Dynamics User Documentation

April 22, 2019

Introduction

Motivation

This code is aiming for solving nonliner dynamic problems using numerical method, which is inspired by a book, "Nonliner Dynamics and Chaos" by Steven H. Strogatz. This repository provides a tool to understand nonlinear model visually, which allows users to have a greater understanding of nonlinear dynamics.

User side code

The user side codes consist of the following:

dof: The degree of freedom of the nonlinear model.

time step: The numerical increment of the nonlinear model.

reference point: The reference position of model.

Requirement

Dynamics utilises:

1. **numpy** and **scipy** for numerical calculation and operation.
2. **pyqt5**, **pyqtgraph** and **PyOpenGL** for visualisation of the data.

Framework

Dynamics consists of four major components, **Problem**, **DynamicModel**, **Component** & **Solver**.

Problem

is

Dynamic Model

amazing

Component

and

Solver

stupid

Pendulum

Double pendulum