My IEEE Jupyter Paper

John DoeUniversity of Jupyland

July 4, 2020

***Abstract*—Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.**

I. Introduction

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua [1]. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat [2]–[4]. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

To illustrate how code, equations and figures are included in the notebook, I include a simple technical section (section II) below.

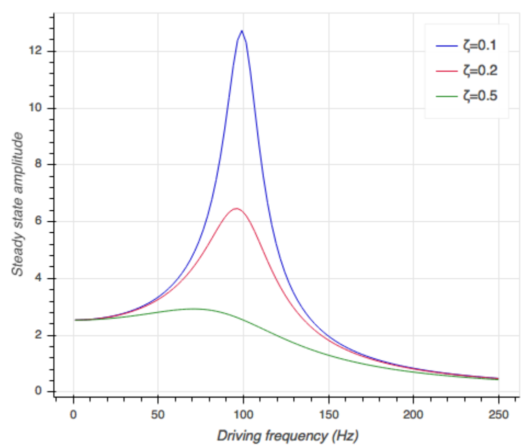
II. Illustrative Example

For the purposes of illustration, consider a damped harmonic oscillator driven by a sinusoidal signal:

$$\frac{\mathrm{d}^2x}{\mathrm{d}t^2} + 2\zeta\omega_0\frac{\mathrm{d}x}{\mathrm{d}t} + \omega_0^2 x = A\sin(\omega t), \tag{1}$$

where $x(t)$ is the quantity of interest, ζ is the damping constant, ω_0 is the undamped resonant frequency, and $A\sin(\omega t)$ is the driving sinusoidal signal. The steady state solution to (1) is given by:

$$\begin{aligned} x(t) &= \frac{A}{Z_m\omega}\sin(\omega t + \phi), \qquad (2)\\ Z_m &= \sqrt{(2\omega_0\zeta)^2 + \frac{(\omega^2-\omega_0^2)^2}{\omega^2}},\\ \phi &= \arctan\left(\frac{2\omega\omega_0\zeta}{\omega^2-\omega_0^2}\right). \end{aligned}$$



In Figure 1 we plot the steady state amplitude of a 100 Hz oscillator as a function of driving frequency. We see that the oscillator exhibits a strong resonance for small values of ζ, and that the resonance frequency is slightly lower than the driving frequency of 100 Hz.

Algorithm 1 Calculate $y = x^n + z^m$

Require: $n \geq 0 \vee x \neq 0 \vee z \geq 0 \vee m \neq 0$
Ensure: $y = x^n + z^m$
  $y \leftarrow 1$
  if $n < 0$ **then**
    $N \leftarrow -n$
  else
    $N \leftarrow n$
  end if

III. Conclusions

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

The steady state solution to Eq.~(1).

References

[1] Peter Adams. The title of the work. *The name of the journal*, 4(2):201–213, 7 1993. An optional note.

[2] Peter Babington. *The title of the work*, volume 4 of *10*. The name of the publisher, The address, 3 edition, 7 1993. An optional note.

[3] Peter Caxton. The title of the work. How it was published, The address of the publisher, 7 1993. An optional note.

[4] Peter Draper. The title of the work. In The editor, editor, *The title of the book*, volume 4 of *5*, page 213, The address of the publisher, 7 1993. The organization, The publisher. An optional note.