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Rotoscoping Appearance Models

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Abstract: ***Rotoscoping is an animation technique that animators use to trace over pictures. By tracing the image, an object from the scene can be extracted and can be used on a different background. Rotoscoping is mainly employed by animators who trace over pictures to produce realistic actions. In this project, a framework is developed that will capture and track the visual aspect of an object from the picture by providing the outline of that object. Pixelwise segmentation is used for this technique. With this paradigm, a framework that divides the entire picture into objects is developed. It will then capture and track the visuality of the object and provide an outline for it. This model combines collection of appearance models along the outline and displays it.***
Keywords: Tracing, Segmentation, Visuality, Animation, Appearance model, Splines

I. SCOPE

The main objective of this system is to build an appearance model that can extract object from a picture by tracing it. Rotoscoping has its applications in animated movies, 3D characters, photoshop, etc. It has been used a tool for visual effects. This is because it provides accurate outlines for each element in the frame.

II. INTRODUCTION

Rotoscoping was invented by Max Fleischer in 1914. In rotoscoping, an image is traced to create animated shapes that are used to mark elements in pictures or videos like characters vehicles, buildings, etc. Earlier, action film images were projected on a glass where animator would redraw them. Later in 1990's, these projectors were replaced by computers and computer based rotoscoping was done. This method allows artists to perform specific actions like colour correction, resizing, effects, etc on these elements. It has been used widely as a tool for visual effects mainly in live-action movies. By tracing an element, the animator creates a matte that can be used to extract that object from a scene and use it on a different background. Special visual effects are also created by the rotoscoped matte.

III. RELATED WORK

In the existing system, traditional rotoscoping technique was used where a series of points named splines were connected by a line or curve. These splines were adjusted frame to frame, so that they achieve whatever shape the animator is tracing. Depending on the complexity of the scenes, the rotoscoping process can take hours or days to complete. To rotoscope an element, the animator creates closed splines to define the component shapes of the element. To rotoscope a person, roto-shapes are created for each element like upper arm, lower arm, fingers, hands, face. The artist then manipulates these shapes separately to match the movement in the scene. This process is time consuming and complicated because most of the objects have complex and irregular shapes. By doing it frame by frame, couple minutes of scene footage will take many hours of work. To overcome the limitations of the existing system, it is identified that only appearance is unreliable and a strong emphasis on modelling the shapes should be placed. The proposed system captures and tracks the visual aspect of an object by giving a closed outline of that object. It combines local appearance models with simple and effective initialization, iterative optimization at each stage. This rotoscoping method utilizes multi-core processors like GPUs to assist the artists. The rotoscoping model makes it easier to animate difficult, complex actions.

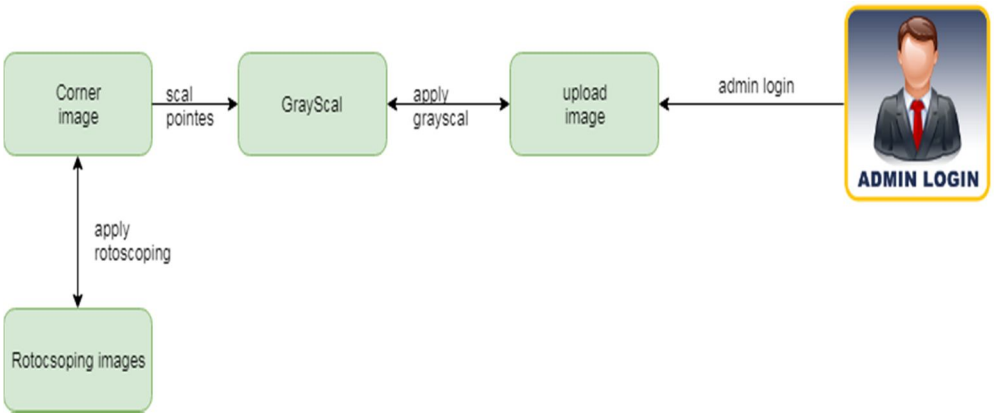
IV. METHODOLOGY

Corner image and gray scaling are the two main methods used in rotoscoping appearance model. They are responsible for converting the uploaded image into shades of grey which results in high accurate classification. This is because lots of unnecessary information is discarded for processing. By cornering the image, it is easier to extract certain features and contents of an image. With proper utilization of these features, exact outline of the object from the image is extracted. The system components of rotoscoping appearance model are as follows:

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1) *Image Processing:* Image processing is a method to perform operations on an image to extract some useful information from it. The image to be rotoscoped has to uploaded by the admin. The image has to be in jpeg/ png format.
2) *Gray Scale:* Gray scale is an image in which the colors are only the shades of gray. This is implemented because the information provided to each pixel in less. The main reason why grayscale representations are often used for extracting instead of operating on colour images directly is that grayscale simplifies the algorithm and reduces computational requirements.
3) *Corner Image:* Corner is a method used in computer vision systems to extract certain features and contents of an image. It is frequently used in motion detection, image registration, video tracking, 3D reconstruction and object recognition.
4) *Rotoscoping:* Rotoscoping has often been used as a tool for visual effects in live action movies. By tracing an object, it can be used to extract that object from a scene to use on a different background.

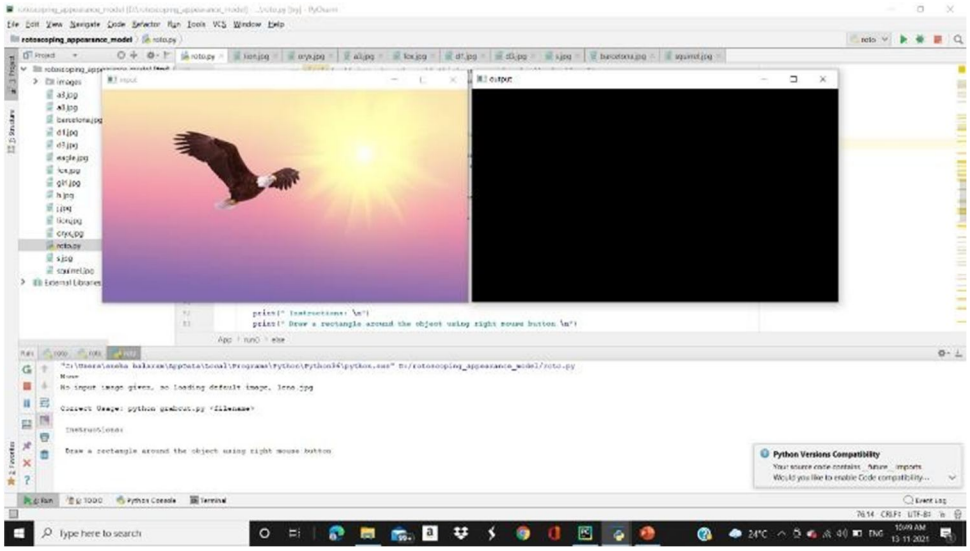
V. SYSTEM ARCHITECTURE



System design architecture define the structural behavior, views of the system. In this project there is a login page where the admin can login into the system. The web page will be verified and displayed if it is an authorized login. If it is authorized, the admin can upload an image. Grayscale techniques are applied to the uploaded image. The image is then cornered using scale points. Finally, rotoscoping is applied and a rotoscoped image is displayed to the user.

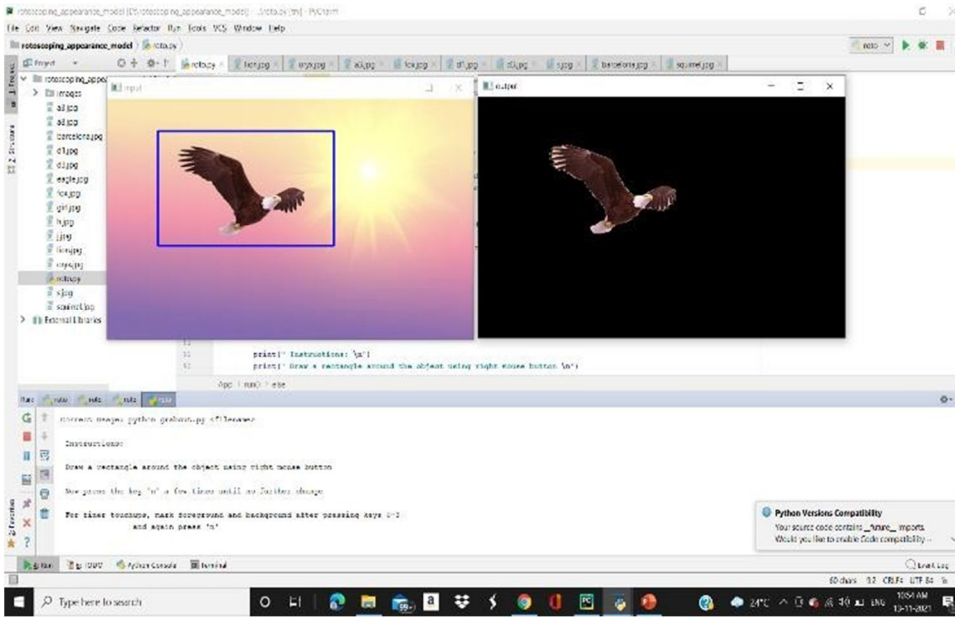
VI. RESULTS AND OUTPUT

1) The uploaded input image is displayed. Draw a rectangle around the object using right mouse button to extract the object from image.



2) Now press the key 'n' a few times until nofurther change.

Output

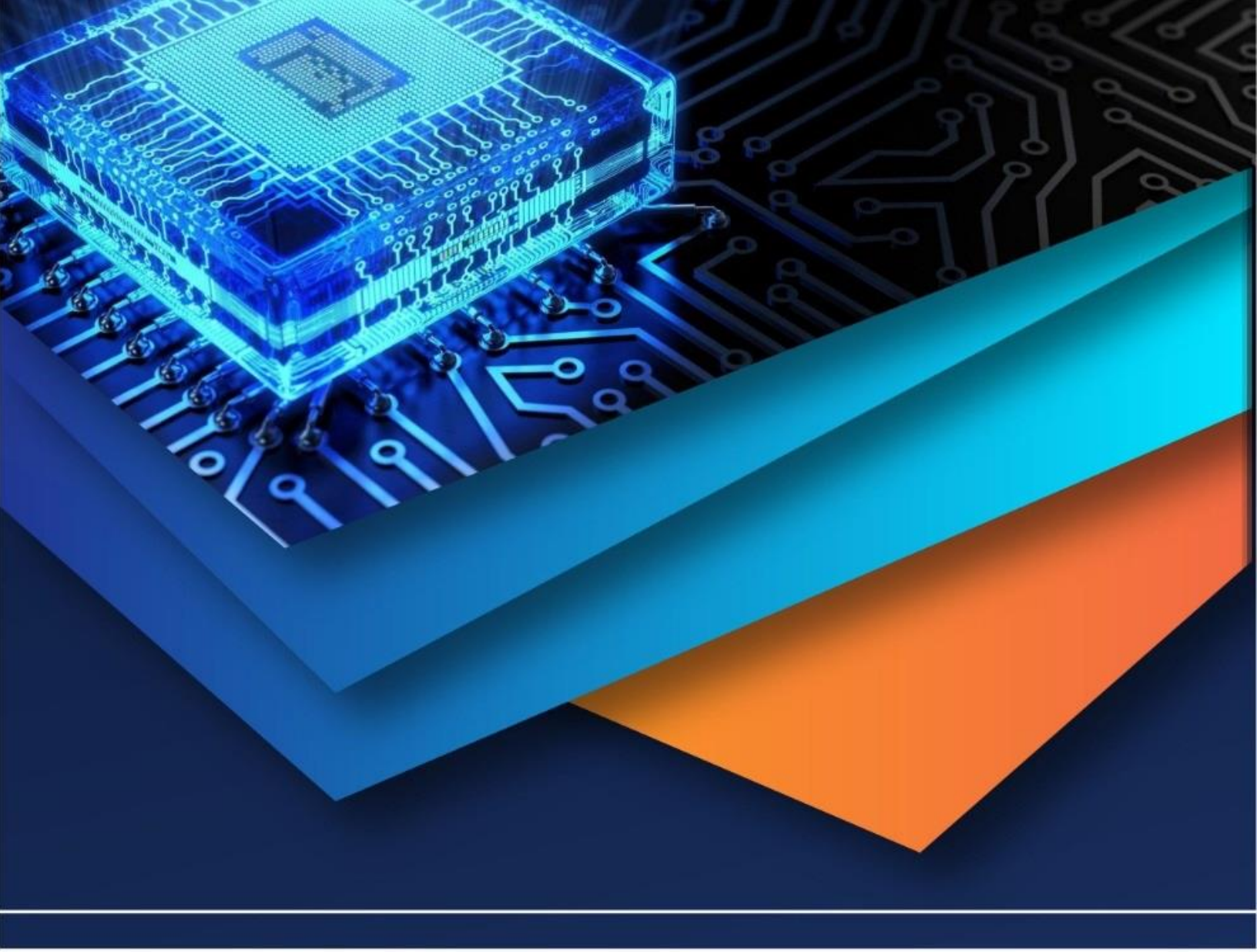


VII. CONCLUSION

A rotoscoping model is developed to capture the appearance of the object defined by a closed curve. This model is well suited to conduct rotoscoping in video shots, which is a difficult task of considerable importance in modern production pipelines. We have demonstrated its merit on various competitive benchmarks. Beside its use within a full rotoscoping pipeline, could also be useful for various forms of object editing that require both accurate enough segmentation of arbitrary objects in videos and tracking through time of part correspondences, Due to its flexibility, can be easily extended; in particular, with the recent and its powerful low-dimensional shape model.

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