

1 (Midterm Project Proposal) Colorization with cGANs.
--

This project will leverage the methodologies on colorization using deep learning in the paper "Image-to-Image Translation with Conditional Adversarial Networks". The focus will be to replicate the implementation and results of a model for colorizing black-and-white images, drawing upon the insights gained from successfully applying conditional GANs (cGANs) for image-to-image translation tasks. Hence, we will take a dataset of greyscale images, which has proven efficient in training on a small dataset with short training times, and further improve upon it by experimenting with new image datasets and possibly integrating additional architectural innovations or training strategies.

Building on the foundations laid out in the paper, this project aims to explore the effectiveness of cGANs in capturing and translating the complex nuances of color from black-and-white images. By conditioning the generative model on input grayscale images, I aim to refine the model's ability to predict accurate, vibrant colors, thereby enhancing the quality and realism of the colorized output. The success of this project will be measured by the fidelity of colorization, as well as the model's adaptability to diverse image types and its efficiency in learning from a limited amount of training data.

References

- (a) Isola, Phillip, Jun-Yan Zhu, Tinghui Zhou, and Alexei A. Efros. "Image-to-image translation with conditional adversarial networks." In Proceedings of the IEEE conference on computer vision and pattern recognition, pp. 1125-1134. 2017.