

# Artificial neurons meet real neurons: pattern selectivity in V4

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## **Abstract**

Vision in humans and in non-human primates is mediated by a constellation of hierarchically organized visual areas. One important area is V4 which has highly nonlinear response properties. To better understand the filtering properties of V4 neurons we recorded from 71 well isolated cells stimulated with 4000-12000 static grayscale natural images. We fit predictive models of neuron spike rates using transformations of natural images learned by a convolutional neural network (CNN). Furthermore, we introduce new processes for interpreting such models. We conclude that the V4 neurons are tuned to a remarkable diversity of shapes such as curves, blobs, checkerboard patterns, and V1-like gratings.