Department of Statistics

MASTER'S THESIS PRESENTATION

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Robustness of Convolutional Neural Networks to Perturbations in Images

TUESDAY, February 6, 2018, at 10:30 AM
Jones 304, 5747 S. Ellis Avenue

ABSTRACT

Convolutional neural networks (CNNs) have enjoyed great success in the field of computer vision. While people have done significant work in creating end-to-end CNN systems to conquer the challenges in this field, we believe that experiments in one or more small units of the big problems can be equally meaningful in that they help us understand where the bottlenecks are and which directions are promising. In this paper, we focus on the two tasks of view point prediction and object type prediction, both of which are fundamental in computer vision and inherently connected to each other. We put much effort in creating variants of experiments, and our results show that the networks have decent performance even when a diverse collection of perturbations are present, including real-world background, missing textures and viewpoints, random deformation and adjuncts.

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