Mouse Visual Cortex Modeling

Data diet impacts on the internal representations of convolutional neural networks

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Alexnet (first four layers) is the best model for the mouse visual cortex

RESEARCH ARTICLE

Mouse visual cortex as a limited resource system that self-learns an ecologically-general representation

Aran Nayebi[1,2,3]*, Nathan C. L. Kong[1,4,5]*, Chengxu Zhuang[1,3,4], Justin L. Gardner[1,4], Anthony M. Norcia[1,4], Daniel L. K. Yamins[1,4,6]

The data diet is the most important factor in model performance

A large-scale examination of inductive biases shaping high-level visual representation in brains and machines

Colin Conwell, Jacob S. Prince, Kendrick N. Kay, George A. Alvarez & Talia Konkle

Nature Communications **15**, Article number: 9383 (2024) | Cite this article

Claim: Can we improve the neural predictivity using a better data diet?

Diet w.r.t. not *what* you eat, but *how* it is prepared.

Article

Unraveling the complexity of rat object vision requires a full convolutional network and beyond

Paolo Muratore [1], Alireza Alemi [2], Davide Zoccolan [1 3]

Project overview:

1. **Define** a preprocessing pipeline to have mouse-vision-like images
2. **Train** models on these images
3. **Evaluate** the models on neural predictivity
4. **Compare** the results with the state-of-the-art

Conclusion

Thank You!