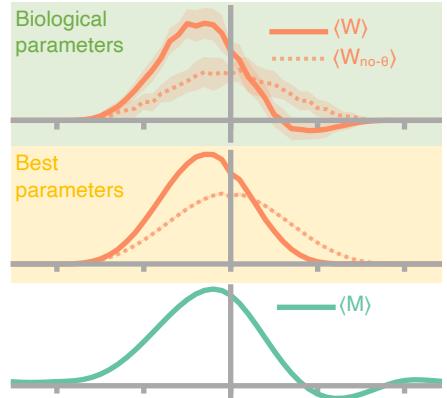
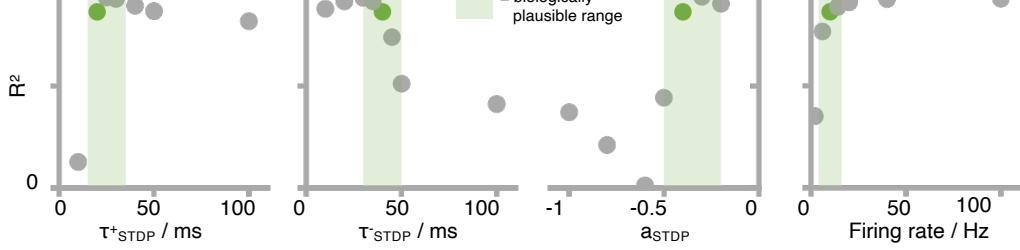


a

| | Simulation parameters | Sweep range | Top 3 sweep optima* | | | Biological parameters† | |
|--------------------------|-----------------------|--|---------------------|---------------|---------------|------------------------|---------------|
| | | | #1 | #2 | #3 | | |
| | STDP | $\tau_{\text{STDP}}^+ / \text{ms}$ | [10→100] | 20 | 10 | 40 | 20‡ |
| | | $\tau_{\text{STDP}}^- / \text{ms}$ | [10→100] | 45 | 40 | 100 | 40‡ |
| | | a_{STDP} | [0.1→1.0] | -0.3 | -0.2 | -0.3 | -0.4‡ |
| | | firing rate / Hz | [1→50] | 50 | 50 | 50 | 5§ |
| | θ | precess fraction, f | no sweep | | 0.5¶ | | |
| | | κ | no sweep | | 1¶ | | |
| | | θ -frequency, v_θ / Hz | no sweep | | 10¶ | | |
| | TD | Learning rate, η_{STDP} | no sweep | | 0.05 | | |
| | | $\tau_{\text{TD}} / \text{s}$ | no sweep | | 4 | | |
| | | Learning rate, η_{TD} | no sweep | | 0.01 | | |
| | | L2 regularisation, λ | no sweep | | 0.01 | | |
| Performance metrics | | $R^2(M, W)$ | - | 0.97 (0.76) | 0.97 (0.77) | 0.97 (0.82) | 0.86 (0.65) |
| | | $\text{SNR}(W)$ | - | 66.7 (53.0) | 47.7 (26.3) | 61.8 (54.6) | 7.3 (3.7) |
| | | $x_{\max}(W) \text{ vs. } x_{\max}(M) = -0.15$ | - | -0.25 (-0.05) | -0.15 (-0.05) | -0.25 (-0.05) | -0.25 (-0.05) |
| θ (No- θ) | | | | | | | |

b**c1***as determined by $R^2(M, W_\theta)$

† as used in paper, determined from literature...

‡ Bush et al. (2010)

§ Muller

¶ Fitted to Jeewajee and Barry (2014), figure 5a

|| Find source

d