Neural circuits comprise networks of individual neurons that perform sensory, cognitive, and motor functions. Neuronal biophysics, together with these circuits, give rise to neural population dynamics, which express how the activity of the neural population evolves through time in principled ways

---

Achieving state-of-the-art performance with deep neural population dynamics models requires extensive hyperparameter tuning for each dataset. AutoLFADS is a model-tuning framework that automatically produces high-performing autoencoding models on data from a variety of brain areas and tasks, without behavioral or task information. We demonstrate its broad applicability on several rhesus macaque datasets: from the motor cortex during free-paced reaching, the somatosensory cortex during reaching with perturbations, and the dorsomedial frontal cortex during a cognitive timing task [1)]

1)
Keshtkaran MR, Sedler AR, Chowdhury RH, Tandon R, Basrai D, Nguyen SL, Sohn H, Jazayeri M, Miller LE, Pandarinath C. A large-scale neural network training framework for generalized estimation of single-trial population dynamics. Nat Methods. 2022 Nov 28. doi: 10.1038/s41592-022-01675-0. Epub ahead of print. PMID: 36443486.