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# IMAGE TO CARTOON

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

**PROJECT GUIDE** **TEAM MEMBERS**

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## ABSTRACT

The proposed mini project is an image to cartoon python OpenCV machine learning that converts uploaded images to cartoon style versions using machine learning algorithms. The main objective of the project is to provide an easy to use and accessible tool for users to convert their images to cartoons. The major goal is to produce a final product that may be used to transform real-world images or videos into animated prints (cartoon images) or videotapes. The idea behind the paper is built around original images and videos that are then transformed into an artistic form akin to oil. Among all thetechniques available, the operation of a Generative Adversarial Network (GAN) dubbed Cartoon GAN may be employed for the styling of real-world images that employ two loss functions—happy loss and hostile loss—to obtain a cleanand clear image. While creating the layout, this project would use the OpenCV library in Python. Python is a library collection with multiplex libraries for
operations in the real world. OpenCV is one suitable library.

## KEYWORDS

Image to cartoon , Machine Learning , Deep learning, Convolutional Neural Network (CNN) , User Interface(UI) , User Experience (UX), High Availability ,Scalability , Image Quality , Python , Input Image , cartoon style images , colourquantization , edges , blurred images , openCV .

## INTRODUCTION

Cartoons are drawings of characters, who may be made up or based onreal people. They are frequently used today to satirically and humorously depict situations or events. They can be semi-realistic or non-realistic.

Cartoonized characters are used in anime because it is so popular. Modern automation technology is booming. Animation technology has advanced significantly, with the amount of human work being reduced to a minimum anda set of programmes taking over. To create those programmes is what we do. So, this is a project that uses the Python programming language and appropriate libraries to transform standard camera-clicked photographs into

cartoonized form. In an era like this one, where creative minds are constantlyadvancing technology, enormous strides are being made.

Automation is the finest option for saving time; because to advancements in machine learning and artificial intelligence, every productionprocess has substantially improved and the quality of the final product has increased .Playing with photographs is enjoyable, and more and more individuals are pursuing professions in image processing and enhancement.

Recently, image processing has become popular on social media platforms. The similar concept is utilised by the OpenCV library, where we learn about the internal workings of image processing and how computer vision functions.

These processes and filters restore features that have been lost in older photographs, and one of them—by combining a few filters—can turn a black-and-white shot into a coloured one.

There are many ways to turn a particular photo into a cartoon, but the ideal option is to do it manually using software like Adobe Photoshop. Sincenot everyone has access to such tools, the number of users is limited. Althoughthe manual technique produces the greatest results, it is time-consuming and ineffective when applied to a large number of photos. As a result, systems like this are a go-go for any industry because they produce results in a matter of seconds. With updates, the scale will undoubtedly increase and produce evenbetter outcomes .Using the OpenCV package and Python's machine learning methods, we can accomplish it with less lines of code and with better results.

## LITERATURE

Based on their observations of the behaviour of cartoon paintings, Xinrui wang and Zinze yu developed three representations for cartoons: the surface representation, the structure representation, and the texture representation. The next step is the introduction of image processing modules to extract each representation. With the aid of the recovered representations, a GAN-based picture cartoonization 3 framework is optimised. By balancing the weight of each representation, users can change the output style of the model. Numerous tests have been performed to demonstrate the method's ability to produce cartoonized images of the highest quality. In terms of qualitative comparison, quantitative comparison, and user preference, their method performs better than the alternatives. Anusha Pureti, Ch. Sravani Y. Pavankumar, T. Venkateswarlu, G. Jahnavi A. Hema, and others proposed a method for effectively extracting objects from animated pictures that relies on general assumptions about the shading and areas of the objects. The items are frequently drawn to the centre of the image, the background tones are more frequently drawn to the edges, and the item colours are less sensitive to touch. Utilised cycles include seed filling, item apparition, and shading quantization. The results of the guided testing indicated that the framework had a promising effectiveness for removing both single and multiple items buried in simple and intricate animation picture foundations. Debasish Pal and Ashim Jyoti Gogoi suggested a novel method for searching for photos on the Internet by taking into account textured images and proposing to describe their textural information using a set of features with perceptual meaning. In their paper Query-by-PictorialExample, Ning-San Chang and King-Sun Fu published the first research on content-based image retrieval. As a relational query language for processing inquiries addressing pictorial relations as well as conventional relations, they proposed Query-by Pictorial-Example. John R. Smith and Shih-Fu Chang designed a content-

based image/video retrieval system for the World Wide Web. To search for and retrieve photos and videos from the Web, they offered a set of tools they dubbed Visual SEEk

## METHODOLOGY

The technique of producing a cartoon effect image can originally bedivided into two parts.

1. To identify, blur, and highlight the actual RGB colour image's edges.

2. To quantize, smooth, and convert the RGB image to a grayscale format. Theoutcomes of integrating the images contribute to getting the desired outcome.

The actions required are:

1. We load the source image for conversion.

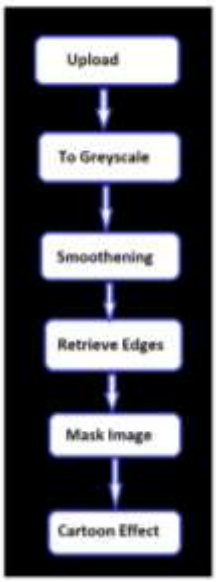
2. We do edge operations to provide the appearance of a cartoon, i.e., to givethe person, thing, etc. in the image thicker edges.

3. Next, using OpenCV-optimized techniques like the K means algorithm, wedecrease the colour palette.

4. Using a bilateral filter, we may lower the noise in the image after colour quantization. The image would become slightly hazy and less sharp as a result.

The edge mask and the colour-processed image are combined as the final stepin step 5

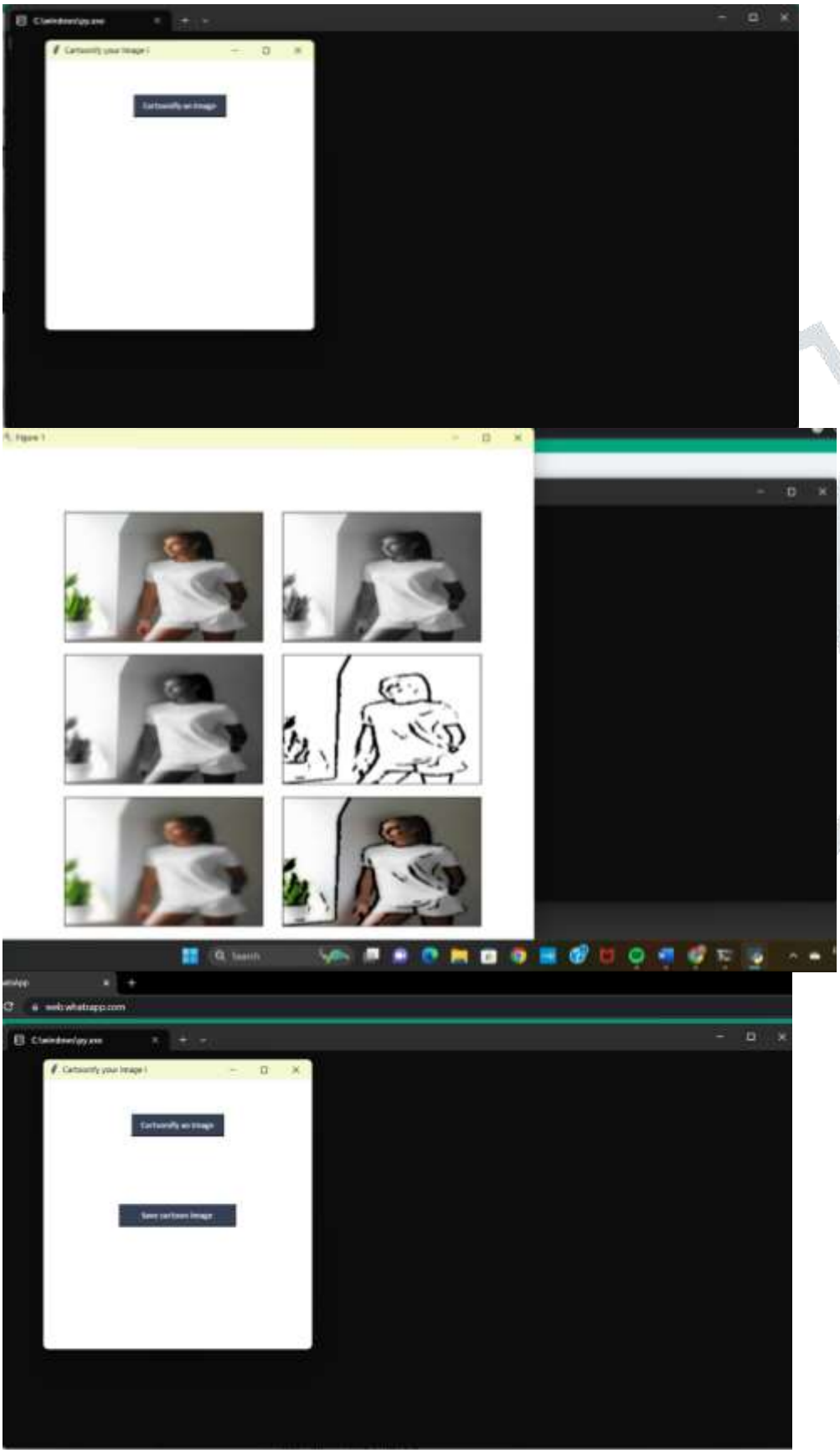
5. Using the bitwise operation, we do it.

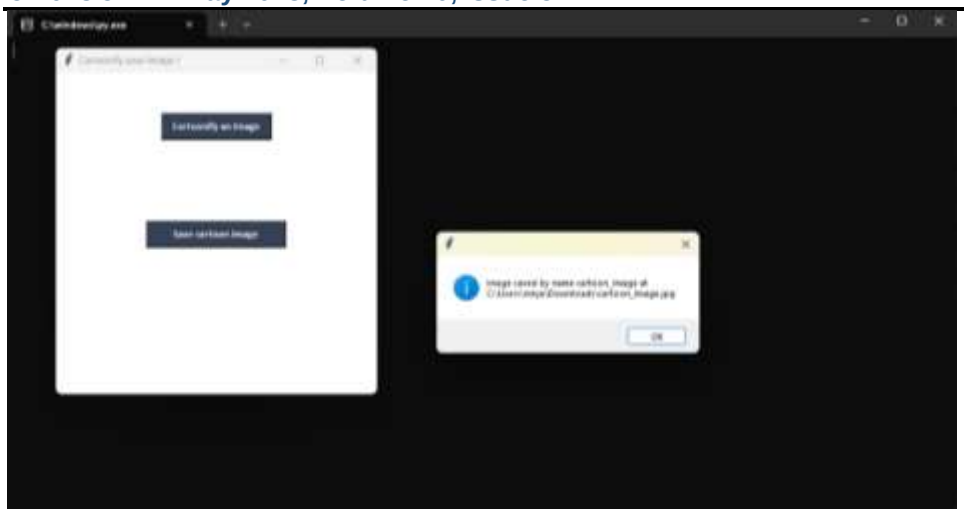



## RESULTS AND DISCUSSION

By implementing all the modules that are described we can able to convert an image to cartoon using openCV source. The outcome of a picture to cartoon The Python OpenCV machine learning system creates a cartoonized rendition of the original image. The specific output depends on the algorithms, methodologies, and user preferences. Image processing that is quick and has a high detection rate. To produce a high accuracy model in comparison

to existing models. To have a low false positive rate. 7.2 DISCUSSION: Image-to-cartoon conversion utilising Python, OpenCV, and machine learning approaches has piqued the curiosity of many researchers in computer vision and image processing. To turn ordinary photos into cartoon-like representations, this approach combines the strength of machine learning algorithms with the versatility of OpenCV. This lecture will delve into the fundamentals and ramifications of image to cartoon Python OpenCV machine learning.





## CONCLUSION

The project demonstrated that using a Python module called cv2, the image was successfully transformed into a cartoon-style image. It covers thedevelopment and evolution of image processing, several categories of uncertain settings, and current techniques for cartoon imaging. Due to its frequent consideration in a variety of common applications across many areasof science and engineering during the past three decades, the issue of image processing has garnered significant name recognition and respect among scholars. the orderly, on-paper flowchart of the process of converting an imageto a cartoon. We've also included the difficulties and issues that could arise when cartooning the photographed image.

## FUTURE WORK

For instance, image processing is useful for problems with remote sensing, finance, digital video processing, and signature recognition. In order to implement picture pre-processing, we first accept input and then apply OpenCV image processing methods. Due of the blurred image edges, we apply morphological opening and closing procedures to segment images. The major goal of the study is to solve various sorts of photographs with one, two, or three objects that cannot be solved by any of the existing methods but can besolved by the approach we present. This paper is 98 Volume No. 14, Issue- 5, October - December 2022.It can produce the precise result mentioned above,and a variety of input photographs will result in pleasing outcomes.

The algorithm is not flawless, though, and it does not react predictably to all inputs. It would be absurd to anticipate that a one-size-fits-all method will deliver consistent outcomes given the range of input photos. So, we've demonstrated how to turn an image into a cartoon. We have provided samplesof how a cartoon is created from a pictures.

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