

Driving Deep Networks towards Human Vision

Submission ID 3000258
Submission Type Poster
Topic Artificial Intelligence
Status Submitted
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SUBMISSION DETAILS

Presentation Type Either Poster or Oral Presentation

Presentation Abstract Summary As state-of-the-art deep convolutional networks (DCNs) begin to rival human observers on certain recognition tasks, a growing body of work has provided evidence that the visual strategy they employ is different than human observers. Here, we study how DCNs vs. human observers integrate visual information during object recognition. Results from a rapid visual categorization experiment suggest that human observers integrate visual information locally. However, DCN performance on the same stimuli indicates that they integrate visual information in a distributed manner across the entire image, spanning both object and context. We describe a novel approach for cuing DCNs to attend to those features that are emphasized by human observers, and demonstrate that training DCNs in this way teaches them visual strategies that are more consistent with those used by human observers -- effectively driving machine vision closer to primate vision.

Paper Upload (PDF) [Linsley_et_al_CCN_2017.pdf](#)

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Keywords

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object recognition
deep learning

biological vision

human-in-the-loop machine learning

visual features