

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.

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Last update: **2025/04/29 20:28**

