



Fig. 7-figure supplement 1: The power spectrum of our simulated “awake” cortical local field potential (LFP), which was generated by optimizing the parameters of a mean-field model of the basal ganglia-thalamo-cortical system using machine learning (see Methods). Our simulated cortical LFP produces spectral peaks at frequencies precisely corresponding to canonical cortical electrodynamic oscillations, including  $\delta$  waves (1-4 Hz),  $\theta$  waves (4-8 Hz),  $\alpha$  waves (8-13 Hz),  $\beta$  waves (15-30 Hz), and low- $\gamma$  waves (35-60 Hz).