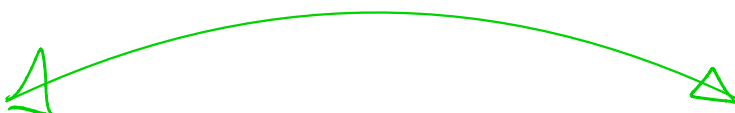


Einfelder pendell:

$g = 9.81 \text{ m/s}^2$ $\Theta(0), \dot{\Theta}(0)$ can given
g.r.f. at $\sin(\theta) \approx \theta$ f. $|t|$ horn



1. $\frac{d^2 \Theta}{dt^2} + \frac{g}{L} \sin(\Theta) = 0 \rightarrow \ddot{\Theta} + \frac{g}{L} \sin(\Theta) = 0$

$$\bar{\Theta} = \begin{pmatrix} \Theta \\ \dot{\Theta} \end{pmatrix} \quad \bar{\Theta}' = \begin{pmatrix} \dot{\Theta} \\ \ddot{\Theta} \end{pmatrix}$$

$$\ddot{\Theta} + \frac{g}{L} \cdot \sin(\Theta) = 0 \rightarrow \Theta = \sin^{-1}\left(\frac{-\ddot{\Theta}}{g} \cdot L\right)$$
$$\rightarrow \ddot{\Theta} = -\frac{g}{L} \cdot \sin(\Theta)$$

$$\bar{F}(t, \bar{\Theta}) = \begin{pmatrix} \Theta \\ \ddot{\Theta} \end{pmatrix} = \begin{pmatrix} \dot{\Theta}(t) \\ -\frac{g}{L} \cdot \sin(\Theta) \end{pmatrix} \Rightarrow \mathbb{R}^2 = \mathbb{Z}$$

$$z_1 = \Theta(1)$$

$$z_2 = -\frac{g}{L} \cdot \sin(\Theta(0))$$

$$\bar{\theta}(t) = \bar{\theta}(t-1) + h \bar{f}(t-1, \theta)$$

$$\begin{pmatrix} \theta(t) \\ \dot{\theta}(t) \end{pmatrix} = \begin{pmatrix} \theta(t-1) \\ \dot{\theta}(t-1) \end{pmatrix} + h \begin{pmatrix} \dot{\theta}(t-1) \\ (-g/L) \cdot \sin(\theta(t-1)) \end{pmatrix}$$