Model: 4-neuron V1 circuit

$$\tau \frac{dr}{dt} = -r + [Wr + h]_+^n \quad h = b + g_{RUN} h_{RUN}$$

$$g_{RUN} \in [0, 1]$$

$$r = \begin{bmatrix} r_E \\ r_P \\ r_S \\ r_V \end{bmatrix} \quad W = \begin{bmatrix} W_{EE} & -1.0 & -0.54 & 0 \\ W_{PE} & -1.01 & -0.33 & 0 \\ W_{SE} & 0 & 0 & -0.15 \\ W_{VE} & -0.22 & -0.77 & 0 \end{bmatrix}$$

Behavior: E,P,V - inc.   S - same

$$d_{\alpha,ss} = \lim_{t \to \infty} r_\alpha(t, g_{RUN} = 1) - r_\alpha(t, g_{RUN} = 0)$$

$$E \begin{bmatrix} d_{E,ss} \\ d_{P,ss} \\ d_{S,ss} \\ d_{V,ss} \end{bmatrix} = \begin{bmatrix} 0.15 \\ 0.5 \\ 0.0 \\ 2.0 \end{bmatrix} \quad Var \left(\begin{bmatrix} d_{E,ss} \\ d_{P,ss} \\ d_{S,ss} \\ d_{V,ss} \end{bmatrix} \right) = \begin{bmatrix} 0.01 \\ 0.01 \\ 0.01 \\ 0.25 \end{bmatrix}$$

DSN:

$$z = \begin{bmatrix} b_E \\ b_P \\ b_S \\ b_V \\ h_{RUN,E} \\ h_{RUN,P} \\ h_{RUN,S} \\ h_{RUN,V} \end{bmatrix}$$