CARTOONIFY AN IMAGE WITH PYTHON

Minor Project Synopsis

Submitted By

KIRANDEEP KAUR

University Roll no. 1905353

HARLEEN KOUR

University Roll no. 1905335

ANCHALDEEP KAUR

University Roll no. 1905303

GURU NANAK DEV ENGINEERING COLLEGE

LUDHIANA-141006, INDIA

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1 Introduction

This project is all about building a photo cartoonifyer using Python and Open CV. We'll head towards giving our pictures some cartoonic effects. We will build a python application that will transform an image into its cartoon using machine learning libraries. Python is a high-level, general-purpose programming language. Its design philosophy emphasizes code readability with the use of significant indentation. Its language constructs and object-oriented approach aim to help programmers write clear, logical code for small- and large-scale projects.

Python is an interpreted programming language, this means that as a developer you write Python (.py) files in a text editor and then put those files into the python interpreter to be executed. Python is the pool of libraries. It has numerous libraries for real-world applications. One such library is OpenCV. OpenCV is a cross-platform library used for Computer Vision. It includes applications like video and image capturing and processing. It is majorly used in image transformation, object detection, face recognition, and many other stunning applications. We aim to transform images into its cartoon. We will CARTOONIFY the images. Thus, we will build a python application that will transform an image into its cartoon using OpenCV.

2 Objectives

- To cartoonify the image.

  - To build a python application that will transform an image into its cartoon using OpenCV.

3 LITERATURE REVIEW

OpenCV is a library of programming functions mainly aimed at real-time computer vision. Originally developed by Intel, it was later supported by Willow Garage then Itseez. The library is cross-platform and free for use under the open-source Apache 2 License. OpenCV is a great tool for image processing and performing computer vision tasks. It is an open-source library that can be used to perform tasks like face detection, objection tracking, landmark detection, and much more. It supports m ultiple languages including python, java C++. We will import some of the modules as CV2 , easygui, Numpy, Imageio, Matplotlib , OS.

4 Feasibilty Study

1) Feasibility of the project –

Imread is a method in cv2 which is used to store images in the form of numbers. This helps us to perform operations according to our needs. The image is read as a numpy array, in which cell values depict R, G, and B values of a pixel. To convert an image to a cartoon, multiple transformations are done. Firstly, an image is converted to a Grayscale image similar to the old day's pictures. Then, the Grayscale image is smoothened, and we try to extract the edges in the image. Finally, we form a color image and mask it with edges. This creates a beautiful cartoon image with edges and lightened color of the original image.

5 Methodology /Planning of work

In this we are going to import some modules:

• CV2: Imported to use OpenCV for image processing

• easygui: Imported to open a file box. It allows us to select any file from our system.

• Numpy: Images are stored and processed as numbers. These are taken as arrays. We use NumPy to deal with arrays.

• Imageio: Used to read the file which is chosen by file box using a path.

• Matplotlib: This library is used for visualization and plotting. Thus, it is imported to form the plot of images.

• OS: For OS interaction. Here, to read the path and save images to that path.

A File Box is build to choose a particular file where the buttons, labels, and images will reside. We also give it a title by title() function. We will convert our image into a numpy array. An image is transformed to grayscale , then smoothened and edges are retrieved. A mask image is prepared. After that cartoon effect is given. All the transitions are plotted together.

6 Facilities Required

Software Requirements –

1. Jupyter Notebook 2. Pycharm / Eclipse IDE

Hardware Requirements –

1. 128GB SSD
2. 8GB RAM
3. Intel i3/i5 processor

7 References

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