$$\epsilon_1 = |x - z|$$

$$\tau_1 \frac{du}{dt} = -u + \Pi_1 \epsilon_1 + w_u$$

$$\epsilon_2 = u(t - \tau_2)$$

$$\tau_3 \frac{dv}{dt} = -v + \Pi_2 \epsilon_2 + \Pi_3 z + w_v$$

$$\tau_4 \frac{dz}{dt} = -z + x(t - \tau_5) + w_z$$

$$\int z dt = Z_{threshold}, \text{then reset z to 0}$$

$$w \sim N(0, 0.001)$$

u: proxy of Predicting Error: driven by (sensory_input - pain_percept)

v: proxy of Prediction: driven by u, z