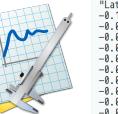
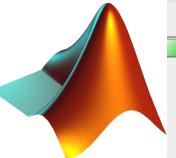
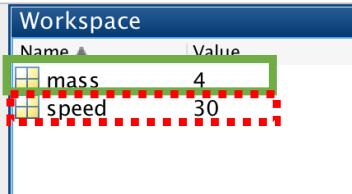
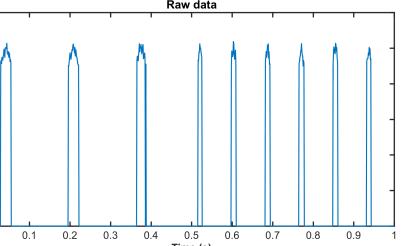
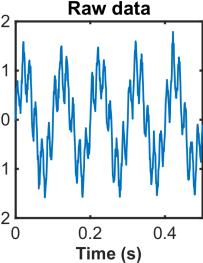
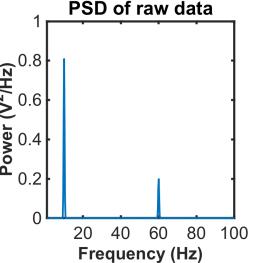
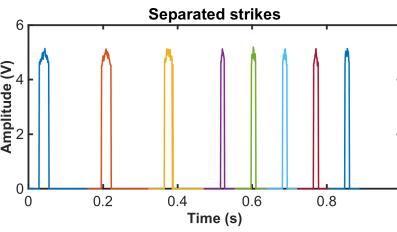
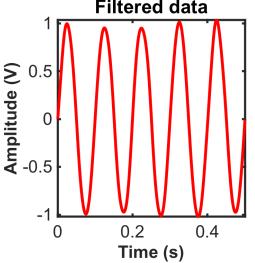
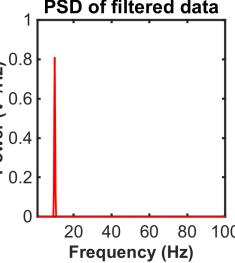
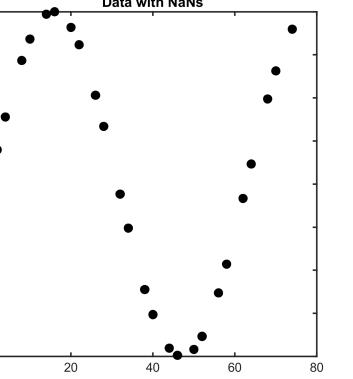
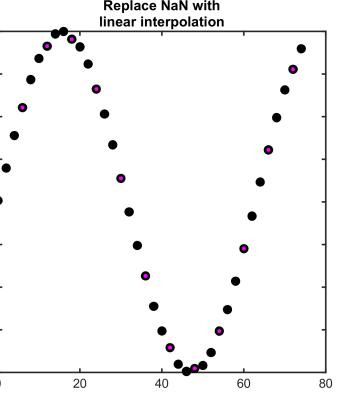
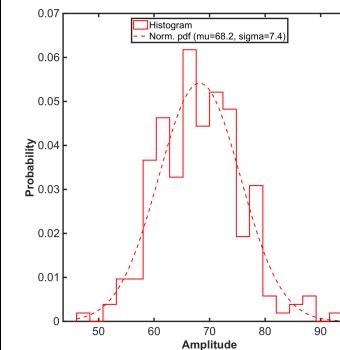


MATLAB Wiki Section/ Script function examples	Input/Starting point	Output/Destination
<p>Reading data files</p> <ul style="list-style-type: none"> • CSV file to variables • Read several data files automatically • Extract data from filename 	  <pre>"Latest: Time (s)", "Latest: Current Monitor (V)", "Latest: -0.1, 0, 0.0335693359375, -0.0179919437595, 0, 0.0152587890625, -0.09, -0.00152587890625, -3, 16558210089, 0, 0.0152587890625, -0.05, 0, 0.0335693359375, -1, 16558210089, 0, 0.0152587890625, -0.08, 0, 0.0335693359375, 1, 16558210089, 0, 0.0152587890625, -0.06, 0, 0.0335693359375, 0, 0.692698934395, 0, 0.0152587890625, -0.05, -0.00152587890625, 0.098568934484, -0.00152587890625, -0.05, 0, 0.0335693359375, 0, 0.692698934395, 0, 0.0152587890625, -0.04, -0.00152587890625, -1, 73622257193, 0, 0.0152587890625, -0.07, 0, 0.0335693359375, 0, 0.8366253844, -0.00152587890625, -0.02, 0, 0.0335693359375, 0, 0.8366253844, 0, 0.0152587890625, 0.584144242416, 0, 177917488469, 1, 7082388443, 3, 28468101, 0.82, 0, 177917488469, 2, 265984012573, 3, 28948974689, 0.03, 0, 177917488469, 4, 41381470862, 3, 27977412109, 0.04, 0, 182880292969, 9, 2748470834, 3, 27972412109, 0.05, 0, 177917488469, 11, 41580313897, 3, 27972412109, 0.06, 0, 177917488469, 13, 41580313897, 3, 27972412109, 0.07, 0, 177917488469, 8, 27629412524, 3, 27972412109, 0.08, 0, 187683105469, 14, 276607366, 3, 27972412109, 0.09, 0, 177917488469, 19, 9988454787, 3, 27484138859</pre> <p>Test_4kg_30rpm.csv</p>	 
<p>Pre-processing data</p> <ul style="list-style-type: none"> • Breakdown a stream of data into smaller segments • Filter out noise • Handle blanks in the data 	     	 

Statistics

- Mean, standard deviation, histogram
- Uncertainty (confidence intervals)
- Hypothesized mean difference

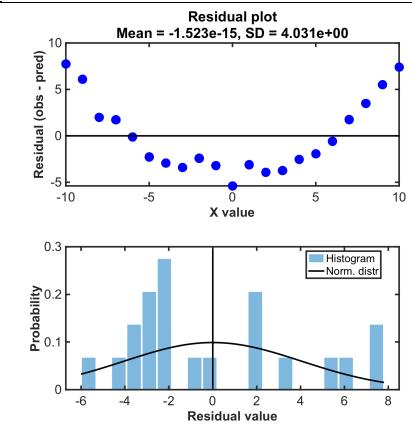
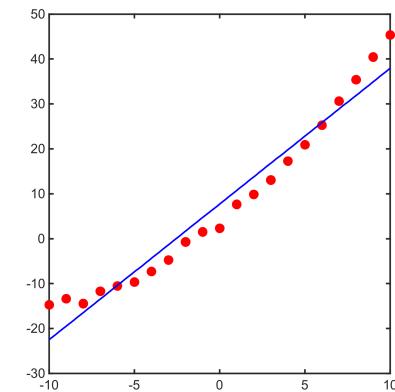
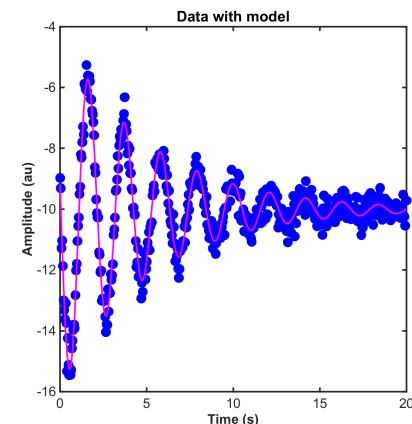
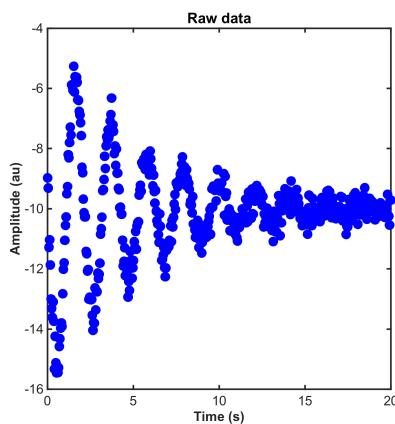
Editor - hist_ex.m	
y	x
216x1 double	
1	71.8099
2	80.7538
3	52.5140
4	74.0490
5	70.2995
6	59.0770
7	65.1082
8	70.4641
9	92.7909
10	87.2091
11	58.7858
12	89.0410



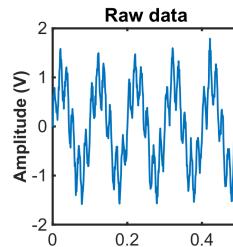
$$\begin{aligned} & \mu, \sigma \\ & a \pm u_a \end{aligned}$$

Curve fitting

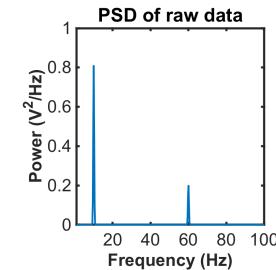
- Line, sine, exponential, damped sine, sigmoidal, arbitrary curve fit
- Plotting residuals from curve fit



Bode plots, PSD and FFT



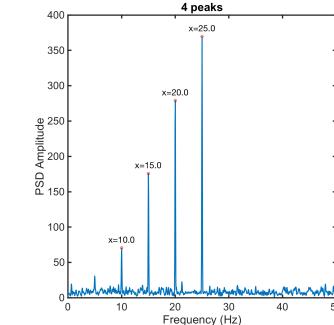
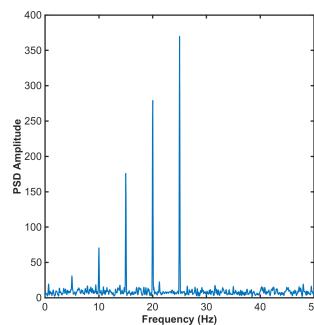
Time domain



Frequency domain

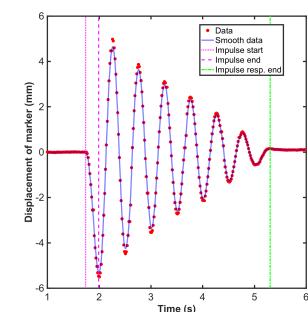
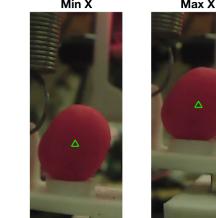
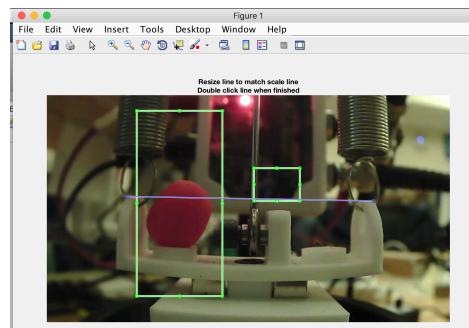
Other topics

- Finding peaks



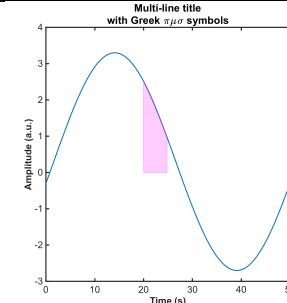
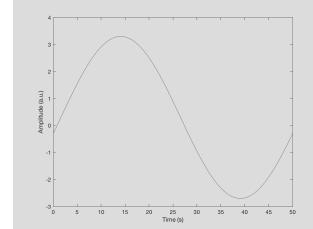
Other topics

- Video analysis
- GUI elements



Plots and Graphs

- `improvePlot`
- Saving figures automatically
- Shading area
- Multi-line titles or axes



Please contact Dr. Kevin Cedrone (kcedrone@mit.edu) for help to write a new MATLAB script, or adapt something from MATLAB wiki for your 2.671 project.

