:,3);
acc_z_4_2 = data_table_acc_4_2(:,4);

mu_acc_x_4_2 = mean(acc_x_4_2);
sig2_acc_x_4_2 = var(acc_x_4_2);

mu_acc_y_4_2 = mean(acc_y_4_2);
sig2_acc_y_4_2 = var(acc_y_4_2);

mu_acc_z_4_2 = mean(acc_z_4_2);
sig2_acc_z_4_2 = var(acc_z_4_2);

mu_acc_4_2 = [mu_acc_x_4_2; mu_acc_y_4_2; mu_acc_z_4_2];
bias_acc_4_2 = [mu_acc_x_4_2; mu_acc_y_4_2; mu_acc_z_4_2] - [0;0;g]
              ;% m/s/s
var_acc_4_2 = diag([sig2_acc_x_4_2 sig2_acc_y_4_2 sig2_acc_z_4_2]);
```

Gyroscopes

```
gyro_x_4_2 = data_table_gyro_4_2(:, 2);
gyro_y_4_2 = data_table_gyro_4_2(:, 3);
gyro_z_4_2 = data_table_gyro_4_2(:, 4);

mu_gyro_x_4_2 = mean(gyro_x_4_2);
sig2_gyro_x_4_2 = var(gyro_x_4_2);

mu_gyro_y_4_2 = mean(gyro_y_4_2);
sig2_gyro_y_4_2 = var(gyro_y_4_2);

mu_gyro_z_4_2 = mean(gyro_z_4_2);
sig2_gyro_z_4_2 = var(gyro_z_4_2);
```

```
mu_gyro_4_2 = [mu_gyro_x_4_2; mu_gyro_y_4_2; mu_gyro_z_4_2];
bias_gyro_4_2 = -[mu_gyro_x_4_2; mu_gyro_y_4_2; mu_gyro_z_4_2] ;%
rad/s
var_gyro_4_2 = diag([sig2_gyro_x_4_2 sig2_gyro_y_4_2
sig2_gyro_z_4_2]);
```

Magnetometers

```
mag_x_4_2 = data_table_mag_4_2(:, 2);
mag_y_4_2 = data_table_mag_4_2(:, 3);
mag_z_4_2 = data_table_mag_4_2(:, 4);

mu_mag_x_4_2 = mean(mag_x_4_2);
sig2_mag_x_4_2 = var(mag_x_4_2);

mu_mag_y_4_2 = mean(mag_y_4_2);
sig2_mag_y_4_2 = var(mag_y_4_2);

mu_mag_z_4_2 = mean(mag_z_4_2);
sig2_mag_z_4_2 = var(mag_z_4_2);

mu_mag_4_2 = [mu_mag_x_4_2; mu_mag_y_4_2; mu_mag_z_4_2];
bias_mag_4_2 = [mu_mag_x_4_2; mu_mag_y_4_2; mu_mag_z_4_2] -
[0; 19.729; -47.6421] ;% muT
var_mag_4_2 = diag([sig2_mag_x_4_2 sig2_mag_y_4_2 sig2_mag_z_4_2]);

xlswrite('Data.xls', [mu_acc_4_2 tru_acc_4 bias_acc_4_2
var_acc_4_2], 'sheet1', 'E52');
xlswrite('Data.xls', [mu_gyro_4_2 tru_gyro_4 bias_gyro_4_2
var_gyro_4_2], 'sheet2', 'E52');
xlswrite('Data.xls', [mu_mag_4_2 tru_mag_4 bias_mag_4_2
var_mag_4_2], 'sheet3', 'E52');
```

OPEN TABLES

```
data_table_acc_4_3 = readtable('Accelerometer_4_3.csv');
data_table_gyro_4_3 = readtable('Gyroscope_4_3.csv');
data_table_mag_4_3 = readtable('Magnetometer_4_3.csv');
```

```
g = 9.80328;
tru_acc_4 = [0; 0; g];
tru_gyro_4 = [0; 0; 0];
tru_mag_4 = [19.729; 0; -47.6421];
```

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Set 'PreserveVariableNames' to true to use

the original column headers as table variable names.

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Warning: Column headers from the file were modified to make them valid MATLAB identifiers before creating variable names for the table. The original column headers are saved in the VariableDescriptions property.

Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_4_3 = data_table_acc_4_3{:,2};
acc_y_4_3 = data_table_acc_4_3{:,3};
acc_z_4_3 = data_table_acc_4_3{:,4};

mu_acc_x_4_3 = mean(acc_x_4_3);
sig2_acc_x_4_3 = var(acc_x_4_3);

mu_acc_y_4_3 = mean(acc_y_4_3);
sig2_acc_y_4_3 = var(acc_y_4_3);

mu_acc_z_4_3 = mean(acc_z_4_3);
sig2_acc_z_4_3 = var(acc_z_4_3);

mu_acc_4_3 = [mu_acc_x_4_3; mu_acc_y_4_3; mu_acc_z_4_3];
bias_acc_4_3 = [mu_acc_x_4_3; mu_acc_y_4_3; mu_acc_z_4_3] - [0;0;g]
              ;% m/s/s
var_acc_4_3 = diag([sig2_acc_x_4_3 sig2_acc_y_4_3 sig2_acc_z_4_3]);
```

Gyroscopes

```
gyro_x_4_3 = data_table_gyro_4_3{:, 2};
gyro_y_4_3 = data_table_gyro_4_3{:, 3};
gyro_z_4_3 = data_table_gyro_4_3{:, 4};

mu_gyro_x_4_3 = mean(gyro_x_4_3);
sig2_gyro_x_4_3 = var(gyro_x_4_3);

mu_gyro_y_4_3 = mean(gyro_y_4_3);
```

```

sig2_gyro_y_4_3 = var(gyro_y_4_3);

mu_gyro_z_4_3 = mean(gyro_z_4_3);
sig2_gyro_z_4_3 = var(gyro_z_4_3);

mu_gyro_4_3      = [mu_gyro_x_4_3; mu_gyro_y_4_3; mu_gyro_z_4_3];
bias_gyro_4_3    = -[mu_gyro_x_4_3; mu_gyro_y_4_3; mu_gyro_z_4_3]    ;%
    rad/s
var_gyro_4_3     = diag([sig2_gyro_x_4_3 sig2_gyro_y_4_3
    sig2_gyro_z_4_3]);

```

Magnetometers

```

mag_x_4_3 = data_table_mag_4_3{:, 2};
mag_y_4_3 = data_table_mag_4_3{:, 3};
mag_z_4_3 = data_table_mag_4_3{:, 4};

mu_mag_x_4_3 = mean(mag_x_4_3);
sig2_mag_x_4_3 = var(mag_x_4_3);

mu_mag_y_4_3 = mean(mag_y_4_3);
sig2_mag_y_4_3 = var(mag_y_4_3);

mu_mag_z_4_3 = mean(mag_z_4_3);
sig2_mag_z_4_3 = var(mag_z_4_3);

mu_mag_4_3      = [mu_mag_x_4_3; mu_mag_y_4_3; mu_mag_z_4_3];
bias_mag_4_3     = [mu_mag_x_4_3; mu_mag_y_4_3; mu_mag_z_4_3] -
    [0; 19.729; -47.6421] ;% muT
var_mag_4_3      = diag([sig2_mag_x_4_3 sig2_mag_y_4_3 sig2_mag_z_4_3]);

xlswrite('Data.xls', [mu_acc_4_3 tru_acc_4 bias_acc_4_3
    var_acc_4_3], 'sheet1', 'E55');
xlswrite('Data.xls', [mu_gyro_4_3 tru_gyro_4 bias_gyro_4_3
    var_gyro_4_3], 'sheet2', 'E55');
xlswrite('Data.xls', [mu_mag_4_3 tru_mag_4 bias_mag_4_3
    var_mag_4_3], 'sheet3', 'E55');

```

OPEN TABLES

```

data_table_acc_4_4 = readtable('Accelerometer_4_4.csv');
data_table_gyro_4_4 = readtable('Gyroscope_4_4.csv');
data_table_mag_4_4 = readtable('Magnetometer_4_4.csv');

```

```

g = 9.80328;
tru_acc_4 = [0; 0; g];
tru_gyro_4 = [0; 0; 0];
tru_mag_4 = [19.729; 0; -47.6421];

```

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identifiers before creating variable names for the table. The original column headers are saved in the VariableDescriptions property.

Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

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Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_4_4 = data_table_acc_4_4(:,2);
acc_y_4_4 = data_table_acc_4_4(:,3);
acc_z_4_4 = data_table_acc_4_4(:,4);

mu_acc_x_4_4 = mean(acc_x_4_4);
sig2_acc_x_4_4 = var(acc_x_4_4);

mu_acc_y_4_4 = mean(acc_y_4_4);
sig2_acc_y_4_4 = var(acc_y_4_4);

mu_acc_z_4_4 = mean(acc_z_4_4);
sig2_acc_z_4_4 = var(acc_z_4_4);

mu_acc_4_4 = [mu_acc_x_4_4; mu_acc_y_4_4; mu_acc_z_4_4];
bias_acc_4_4 = [mu_acc_x_4_4; mu_acc_y_4_4; mu_acc_z_4_4] - [0;0;g]
               ;% m/s/s
var_acc_4_4 = diag([sig2_acc_x_4_4 sig2_acc_y_4_4 sig2_acc_z_4_4]);
```

Gyroscopes

```
gyro_x_4_4 = data_table_gyro_4_4(:, 2);
gyro_y_4_4 = data_table_gyro_4_4(:, 3);
gyro_z_4_4 = data_table_gyro_4_4(:, 4);
```

```

mu_gyro_x_4_4 = mean(gyro_x_4_4);
sig2_gyro_x_4_4 = var(gyro_x_4_4);

mu_gyro_y_4_4 = mean(gyro_y_4_4);
sig2_gyro_y_4_4 = var(gyro_y_4_4);

mu_gyro_z_4_4 = mean(gyro_z_4_4);
sig2_gyro_z_4_4 = var(gyro_z_4_4);

mu_gyro_4_4      = [mu_gyro_x_4_4; mu_gyro_y_4_4; mu_gyro_z_4_4];
bias_gyro_4_4    = -[mu_gyro_x_4_4; mu_gyro_y_4_4; mu_gyro_z_4_4]    ;%
    rad/s
var_gyro_4_4     = diag([sig2_gyro_x_4_4 sig2_gyro_y_4_4
    sig2_gyro_z_4_4]);

```

Magnetometers

```

mag_x_4_4 = data_table_mag_4_4{:, 2};
mag_y_4_4 = data_table_mag_4_4{:, 3};
mag_z_4_4 = data_table_mag_4_4{:, 4};

mu_mag_x_4_4 = mean(mag_x_4_4);
sig2_mag_x_4_4 = var(mag_x_4_4);

mu_mag_y_4_4 = mean(mag_y_4_4);
sig2_mag_y_4_4 = var(mag_y_4_4);

mu_mag_z_4_4 = mean(mag_z_4_4);
sig2_mag_z_4_4 = var(mag_z_4_4);

mu_mag_4_4      = [mu_mag_x_4_4; mu_mag_y_4_4; mu_mag_z_4_4];
bias_mag_4_4     = [mu_mag_x_4_4; mu_mag_y_4_4; mu_mag_z_4_4] -
    [0; 19.729; -47.6421] ;% muT
var_mag_4_4      = diag([sig2_mag_x_4_4 sig2_mag_y_4_4 sig2_mag_z_4_4]);

xlswrite('Data.xls', [mu_acc_4_4 tru_acc_4 bias_acc_4_4
    var_acc_4_4], 'sheet1', 'E58');
xlswrite('Data.xls', [mu_gyro_4_4 tru_gyro_4 bias_gyro_4_4
    var_gyro_4_4], 'sheet2', 'E58');
xlswrite('Data.xls', [mu_mag_4_4 tru_mag_4 bias_mag_4_4
    var_mag_4_4], 'sheet3', 'E58');

```

OPEN TABLES

```

data_table_acc_4_5 = readtable('Accelerometer_4_5.csv');
data_table_gyro_4_5 = readtable('Gyroscope_4_5.csv');
data_table_mag_4_5 = readtable('Magnetometer_4_5.csv');

g = 9.80328;
tru_acc_4 = [0; 0; g];
tru_gyro_4 = [0; 0; 0];

```

```
tru_mag_4 = [19.729;0;-47.6421];
```

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Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_4_5 = data_table_acc_4_5(:,2);
acc_y_4_5 = data_table_acc_4_5(:,3);
acc_z_4_5 = data_table_acc_4_5(:,4);
```

```
mu_acc_x_4_5 = mean(acc_x_4_5);
sig2_acc_x_4_5 = var(acc_x_4_5);
```

```
mu_acc_y_4_5 = mean(acc_y_4_5);
sig2_acc_y_4_5 = var(acc_y_4_5);
```

```
mu_acc_z_4_5 = mean(acc_z_4_5);
sig2_acc_z_4_5 = var(acc_z_4_5);
```

```
mu_acc_4_5 = [mu_acc_x_4_5; mu_acc_y_4_5; mu_acc_z_4_5];
bias_acc_4_5 = [mu_acc_x_4_5; mu_acc_y_4_5; mu_acc_z_4_5] - [0;0;g]
              ;% m/s/s
var_acc_4_5 = diag([sig2_acc_x_4_5 sig2_acc_y_4_5 sig2_acc_z_4_5]);
```

Gyroscopes

```
gyro_x_4_5 = data_table_gyro_4_5(:, 2);
```

```

gyro_y_4_5 = data_table_gyro_4_5{:, 3};
gyro_z_4_5 = data_table_gyro_4_5{:, 4};

mu_gyro_x_4_5 = mean(gyro_x_4_5);
sig2_gyro_x_4_5 = var(gyro_x_4_5);

mu_gyro_y_4_5 = mean(gyro_y_4_5);
sig2_gyro_y_4_5 = var(gyro_y_4_5);

mu_gyro_z_4_5 = mean(gyro_z_4_5);
sig2_gyro_z_4_5 = var(gyro_z_4_5);

mu_gyro_4_5      = [mu_gyro_x_4_5; mu_gyro_y_4_5; mu_gyro_z_4_5];
bias_gyro_4_5    = -[mu_gyro_x_4_5; mu_gyro_y_4_5; mu_gyro_z_4_5]    ;%
                 rad/s
var_gyro_4_5     = diag([sig2_gyro_x_4_5 sig2_gyro_y_4_5
                        sig2_gyro_z_4_5]);

```

Magnetometers

```

mag_x_4_5 = data_table_mag_4_5{:, 2};
mag_y_4_5 = data_table_mag_4_5{:, 3};
mag_z_4_5 = data_table_mag_4_5{:, 4};

mu_mag_x_4_5 = mean(mag_x_4_5);
sig2_mag_x_4_5 = var(mag_x_4_5);

mu_mag_y_4_5 = mean(mag_y_4_5);
sig2_mag_y_4_5 = var(mag_y_4_5);

mu_mag_z_4_5 = mean(mag_z_4_5);
sig2_mag_z_4_5 = var(mag_z_4_5);

mu_mag_4_5      = [mu_mag_x_4_5; mu_mag_y_4_5; mu_mag_z_4_5];
bias_mag_4_5     = [mu_mag_x_4_5; mu_mag_y_4_5; mu_mag_z_4_5] -
                 [0; 19.729; -47.6421] ;% muT
var_mag_4_5      = diag([sig2_mag_x_4_5 sig2_mag_y_4_5 sig2_mag_z_4_5]);

xlswrite('Data.xls', [mu_acc_4_5 tru_acc_4 bias_acc_4_5
                      var_acc_4_5], 'sheet1', 'E61');
xlswrite('Data.xls', [mu_gyro_4_5 tru_gyro_4 bias_gyro_4_5
                      var_gyro_4_5], 'sheet2', 'E61');
xlswrite('Data.xls', [mu_mag_4_5 tru_mag_4 bias_mag_4_5
                      var_mag_4_5], 'sheet3', 'E61');

```

OPEN TABLES

```

data_table_acc_5_1 = readtable('Accelerometer_5_1.csv');
data_table_gyro_5_1 = readtable('Gyroscope_5_1.csv');
data_table_mag_5_1 = readtable('Magnetometer_5_1.csv');

```

```
g = 9.80328;
tru_acc_5 = [0;0;g];
tru_gyro_5 = [0;0;0];
tru_mag_5 = [0;19.729;-47.6421];
```

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Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Warning: Column headers from the file were modified to make them valid MATLAB identifiers before creating variable names for the table. The original column headers are saved in the VariableDescriptions property.

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Warning: Column headers from the file were modified to make them valid MATLAB identifiers before creating variable names for the table. The original column headers are saved in the VariableDescriptions property.

Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_5_1 = data_table_acc_5_1{:,2};
acc_y_5_1 = data_table_acc_5_1{:,3};
acc_z_5_1 = data_table_acc_5_1{:,4};
```

```
mu_acc_x_5_1 = mean(acc_x_5_1);
sig2_acc_x_5_1 = var(acc_x_5_1);
```

```
mu_acc_y_5_1 = mean(acc_y_5_1);
sig2_acc_y_5_1 = var(acc_y_5_1);
```

```
mu_acc_z_5_1 = mean(acc_z_5_1);
sig2_acc_z_5_1 = var(acc_z_5_1);
```

```
mu_acc_5_1 = [mu_acc_x_5_1; mu_acc_y_5_1; mu_acc_z_5_1];
bias_acc_5_1 = [mu_acc_x_5_1; mu_acc_y_5_1; mu_acc_z_5_1] - [0;0;g]
              ;% m/s/s
var_acc_5_1 = diag([sig2_acc_x_5_1 sig2_acc_y_5_1 sig2_acc_z_5_1]);
```

Gyroscopes

```
gyro_x_5_1 = data_table_gyro_5_1{:, 2};
gyro_y_5_1 = data_table_gyro_5_1{:, 3};
gyro_z_5_1 = data_table_gyro_5_1{:, 4};

mu_gyro_x_5_1 = mean(gyro_x_5_1);
sig2_gyro_x_5_1 = var(gyro_x_5_1);

mu_gyro_y_5_1 = mean(gyro_y_5_1);
sig2_gyro_y_5_1 = var(gyro_y_5_1);

mu_gyro_z_5_1 = mean(gyro_z_5_1);
sig2_gyro_z_5_1 = var(gyro_z_5_1);

mu_gyro_5_1      = [mu_gyro_x_5_1; mu_gyro_y_5_1; mu_gyro_z_5_1];
bias_gyro_5_1    = -[mu_gyro_x_5_1; mu_gyro_y_5_1; mu_gyro_z_5_1]    ;%
                 rad/s
var_gyro_5_1     = diag([sig2_gyro_x_5_1 sig2_gyro_y_5_1
                        sig2_gyro_z_5_1]);
```

Magnetometers

```
mag_x_5_1 = data_table_mag_5_1{:, 2};
mag_y_5_1 = data_table_mag_5_1{:, 3};
mag_z_5_1 = data_table_mag_5_1{:, 4};

mu_mag_x_5_1 = mean(mag_x_5_1);
sig2_mag_x_5_1 = var(mag_x_5_1);

mu_mag_y_5_1 = mean(mag_y_5_1);
sig2_mag_y_5_1 = var(mag_y_5_1);

mu_mag_z_5_1 = mean(mag_z_5_1);
sig2_mag_z_5_1 = var(mag_z_5_1);

mu_mag_5_1      = [mu_mag_x_5_1; mu_mag_y_5_1; mu_mag_z_5_1];
bias_mag_5_1    = [mu_mag_x_5_1; mu_mag_y_5_1; mu_mag_z_5_1] -
                 [0; 19.729; -47.6421] ;% muT
var_mag_5_1     = diag([sig2_mag_x_5_1 sig2_mag_y_5_1 sig2_mag_z_5_1]);

xlswrite('Data.xls', [mu_acc_5_1 tru_acc_5 bias_acc_5_1
                      var_acc_5_1], 'sheet1', 'E64');
xlswrite('Data.xls', [mu_gyro_5_1 tru_gyro_5 bias_gyro_5_1
                      var_gyro_5_1], 'sheet2', 'E64');
xlswrite('Data.xls', [mu_mag_5_1 tru_mag_5 bias_mag_5_1
                      var_mag_5_1], 'sheet3', 'E64');
```

OPEN TABLES

```
data_table_acc_5_2 = readtable('Accelerometer_5_2.csv');  
data_table_gyro_5_2 = readtable('Gyroscope_5_2.csv');  
data_table_mag_5_2 = readtable('Magnetometer_5_2.csv');
```

```
g = 9.80328;  
tru_acc_5 = [0;0;g];  
tru_gyro_5 = [0;0;0];  
tru_mag_5 = [0;19.729;-47.6421];
```

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Warning: Column headers from the file were modified to make them valid MATLAB identifiers before creating variable names for the table. The original column headers are saved in the VariableDescriptions property.

Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_5_2 = data_table_acc_5_2{:,2};  
acc_y_5_2 = data_table_acc_5_2{:,3};  
acc_z_5_2 = data_table_acc_5_2{:,4};
```

```
mu_acc_x_5_2 = mean(acc_x_5_2);  
sig2_acc_x_5_2 = var(acc_x_5_2);
```

```
mu_acc_y_5_2 = mean(acc_y_5_2);  
sig2_acc_y_5_2 = var(acc_y_5_2);
```

```

mu_acc_z_5_2 = mean(acc_z_5_2);
sig2_acc_z_5_2 = var(acc_z_5_2);

mu_acc_5_2      = [mu_acc_x_5_2; mu_acc_y_5_2; mu_acc_z_5_2];
bias_acc_5_2    = [mu_acc_x_5_2; mu_acc_y_5_2; mu_acc_z_5_2] - [0;0;g]
                ;% m/s/s
var_acc_5_2     = diag([sig2_acc_x_5_2 sig2_acc_y_5_2 sig2_acc_z_5_2]);

```

Gyroscopes

```

gyro_x_5_2 = data_table_gyro_5_2(:, 2);
gyro_y_5_2 = data_table_gyro_5_2(:, 3);
gyro_z_5_2 = data_table_gyro_5_2(:, 4);

mu_gyro_x_5_2 = mean(gyro_x_5_2);
sig2_gyro_x_5_2 = var(gyro_x_5_2);

mu_gyro_y_5_2 = mean(gyro_y_5_2);
sig2_gyro_y_5_2 = var(gyro_y_5_2);

mu_gyro_z_5_2 = mean(gyro_z_5_2);
sig2_gyro_z_5_2 = var(gyro_z_5_2);

mu_gyro_5_2      = [mu_gyro_x_5_2; mu_gyro_y_5_2; mu_gyro_z_5_2];
bias_gyro_5_2    = -[mu_gyro_x_5_2; mu_gyro_y_5_2; mu_gyro_z_5_2] ;%
                rad/s
var_gyro_5_2     = diag([sig2_gyro_x_5_2 sig2_gyro_y_5_2
                sig2_gyro_z_5_2]);

```

Magnetometers

```

mag_x_5_2 = data_table_mag_5_2(:, 2);
mag_y_5_2 = data_table_mag_5_2(:, 3);
mag_z_5_2 = data_table_mag_5_2(:, 4);

mu_mag_x_5_2 = mean(mag_x_5_2);
sig2_mag_x_5_2 = var(mag_x_5_2);

mu_mag_y_5_2 = mean(mag_y_5_2);
sig2_mag_y_5_2 = var(mag_y_5_2);

mu_mag_z_5_2 = mean(mag_z_5_2);
sig2_mag_z_5_2 = var(mag_z_5_2);

mu_mag_5_2      = [mu_mag_x_5_2; mu_mag_y_5_2; mu_mag_z_5_2];
bias_mag_5_2    = [mu_mag_x_5_2; mu_mag_y_5_2; mu_mag_z_5_2] -
                [0;19.729;-47.6421] ;% muT
var_mag_5_2     = diag([sig2_mag_x_5_2 sig2_mag_y_5_2 sig2_mag_z_5_2]);

xlswrite('Data.xls',[mu_acc_5_2 tru_acc_5 bias_acc_5_2
                var_acc_5_2], 'sheet1', 'E67');

```



```
xlswrite('Data.xls',[mu_gyro_5_2 tru_gyro_5 bias_gyro_5_2  
var_gyro_5_2],'sheet2','E67');  
xlswrite('Data.xls',[mu_mag_5_2 tru_mag_5 bias_mag_5_2  
var_mag_5_2],'sheet3','E67');
```

OPEN TABLES

```
data_table_acc_5_3 = readtable('Accelerometer_5_3.csv');  
data_table_gyro_5_3 = readtable('Gyroscope_5_3.csv');  
data_table_mag_5_3 = readtable('Magnetometer_5_3.csv');
```

```
g = 9.80328;  
tru_acc_5 = [0;0;g];  
tru_gyro_5 = [0;0;0];  
tru_mag_5 = [0;19.729;-47.6421];
```

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Warning: Column headers from the file were modified to make them valid MATLAB identifiers before creating variable names for the table. The original column headers are saved in the VariableDescriptions property.

Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_5_3 = data_table_acc_5_3{:,2};  
acc_y_5_3 = data_table_acc_5_3{:,3};  
acc_z_5_3 = data_table_acc_5_3{:,4};
```

```
mu_acc_x_5_3 = mean(acc_x_5_3);  
sig2_acc_x_5_3 = var(acc_x_5_3);
```

```

mu_acc_y_5_3 = mean(acc_y_5_3);
sig2_acc_y_5_3 = var(acc_y_5_3);

mu_acc_z_5_3 = mean(acc_z_5_3);
sig2_acc_z_5_3 = var(acc_z_5_3);

mu_acc_5_3      = [mu_acc_x_5_3; mu_acc_y_5_3; mu_acc_z_5_3];
bias_acc_5_3     = [mu_acc_x_5_3; mu_acc_y_5_3; mu_acc_z_5_3] - [0;0;g]
                  ;% m/s/s
var_acc_5_3      = diag([sig2_acc_x_5_3 sig2_acc_y_5_3 sig2_acc_z_5_3]);

```

Gyroscopes

```

gyro_x_5_3 = data_table_gyro_5_3(:, 2);
gyro_y_5_3 = data_table_gyro_5_3(:, 3);
gyro_z_5_3 = data_table_gyro_5_3(:, 4);

mu_gyro_x_5_3 = mean(gyro_x_5_3);
sig2_gyro_x_5_3 = var(gyro_x_5_3);

mu_gyro_y_5_3 = mean(gyro_y_5_3);
sig2_gyro_y_5_3 = var(gyro_y_5_3);

mu_gyro_z_5_3 = mean(gyro_z_5_3);
sig2_gyro_z_5_3 = var(gyro_z_5_3);

mu_gyro_5_3      = [mu_gyro_x_5_3; mu_gyro_y_5_3; mu_gyro_z_5_3];
bias_gyro_5_3     = -[mu_gyro_x_5_3; mu_gyro_y_5_3; mu_gyro_z_5_3]      ;%
                  rad/s
var_gyro_5_3      = diag([sig2_gyro_x_5_3 sig2_gyro_y_5_3
                          sig2_gyro_z_5_3]);

```

Magnetometers

```

mag_x_5_3 = data_table_mag_5_3(:, 2);
mag_y_5_3 = data_table_mag_5_3(:, 3);
mag_z_5_3 = data_table_mag_5_3(:, 4);

mu_mag_x_5_3 = mean(mag_x_5_3);
sig2_mag_x_5_3 = var(mag_x_5_3);

mu_mag_y_5_3 = mean(mag_y_5_3);
sig2_mag_y_5_3 = var(mag_y_5_3);

mu_mag_z_5_3 = mean(mag_z_5_3);
sig2_mag_z_5_3 = var(mag_z_5_3);

mu_mag_5_3      = [mu_mag_x_5_3; mu_mag_y_5_3; mu_mag_z_5_3];
bias_mag_5_3     = [mu_mag_x_5_3; mu_mag_y_5_3; mu_mag_z_5_3] -
                  [0;19.729;-47.6421] ;% muT

```

```
var_mag_5_3 = diag([sig2_mag_x_5_3 sig2_mag_y_5_3 sig2_mag_z_5_3]);

xlswrite('Data.xls',[mu_acc_5_3 tru_acc_5 bias_acc_5_3
    var_acc_5_3],'sheet1','E70');
xlswrite('Data.xls',[mu_gyro_5_3 tru_gyro_5 bias_gyro_5_3
    var_gyro_5_3],'sheet2','E70');
xlswrite('Data.xls',[mu_mag_5_3 tru_mag_5 bias_mag_5_3
    var_mag_5_3],'sheet3','E70');
```

OPEN TABLES

```
data_table_acc_5_4 = readtable('Accelerometer_5_4.csv');
data_table_gyro_5_4 = readtable('Gyroscope_5_4.csv');
data_table_mag_5_4 = readtable('Magnetometer_5_4.csv');
```

```
g = 9.80328;
tru_acc_5 = [0;0;g];
tru_gyro_5 = [0;0;0];
tru_mag_5 = [0;19.729;-47.6421];
```

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Warning: Column headers from the file were modified to make them valid MATLAB identifiers before creating variable names for the table. The original column headers are saved in the VariableDescriptions property.

Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_5_4 = data_table_acc_5_4{:,2};
acc_y_5_4 = data_table_acc_5_4{:,3};
```

```

acc_z_5_4    = data_table_acc_5_4{:,4};

mu_acc_x_5_4 = mean(acc_x_5_4);
sig2_acc_x_5_4 = var(acc_x_5_4);

mu_acc_y_5_4 = mean(acc_y_5_4);
sig2_acc_y_5_4 = var(acc_y_5_4);

mu_acc_z_5_4 = mean(acc_z_5_4);
sig2_acc_z_5_4 = var(acc_z_5_4);

mu_acc_5_4    = [mu_acc_x_5_4; mu_acc_y_5_4; mu_acc_z_5_4];
bias_acc_5_4   = [mu_acc_x_5_4; mu_acc_y_5_4; mu_acc_z_5_4] - [0;0;g]
               ;% m/s/s
var_acc_5_4    = diag([sig2_acc_x_5_4 sig2_acc_y_5_4 sig2_acc_z_5_4]);

```

Gyroscopes

```

gyro_x_5_4 = data_table_gyro_5_4{:, 2};
gyro_y_5_4 = data_table_gyro_5_4{:, 3};
gyro_z_5_4 = data_table_gyro_5_4{:, 4};

mu_gyro_x_5_4 = mean(gyro_x_5_4);
sig2_gyro_x_5_4 = var(gyro_x_5_4);

mu_gyro_y_5_4 = mean(gyro_y_5_4);
sig2_gyro_y_5_4 = var(gyro_y_5_4);

mu_gyro_z_5_4 = mean(gyro_z_5_4);
sig2_gyro_z_5_4 = var(gyro_z_5_4);

mu_gyro_5_4    = [mu_gyro_x_5_4; mu_gyro_y_5_4; mu_gyro_z_5_4];
bias_gyro_5_4   = -[mu_gyro_x_5_4; mu_gyro_y_5_4; mu_gyro_z_5_4] ;%
               rad/s
var_gyro_5_4    = diag([sig2_gyro_x_5_4 sig2_gyro_y_5_4
               sig2_gyro_z_5_4]);

```

Magnetometers

```

mag_x_5_4 = data_table_mag_5_4{:, 2};
mag_y_5_4 = data_table_mag_5_4{:, 3};
mag_z_5_4 = data_table_mag_5_4{:, 4};

mu_mag_x_5_4 = mean(mag_x_5_4);
sig2_mag_x_5_4 = var(mag_x_5_4);

mu_mag_y_5_4 = mean(mag_y_5_4);
sig2_mag_y_5_4 = var(mag_y_5_4);

mu_mag_z_5_4 = mean(mag_z_5_4);
sig2_mag_z_5_4 = var(mag_z_5_4);

```

```

mu_mag_5_4      = [mu_mag_x_5_4;mu_mag_y_5_4;mu_mag_z_5_4];
bias_mag_5_4 = [mu_mag_x_5_4;mu_mag_y_5_4;mu_mag_z_5_4] -
    [0;19.729;-47.6421] ;% muT
var_mag_5_4  = diag([sig2_mag_x_5_4 sig2_mag_y_5_4 sig2_mag_z_5_4]);

xlswrite('Data.xls',[mu_acc_5_4 tru_acc_5 bias_acc_5_4
    var_acc_5_4],'sheet1','E73');
xlswrite('Data.xls',[mu_gyro_5_4 tru_gyro_5 bias_gyro_5_4
    var_gyro_5_4],'sheet2','E73');
xlswrite('Data.xls',[mu_mag_5_4 tru_mag_5 bias_mag_5_4
    var_mag_5_4],'sheet3','E73');

```

OPEN TABLES

```

data_table_acc_5_5 = readtable('Accelerometer_5_5.csv');
data_table_gyro_5_5 = readtable('Gyroscope_5_5.csv');
data_table_mag_5_5 = readtable('Magnetometer_5_5.csv');

```

```

g = 9.80328;
tru_acc_5 = [0;0;g];
tru_gyro_5 = [0;0;0];
tru_mag_5 = [0;19.729;-47.6421];

```

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Set 'PreserveVariableNames' to true to use the original column headers as table variable names.

Accelerometers

```
acc_x_5_5 = data_table_acc_5_5{:,2};
acc_y_5_5 = data_table_acc_5_5{:,3};
acc_z_5_5 = data_table_acc_5_5{:,4};

mu_acc_x_5_5 = mean(acc_x_5_5);
sig2_acc_x_5_5 = var(acc_x_5_5);

mu_acc_y_5_5 = mean(acc_y_5_5);
sig2_acc_y_5_5 = var(acc_y_5_5);

mu_acc_z_5_5 = mean(acc_z_5_5);
sig2_acc_z_5_5 = var(acc_z_5_5);

mu_acc_5_5 = [mu_acc_x_5_5; mu_acc_y_5_5; mu_acc_z_5_5];
bias_acc_5_5 = [mu_acc_x_5_5; mu_acc_y_5_5; mu_acc_z_5_5] - [0;0;g]
               ;% m/s/s
var_acc_5_5 = diag([sig2_acc_x_5_5 sig2_acc_y_5_5 sig2_acc_z_5_5]);
```

Gyroscopes

```
gyro_x_5_5 = data_table_gyro_5_5{:, 2};
gyro_y_5_5 = data_table_gyro_5_5{:, 3};
gyro_z_5_5 = data_table_gyro_5_5{:, 4};

mu_gyro_x_5_5 = mean(gyro_x_5_5);
sig2_gyro_x_5_5 = var(gyro_x_5_5);

mu_gyro_y_5_5 = mean(gyro_y_5_5);
sig2_gyro_y_5_5 = var(gyro_y_5_5);

mu_gyro_z_5_5 = mean(gyro_z_5_5);
sig2_gyro_z_5_5 = var(gyro_z_5_5);

mu_gyro_5_5 = [mu_gyro_x_5_5; mu_gyro_y_5_5; mu_gyro_z_5_5];
bias_gyro_5_5 = -[mu_gyro_x_5_5; mu_gyro_y_5_5; mu_gyro_z_5_5] ;%
                 rad/s
var_gyro_5_5 = diag([sig2_gyro_x_5_5 sig2_gyro_y_5_5
                    sig2_gyro_z_5_5]);
```

Magnetometers

```
mag_x_5_5 = data_table_mag_5_5{:, 2};
mag_y_5_5 = data_table_mag_5_5{:, 3};
mag_z_5_5 = data_table_mag_5_5{:, 4};

mu_mag_x_5_5 = mean(mag_x_5_5);
sig2_mag_x_5_5 = var(mag_x_5_5);

mu_mag_y_5_5 = mean(mag_y_5_5);
```

```

sig2_mag_y_5_5 = var(mag_y_5_5);

mu_mag_z_5_5 = mean(mag_z_5_5);
sig2_mag_z_5_5 = var(mag_z_5_5);

mu_mag_5_5      = [mu_mag_x_5_5;mu_mag_y_5_5;mu_mag_z_5_5];
bias_mag_5_5 = [mu_mag_x_5_5;mu_mag_y_5_5;mu_mag_z_5_5] -
    [0;19.729;-47.6421] ;% muT
var_mag_5_5 = diag([sig2_mag_x_5_5 sig2_mag_y_5_5 sig2_mag_z_5_5]);

xlswrite('Data.xls',[mu_acc_5_5 tru_acc_5 bias_acc_5_5
    var_acc_5_5],'sheet1','E76');
xlswrite('Data.xls',[mu_gyro_5_5 tru_gyro_5 bias_gyro_5_5
    var_gyro_5_5],'sheet2','E76');
xlswrite('Data.xls',[mu_mag_5_5 tru_mag_5 bias_mag_5_5
    var_mag_5_5],'sheet3','E76');
clc

```

PLOTS

```

figure(1)
sgtitle('Case 1 Set 2 Accelerometer')

subplot(311)
plot(data_table_acc_1_2{:,1},acc_x_1_2,'Linewidth',2)
xlabel('time(s)');ylabel('Accel (m/s/s)'); title('X-Accel')
hold on

subplot(312)
plot(data_table_acc_1_2{:,1},acc_y_1_2,'Linewidth',2)
xlabel('time(s)');ylabel('Accel (m/s/s)'); title('Y-Accel')
hold on

subplot(313)
plot(data_table_acc_1_2{:,1},acc_z_1_2,'Linewidth',2)
xlabel('time(s)');ylabel('Accel (m/s/s)'); title('Z-Accel')
hold off

figure(2)
sgtitle('Case 1 Set 3 Gyroscope')

subplot(311)
plot(data_table_gyro_1_3{:,1},gyro_x_1_3,'Linewidth',2)
xlabel('time(s)');ylabel('rad/s'); title('X-Axis')
hold on

subplot(312)
plot(data_table_gyro_1_3{:,1},gyro_y_1_3,'Linewidth',2)
xlabel('time(s)');ylabel('rad/s'); title('Y-Axis')
hold on

subplot(313)

```

```

plot(data_table_gyro_1_3{:,1},gyro_z_1_3,'Linewidth',2)
xlabel('time(s)');ylabel('rad/s'); title('Z-Axis')
hold off

figure(3)
sgtitle('Case 1 Set 3 Magnetometer')

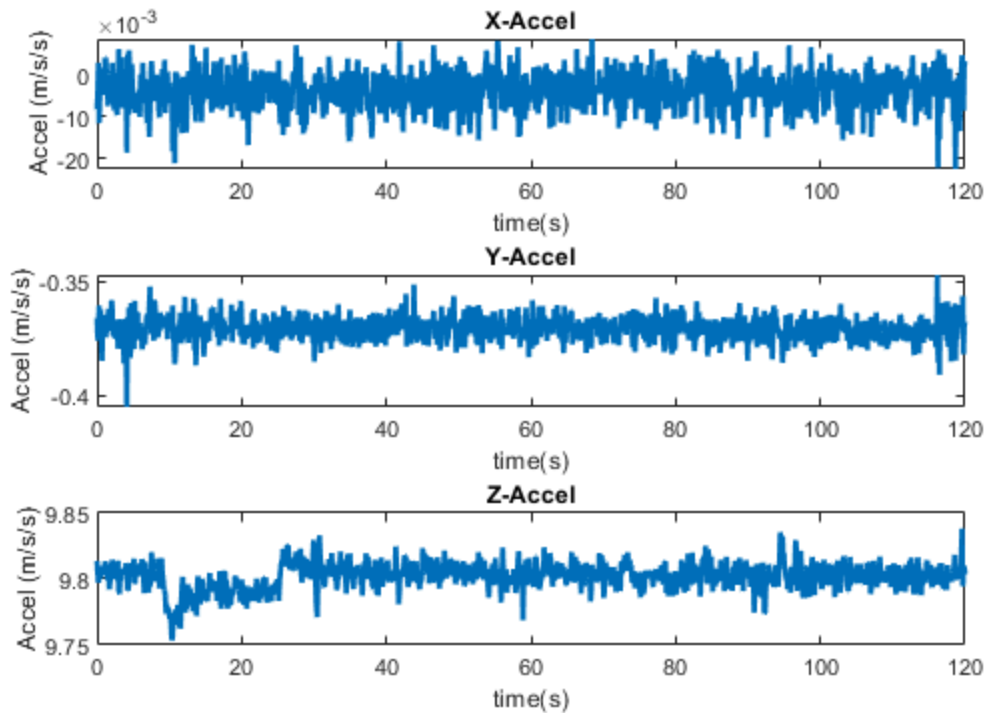
subplot(311)
plot(data_table_mag_1_3{:,1},mag_x_1_3,'Linewidth',2)
xlabel('time(s)');ylabel('micro Teslas'); title('X-Axis')
hold on

subplot(312)
plot(data_table_mag_1_3{:,1},mag_y_1_3,'Linewidth',2)
xlabel('time(s)');ylabel('micro Teslas'); title('Y-Axis')
hold on

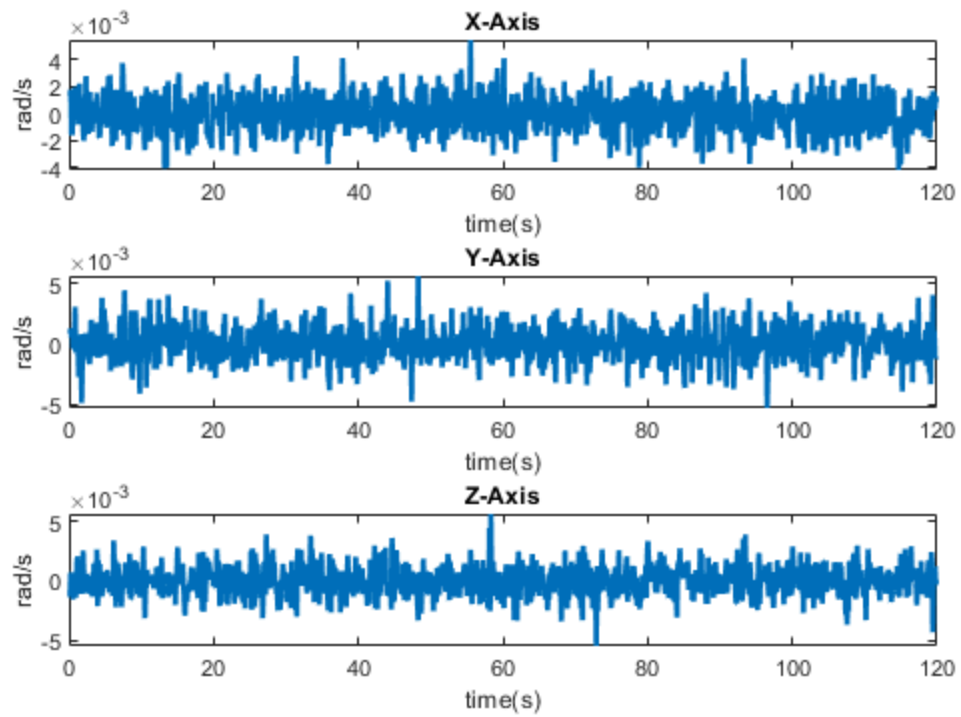
subplot(313)
plot(data_table_mag_1_3{:,1},mag_z_1_3,'Linewidth',2)
xlabel('time(s)');ylabel('micro Teslas'); title('Z-Axis')
hold off

```

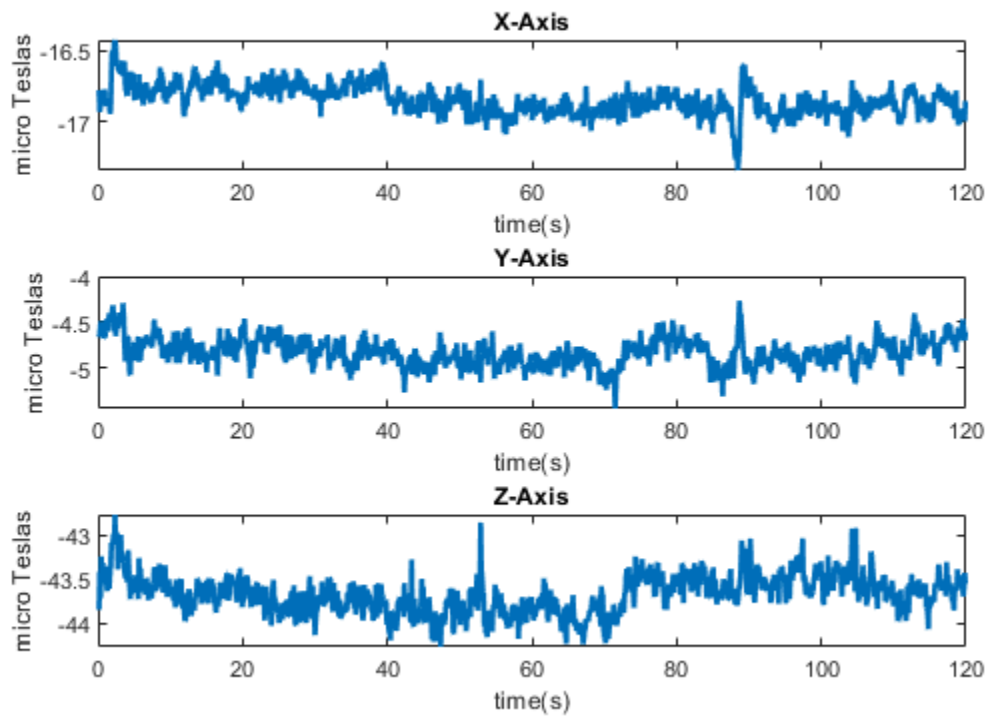
Case 1 Set 2 Accelerometer



Case 1 Set 3 Gyroscope



Case 1 Set 3 Magnetometer



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