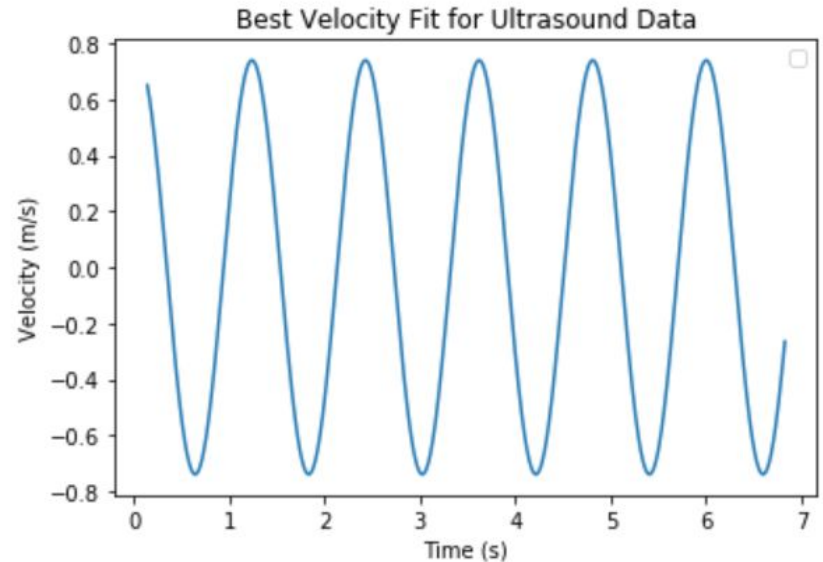
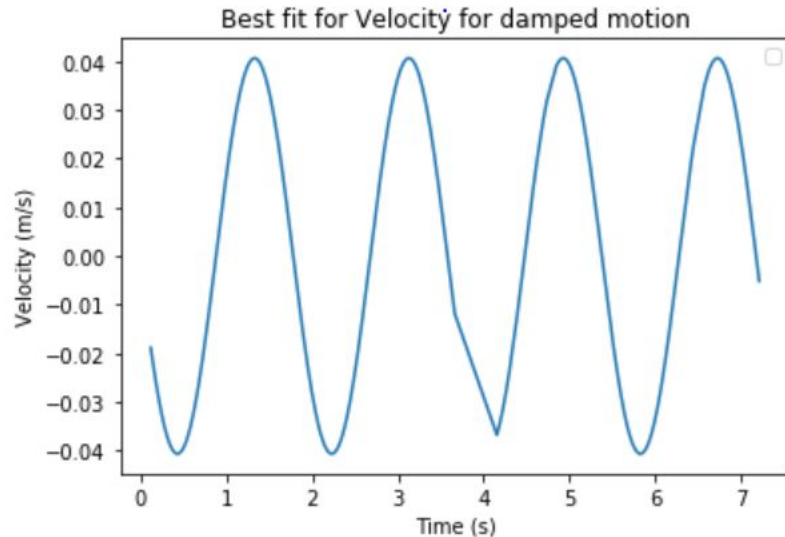


Phy 4AL 3D Pre-lab

Ethan Wong

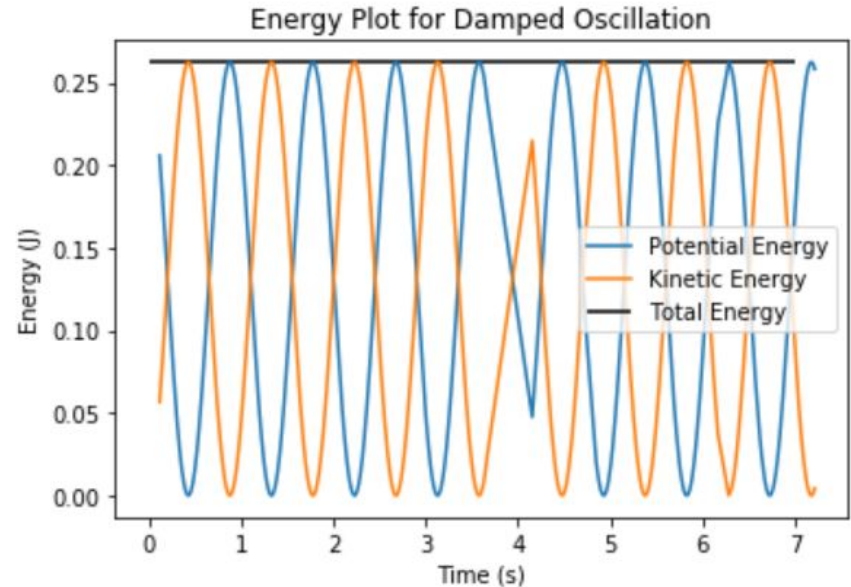
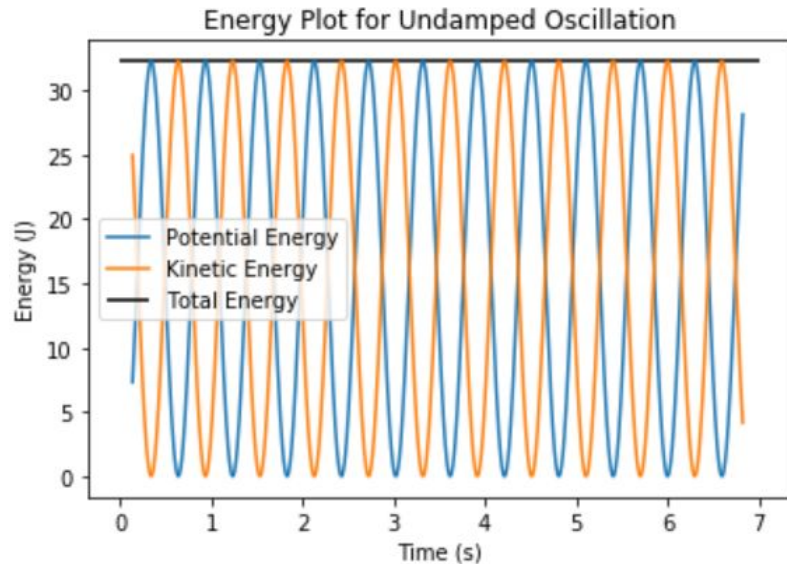
Velocity plots from 3A and 3C

You found the best fit functions for one ultrasound dataset in both 3A and 3C. This represents $x(t)$ which can be differentiated with respect to time to obtain velocity $v(t)$ (You know all the important parameters from your fit). Plot the velocities here.



Energy plots from 3A and 3C

Use the $x(t)$ and $v(t)$ to obtain Kinetic energy and Potential energy for the two datasets. Plot KE, PE and Total energy on the same plot for (i) 3A dataset and (ii) 3C dataset.



Find Q factor (for 3C dataset)

$$Q = \frac{\omega_0}{2\alpha}$$

$$\underline{Q = .639}$$

$$\omega_0 = \sqrt{\frac{k}{m}}$$

$$x(t) = Ae^{-\alpha t} \sin(\omega t + \phi)$$