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:**

\[
\{t_n\} = \{0, .15, .5, .75, .9, 1.25\}
\]
\[
\{\phi_i\} = \{0, .15, .25, .4, .5, .65, .75, .9, 1, 1.15, 1.25, 1.4\}
\]
\[
\{v_i\} = \{.0001, .0005, .0001, .0005, .0001, .0005, .0001, .0005, .0001, .0005\}
\]
\[
\{\lambda_i\} = \{.05, .01, .05, .01, .05, .01, .05, .01, .05, .01\}
\]
\[
\lambda_0 = .01
\]
\[
\sigma = .05
\]

**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:

\[
\{t_{tap}\} = \{\phi_{tap}\} = \{0, .5, 1\}
\]
\[
v_{i,tap} = .0005
\]
\[
\lambda_{i,tap} = .05
\]
\[
\lambda_{0,tap} = .01
\]

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:

\[ t_n = \frac{n}{1.2Hz} \]
\[ \phi_i = i \]
\[ v_i = .005 \]
\[ \lambda_i = .02 \]
\[ \lambda_0 = .0001 \]
\[ \sigma = .05 \]
\[ \sigma_\theta = .05 \]
\[ \mu_0 = \begin{pmatrix} 0 \\ 1 \end{pmatrix} \]
\[ V_0 = \begin{pmatrix} .001 & 0 \\ 0 & .04 \end{pmatrix} \]

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

\[ \{ t_n \} = \{ \Delta, 2\Delta, 3\Delta, 4\Delta + \delta \} \]
\[ \phi_i = i \]
\[ v_i = .0002 \]
\[ \lambda_i = .02 \]
\[ \lambda_0 = 10^{-5} \]
\[ \sigma = .01 \]
\[ \sigma_\theta = .01 \]
\[ \mu_0 = \begin{pmatrix} 0 \\ 1 \end{pmatrix} \]
\[ V_0 = \begin{pmatrix} 10^{-4} & 0 \\ 0 & 10^{-4} \end{pmatrix} \]
Fig 7A:

\[ \phi_i = 0.25i \]
\[ v_i = 0.0001 \]
\[ \lambda_i = 1 \]
\[ \lambda_0 = 0.0001 \]
\[ \sigma = 0.015 \]
\[ \sigma_0 = 0.2 \]
\[ \mu_0 = \begin{pmatrix} 0 \\ 1 \end{pmatrix} \]
\[ V_0 = \begin{pmatrix} 0.0001 & 0 \\ 0 & 0.005 \end{pmatrix} \]

Left: \( \{t_n\} = \{0.25, 0.5, 0.75, 1\} \). Right: \( \{t_n\} = \{1\} \).

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