# Cartoonifier Image With Open CV

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## ABSTRACT

The method that makes an input target image into exaggerated cartoon-like images by using reference images. To deform a target image, extract feature points from a target image and define the feature point model on reference images. And then, apply feature based warping method to this deformation. For result be felt more cartoonish, additionally apply the luminance quantization method and the edge enhancement method to the deformed target image. At this time, control intensities of the target image deformation, the luminance quantization and the edge enhancement for the capability that is able to create various results

## 1.INTRODUCTION

Cartoon exaggerates target. This fact is a special feature of cartoon and it makes cartoons as the cartoon. But, the exaggeration on the cartoon is very hard to express to every user. So, only cartoon specialists make cartoons. To help novice to easily create a cartoon, studies those create cartoon like images using a computer were progressed, called cartoon rendering. But, most of cartoon rendering method couldn't express their results variously, because their results made by a fixed algorithm. And some other cartoon rendering methods provide various results by textures or user interactions. But their methods were not intuitive methods. So, they were difficult to use to novices. To enhance the shortcoming of previous cartoon rendering methods, this paper proposes an cartooning method which every users can easily create cartoon-like result images. we deform the input image using the reference image and apply the cartooning to it. The main contribution of this paper is as follows. It proposes the cartooning method using reference images for every users to generate the result easily. By the controlling of deforming cartooning intensities, we can create various results from an input image. Cartoonification is a process that transforms real-world images into cartoon-like visuals by applying various image processing techniques. Using OpenCV, this effect is achieved through a series of steps. First, the image is loaded and converted into grayscale, simplifying the color information. To enhance edge detection, a median blur is applied to reduce noise, followed by using the Canny edge detection algorithm to identify the edges, which are crucial

in definingthe cartoon's outlines. Simultaneously, bilateral filtering is used to smooth the image while preserving its edges, creating soft, blended regions of color similar to a cartoon's look. Finally, the detected edges are combined with the filtered image, resulting in a stylized, cartoon-like representation. This technique provides a fun and visually appealing transformation of ordinary photographs into artworks that resemble hand-drawn cartoons. Machine Learning (ML) is a subset of artificial intelligence (AI) that focuses on creating algorithms that enable computers to learn from data and make predictions or decisions without explicit programming. Instead of following predefined rules, ML models identify patterns in data to improve their performance over time. There are three main types of ML: Supervised Learning: The model is trained on labeled data, where both input and output are provided. It learns to map inputs to the correct outputs. Common algorithms include linear regression and decision trees.Unsupervised Learning: The model is trained on data without labeled outputs. The goal is to uncover hidden structures or patterns, such as in clustering or dimensionality reduction. Examples include K-Means and PCA. Reinforcement Learning: An agent learns by interacting with an environment and receiving feedback in the form of rewards or penalties. It aims to maximize cumulative reward over time. ML is widely applied in fields like healthcare, finance, retail, and autonomous vehicles, with tasks such as fraud detection, recommendation systems, and predictive analytics. Despite its powerful capabilities, ML faces challenges like overfitting, underfitting, and data quality issues. As technology advances, machine learning continues to revolutionize industries and drive innovation.

### 1.1 Problem Statement

The existing system for cartoonifying an image using OpenCV involves a structured sequence of image processing techniques. Initially, the image is read and converted to grayscale to simplify the data, which is crucial for effective edge detection. A median blur filter is then applied to the grayscale image to reduce noise, ensuring that the subsequent edge detection is more precise. Edge detection is achieved through adaptive thresholding, a method that calculates thresholds for small regions, making it effective for images with varying illumination. The original image undergoes bilateral filtering, which smooths

the image while preserving edges, thus reducing the color palette and creating a cartoon-like appearance. CARTOONIFIER IMAGE WITH OPENCV 2 Finally, the detected edges are combined with the smoothed image using bitwise operations, overlaying the edges onto the smoothed colors to complete the cartoon effect. The system displays both the original and cartoonified images and saves the cartoonified image to a file, effectively transforming a photograph into a stylized, cartoon-like image using OpenCV's powerful image processing functions.

## 2. SYSTEM ARCHITECTURE

**Admin Module:** Administrator will login to application using username as _admin 'and password _admin '. After login admin can view all registered users and all posts send by each CARTOONIFIER IMAGE WITH OPENCV 9 users. Admin can send motivation messages to all depressed users. All positive and negative depression users can also be seen in the form of graph.

**User Module:** Users need to register with the application and then login to application to access various sub modules such as Search Friends: Using this module user can see all peoples register with the application**.**

**Upload Posts:** Using this module user can upload post in various formats such as text file, image or audio file. This application accepts only .WAV file format. View Motivation.

**Messages:** Using this module users can view all motivation messages send by administrator.
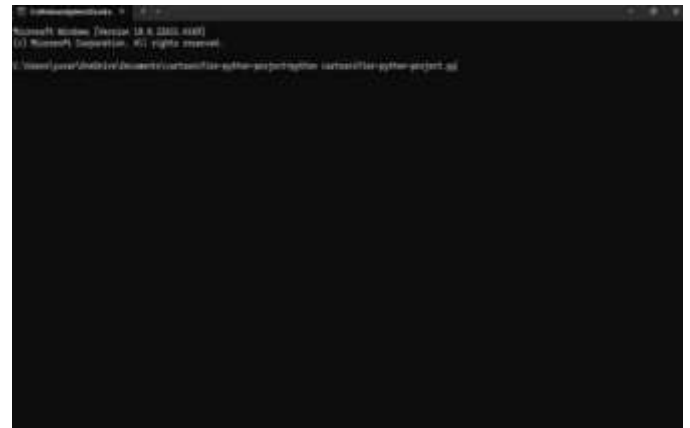
## 3. SYSTEM REQUIREMENTS

### 3.1 Hardware Requirement:

• **Processor CPU** - Intel(R) Core (TM) i5-1235U 1.30 GHz
• **Hard Disk capacity** - 20 GB
• **RAM** - 512 MB (min)

### 3.2 Software Requirements:

• **Operating system** - Windows8 or Above.
• **Coding Language** - Python
• **Data Base** – MySQL
• **Editor**-Visual Studio Code(Vs code)
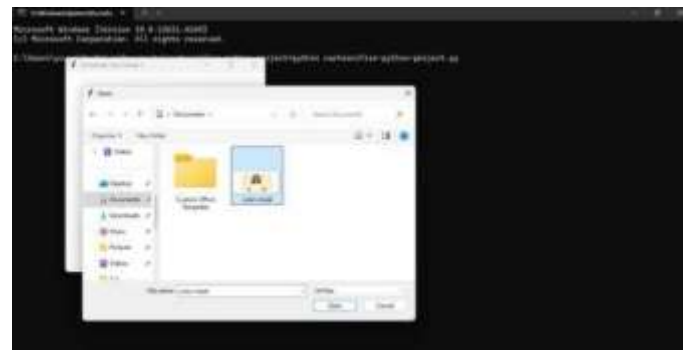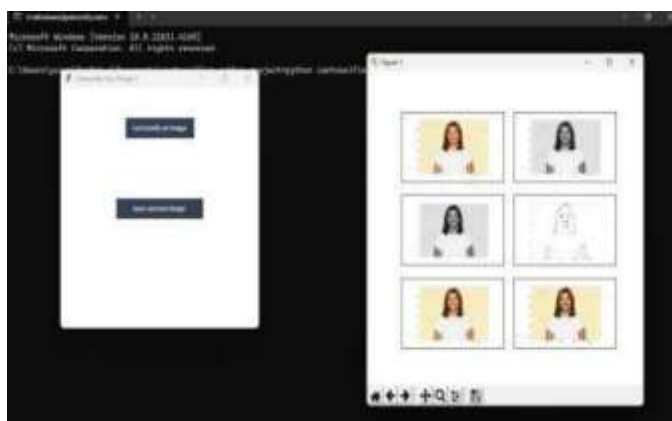
## 4.OUTPUT



Pop box



In above screen click on 'Upload Image' button and select input image



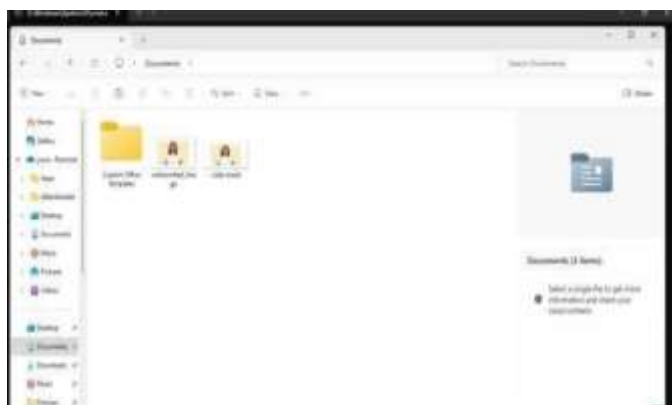After uploading image click on 'Cartonify Image' button to get below screens

Save button



We will get above carton converted images and same images will saved inside output folder.

In above screen showing carton images saved at output folder.



## 5. CONCLUSION

cartoonifying an image using OpenCV involves a combination of edge detection and color simplification techniques. By applying grayscale conversion, edge detection through adaptive thresholding, and bilateral filtering, you can create a cartoon-like effect that emphasizes CARTOONIFIER IMAGE WITH OPENCV 38 outlines while reducing the complexity of colors. This method is efficient and can be further customized by adjusting the parameters to achieve different levels of cartoonization, making it a versatile approach for transforming images into a more stylized, artistic form. Cartoonifying images with OpenCV has exciting potential across industries. It can enhance real-time experiences in AR/VR, live video, and social media with fun filters. For content creation, it enables automatic comics, animations, and unique marketing visuals. Personalization features, like custom styles and facial tweaks, make it ideal for gaming and social apps. In education and therapy, it can make learning interactive and environments more child-friendly. With AI integration, it can create realistic effects while reviving traditional art styles in modern ways. This technology opens doors for creativity, innovation, and engagement across many fields.

## 6. REFERENCES

[1] Puppala Ramya, Penki Ganesh, Kopanathi Mouli & Vutla Naga Sai Akhil, "Cartoonify an Image with OpenCV Using Python",2023

[2] Raut, Roshani; Devkar, Anita; Borkar, Pradnya S.; Deoghare, Radha,"Generative Adversial Network Approach for Cartoonifying image using CartoonGAN",2023

[3] Suryansh Tomar; Nandini Upadhyay; Guru Prasad M S; Divyashree N,"An Effective Cartoonifying of an Image using Machine Learning",2023

[4] Saurabh Kumar; Utkarsh Bhardwaj; T. Poongodi,"Cartoonify an Image using Open CV in Python" ,2022

[5]Yang Zhao, Diya Ren, Yuan Chen, Wei Jia, Ronggang Wang & Xiaoping Liu "Cartoon Image Processing",

[6] Stefan Kolek, Duc Anh Nguyen, Ron Levie, Joan Bruna & GittaKutyniok "Cartoon Explanations of Image Classifiers",2022

[7] Mohamed Elasri, Omar Elharrouss, Somaya AlMaadeed & Hamid Tairi "Image Generation",2022

[8] Akanksha Apte1, Ashwathy Unnikrishnan2, Navjeevan Bomble3, Prof. Sachin Gavhane 4,"Transformation of Realistic Images and Videos into Cartoon Images and Video using GAN" ,2020

[9] S. Patel and R. Sharma, "Cartoonification of Images Using OpenCV,"2020.

[10] M. Khan and A. Gupta, "Advanced Image Fil