ABSTRACT

VividTones is a fascinating Computer Vision task that aims to add realistic colours to grayscale images. In this project, we explore the world of Image Colorization by implementing a solution using PyTorch, Pillow, and NumPy, and leveraging two state-of-the-art models: ECCV16 and SIGGRAPH17. Our project begins with the preprocessing of grayscale images, where Pillow and NumPy play a crucial role in loading, transforming, and preparing the data. We convert the images into a format suitable for model input.

The core of our project lies in the utilization of deep learning models to predict colour information for grayscale images. We employ the ECCV16 and SIGGRAPH17 models, which are renowned for their ability to generate realistic and visually pleasing colorizations.
The code also includes functions for image loading, preprocessing, and post-processing and pre trained models. Then, we analyse the performance of our models by evaluating them on a diverse set of test images. We measure the quality of colorization using metrics such as Colour Accuracy, Perceptual Similarity, and Visual Appeal. The results of our project demonstrate the effectiveness of PyTorch, Pillow, and NumPy in handling image data and implementing Deep Learning models for Image Colorization. Additionally, the ECCV16 and SIGGRAPH17 models showcase their capability to produce vivid and realistic colorizations, making them valuable tools in the field of Computer Vision. The task of Image Colorization holds immense practical value across various domains, such as Historical Image Restoration, Artistic rendering, and Multimedia content generation. The goal is to automate the process of inferring colours for objects and scenes within an image, harnessing the power of Artificial Intelligence and Deep Learning Techniques.

In conclusion, this project provides a practical exploration of image colorization techniques using cutting-edge models and popular Python libraries, offering insights into the potential applications of such technology in various domains, including art, entertainment, and restoration of Images.