CSE291E Assigment 0

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1 Description

This assignment simulates the pendulum motion. According to the pendulum equation

$$m\ddot{\theta} = -mgsin\theta$$

and its second-order discretization

$$\frac{\theta_{i-1} - 2\theta + \theta_{i+1}}{\Delta t^2} = -sin\theta_i$$

we can get the function of θ with respect to t

$$\theta_2 = 2\theta_1 - \theta_0 + \Delta t^2 * -sin\theta_1$$

2 Result

The "single_pendulum" and the "pendulum" are basically copied from the demo in the lecture. The pendulum_wave is using uses the laws of simple pendulum motion to create a "pendulum wave apparatus" (according to the equation $L(n) = g[\frac{T_{max}}{2\pi(k+n+1)}]^2$). However, the latter one is built on the vellum solver.