Table 1: Test accuracy on sequential pixel-by-pixel MNIST and permuted MNIST

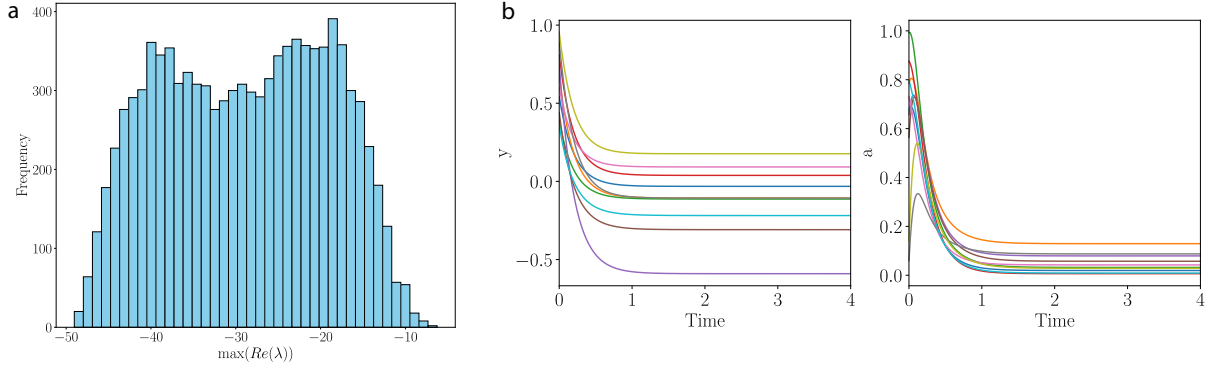| Model	sMNIST	psMNIST	# units	# params
ORGaNICs (fixed time constants)	90.3%	80.3%	64	26k
ORGaNICs (fixed time constants)	94.8%	84.8%	128	100k

Figure 1: **Histogram of the largest real part of eigenvalues for 10,000 random circuits and inputs.** **(a):** 20-dimensional ORGaNICs (10 E and 10 I neurons) with random parameters and inputs, where $\mathbf{W}_r = \alpha\mathbf{I}$ and α is uniformly sampled between 0 and 1. **(b):** A sample simulation demonstrating convergence, with the initial values of $\mathbf{y}$ and $\mathbf{a}$ uniformly sampled between 0 and 1.
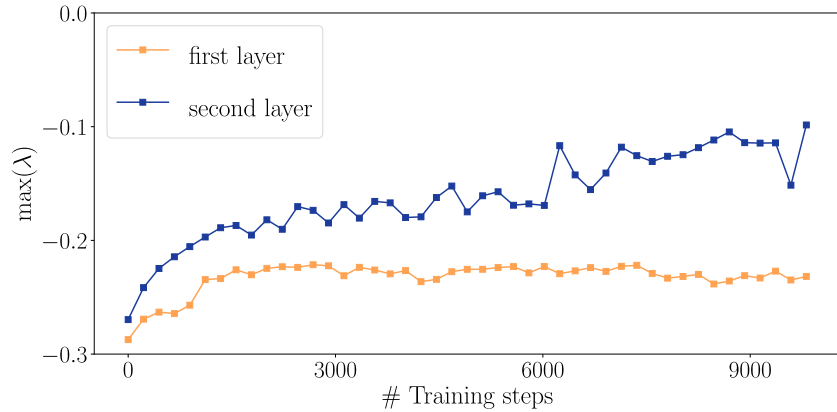

Figure 2: **Maximum real part of eigenvalue, across test samples, during training on static input (MNIST) classification task.** Since the maximum real part of the eigenvalue remains less than 0 throughout training, it indicates that the system remains stable.