

Understanding the Geometry of Photographic images using Deep Learning

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Photographs are composed of different attributes and styles which play a significant role in the way they are viewed. These attributes contribute towards the overall aesthetics of photographs. While a considerable amount of research has been carried out in understanding the appearances and texture of photographs using deep learning, the work done for identifying the geometry of photographs using deep learning becomes extremely limited. This dissertation is a step towards exploring different neural network architectures and determining their performances in detection of geometric attributes in photographic images. The dissertation presents a novel dataset, Geo-Style, which has 12,000 images taken from Flickr and annotated with 7 geometric style labels: Architecture, Lines, Frames, Repetitions, Rule of Thirds, Silhouettes and Symmetry. Neural network architectures are used for style classification and the results achieved show commendable understanding of geometric style by the selected networks. Additionally, the dissertation demonstrates explanations with the help of confusion matrix and feature map visualizations to justify the results achieved by the neural networks. The dissertation finally concludes by conducting a user study to provide a human baseline for the evaluation of Geo-Style dataset.