

S3 Text: Simulation parameters.

All code used to create figures in this manuscript is available at <https://github.com/joncannon/PIPPET>.

PIPPET simulations were conducted by numerical simulation of (3) with $dt = .001$ and initialized with $\phi_0 = 0$ and $V_0 = .0002$. Parameters for the simulations shown in each figure are listed below, with t_n used to denote simulated event times (in units of seconds).

Fig 2: $\phi_1 = .5$, $v_1 = .0005$, $\lambda_1 = 1$, $\mu_t = .43$, $V_t = .001$, $\lambda_0 = 0$ or $.5$, except as otherwise specified.

Fig 3A:

$$\{t_n\} = \{0, .150, .5, .75, .9, 1.25\}$$

$$\{\phi_i\} = \{0, .15, .25, .4, .5, .65, .75, .9, 1, 1.15, 1.25, 1.4\}$$

$$\{v_i\} = \{.0001, .0005, .0001, .0005, .0001, .0005, .0001, .0005, .0001, .0005\}$$

$$\{\lambda_i\} = \{.05, .01, .05, .01, .05, .01, .05, .01, .05, .01\}$$

$$\lambda_0 = .01$$

$$\sigma = .05$$

Fig 3B: Same as Fig 3A, but with $t_3 = .45$ (50 ms negative event time shift).

Fig 3C: Same as Fig 3A, but with $\{t_n\} = \{0, .15, .5, .7, .85, 1.2\}$ (50 ms negative phase shift).

Fig 4A: Same as Fig 3, but with $\{t_n\} = \{0, .150, .65, .9, 1.15, 1.25\}$.

Fig 4B: Same as Fig 4A, but with $\sigma = .3$.

Fig 4C: Same as Fig 4A, but with additional tap times and tap feedback expectations:

$$\{t_n^{tap}\} = \{\phi_i^{tap}\} = \{0, .5, 1\}$$

$$v_i^{tap} = .0005$$

$$\lambda_i^{tap} = .05$$

$$\lambda_0^{tap} = .01$$

PATIPPET simulations were conducted by numerical simulation of (4) with $dt = .001$. Parameters for the simulations shown in each figure are listed below.

Fig 5:

$$t_n = \frac{n}{1.2Hz}$$

$$\phi_i = i$$

$$v_i = .005$$

$$\lambda_i = .02$$

$$\lambda_0 = .0001$$

$$\sigma = .05$$

$$\sigma_\theta = .05$$

$$\boldsymbol{\mu}_0 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$\mathbf{V}_0 = \begin{pmatrix} .001 & 0 \\ 0 & .04 \end{pmatrix}$$

Fig 6: In four simulations, we set the inter-onset interval Δ to .4s, 0.7s, 1.0s, and 1.3s. In each simulation, we set the perturbation δ to $\frac{\Delta}{25}$.

$$\{t_n\} = \{\Delta, 2\Delta, 3\Delta, 4\Delta + \delta\}$$

$$\phi_i = i$$

$$v_i = .0002$$

$$\lambda_i = .02$$

$$\lambda_0 = 10^{-5}$$

$$\sigma = .01$$

$$\sigma_\theta = .01$$

$$\boldsymbol{\mu}_0 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$\mathbf{V}_0 = \begin{pmatrix} 10^{-4} & 0 \\ 0 & 10^{-4} \end{pmatrix}$$

Fig 7A:

$$\phi_i = .25i$$

$$v_i = .0001$$

$$\lambda_i = 1$$

$$\lambda_0 = .0001$$

$$\sigma = .015$$

$$\sigma_\theta = .2$$

$$\boldsymbol{\mu}_0 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$\mathbf{V}_0 = \begin{pmatrix} .0001 & 0 \\ 0 & .005 \end{pmatrix}$$

955 Left: $\{t_n\} = \{.25, .5, .75, 1\}$. Right: $\{t_n\} = \{1\}$.

956 **Fig 7B:** Same as Fig 7A, but with $\lambda_i = 0$ and $\lambda_0 = 4$.