$$x = \begin{bmatrix} x_{P_L} \\ x_{P_R} \\ x_{A_L} \\ x_{A_R} \end{bmatrix} \in [0,1]^4$$

nonlinear dynamics:

$$\tau \frac{\partial u}{\partial t} = -u + Wx + I + \sigma \partial B$$

$$x_i(t) = \frac{1}{2} \tanh\left(\frac{u_i(t) - \theta}{\beta}\right) + \frac{1}{2}$$

$$\theta = 0.05, \beta = 0.5$$