



## eLife's transparent reporting form

We encourage authors to provide detailed information *within their submission* to facilitate the interpretation and replication of experiments. Authors can upload supporting documentation to indicate the use of appropriate reporting guidelines for health-related research (see [EQUATOR Network](#)), life science research (see the [BioSharing Information Resource](#)), or the [ARRIVE guidelines](#) for reporting work involving animal research. Where applicable, authors should refer to any relevant reporting standards documents in this form.

If you have any questions, please consult our Journal Policies and/or contact us: [editorial@elifesciences.org](mailto:editorial@elifesciences.org).

### Sample-size estimation

- You should state whether an appropriate sample size was computed when the study was being designed
- You should state the statistical method of sample size computation and any required assumptions
- If no explicit power analysis was used, you should describe how you decided what sample (replicate) size (number) to use

Please outline where this information can be found within the submission (e.g., sections or figure legends), or explain why this information doesn't apply to your submission:

We chose a fixed number of 4 different initial conditions for each network simulation, providing good statistics and using reasonable computational resources. This information is indicated in captions of Fig. 3, 4, 5, 6 and Table 1. Datasets used for simulations are CIFAR-10 and SVHN (see section 4.2.). The usual splits for these datasets were used: 50,000 training images and 10,000 test images for CIFAR-10, and 73257 training images and 26,032 test images for SVHN.

### Replicates

- You should report how often each experiment was performed
- You should include a definition of biological versus technical replication
- The data obtained should be provided and sufficient information should be provided to indicate the number of independent biological and/or technical replicates
- If you encountered any outliers, you should describe how these were handled
- Criteria for exclusion/inclusion of data should be clearly stated
- High-throughput sequence data should be uploaded before submission, with a private link for reviewers provided (these are available from both GEO and ArrayExpress)

Please outline where this information can be found within the submission (e.g., sections or figure legends), or explain why this information doesn't apply to your submission:

Network simulations were performed using Python and the deep learning library PyTorch (<https://pytorch.org>). All networks parameters necessary to replicate the model are indicated in the section (section 4.1. and Algorithm 1). We did not exclude any data.



### Statistical reporting

- Statistical analysis methods should be described and justified
- Raw data should be presented in figures whenever informative to do so (typically when N per group is less than 10)
- For each experiment, you should identify the statistical tests used, exact values of N, definitions of center, methods of multiple test correction, and dispersion and precision measures (e.g., mean, median, SD, SEM, confidence intervals; and, for the major substantive results, a measure of effect size (e.g., Pearson's r, Cohen's d)
- Report exact p-values wherever possible alongside the summary statistics and 95% confidence intervals. These should be reported for all key questions and not only when the p-value is less than 0.05.

Please outline where this information can be found within the submission (e.g., sections or figure legends), or explain why this information doesn't apply to your submission:

Network simulations were performed over N=4 different initial conditions, and the mean and SEM were reported for each experiment (Fréchet inception distance for Fig.3, linear separability for Fig. 4 and 5, and clustering distances in Fig. 6). tSNE results in Fig. 6b,c,d were obtained over N=1 initial condition, using a small subset of 80 data points for illustrative purposes.

(For large datasets, or papers with a very large number of statistical tests, you may upload a single table file with tests, Ns, etc., with reference to sections in the manuscript.)

### Group allocation

- Indicate how samples were allocated into experimental groups (in the case of clinical studies, please specify allocation to treatment method); if randomization was used, please also state if restricted randomization was applied
- Indicate if masking was used during group allocation, data collection and/or data analysis

Please outline where this information can be found within the submission (e.g., sections or figure legends), or explain why this information doesn't apply to your submission:

We did not group any data.

### Additional data files ("source data")

- We encourage you to upload relevant additional data files, such as numerical data that are represented as a graph in a figure, or as a summary table
- Where provided, these should be in the most useful format, and they can be uploaded as "Source data" files linked to a main figure or table
- Include model definition files including the full list of parameters used
- Include code used for data analysis (e.g., R, MatLab)
- Avoid stating that data files are "available upon request"

Please indicate the figures or tables for which source data files have been provided:

We published all code necessary to repeat our experiments in the following repository: <https://github.com/NicoZenith/PAD>  
We will add specific commands required to reproduce each figure from scratch.  
All model parameters are indicated in the repository as well as the Methods section.



eLIFE

1st Floor  
24 Hills Road  
Cambridge CB2 1JP, UK

**P** 01223 855340  
**W** [elifesciences.org](http://elifesciences.org)  
**T** @elife