iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 7 **Issue:** VIII **Month of publication:** August 2019

DOI: http://doi.org/10.22214/ijraset.2019.8078

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.177
Volume 7 Issue VIII, Aug 2019- Available at www.ijraset.com

A Novel approach to Separate Foreground Object from Background Image by Matting Technique

Sourita Ray[1], Arunima Mukherjee[2], Sourav Sadhukhan[3], Arnima Das[4], Arpita Santra[5], Sangita Roy[6]
[1, 2, 3, 4, 5, 6]*Electronics and Communication Engineering Department, Narula Institute of Technology, Kolkata, India*

***Abstract:** An image often presumed to be a composite of foreground and also the background[1-4]. The foreground and also the background of every picture element are unendingly combined in terms of the of this picture element foreground capability (called alpha). Image matting[5,6] is that the methodology of approximation the foreground[7], the background and also the alpha of every picture element. Matting contains a matte (an opacity mask)[8] and separating the photographs in 2 layers. For each technological and business advances image matting is incredibly necessary. Recent advancement on digital cameras, victimisation matting technique to make novel composites different writing tasks has gained accumulating interest for each professionals and customers. In this work we have a tendency to gift a general kind answer to natural image matting.*
***Keywords:** Matting, foreground, background, alpha, matte*

I. INTRODUCTION

IMAGE matting could be a useful gizmo for film production, image and video writing however continues to be difficult task within the field of image process and computer vision. With the blooming of movie industry and image process, image matting is gaining importance. Matting is sometimes enforced exploitation foreground (F) of image extracted accurately and glued onto different background. Specifically, the colour Ii of a component I in an image is thought-about to be foreground colour Fi and a background colour Bi. So that we may write

$I = \alpha\, i\, F_i + (1 - \alpha\, i)\, B_i$

Here , αi is called alpha matte, it is the count of opacity of the foreground pixel and have value in 0 and 1.
The matting techniques[9,10] may be classified into three categories:

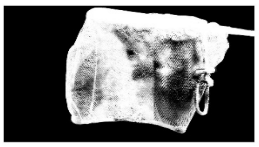
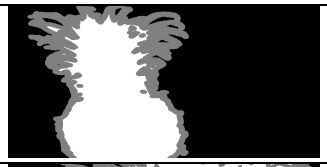
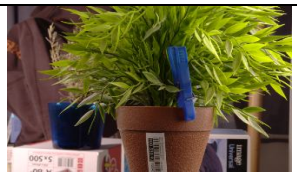
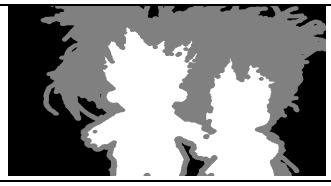
A. Sampling-based Matting
B. Propagation-based matting (alpha propagation-based matting)
C. Learning-based matting

The hybrid of sampling primarily depends on propagation-based matting is additionally used to produce the standard result and blue screen matting technique [11]that places foreground into the refined background for cut back the complicated interference of the background . Sampling primarily based on a technique that works on similarity and continuity of image. Initially we've to calculate the foreground and background colour then calculate the alpha matte.

II. RESULTS

By using the matting technique we have the following results,

Image Name	Original Image	Trimap Images	Output Image(Matting)
(1) doll.png			
(2) donkey.png			

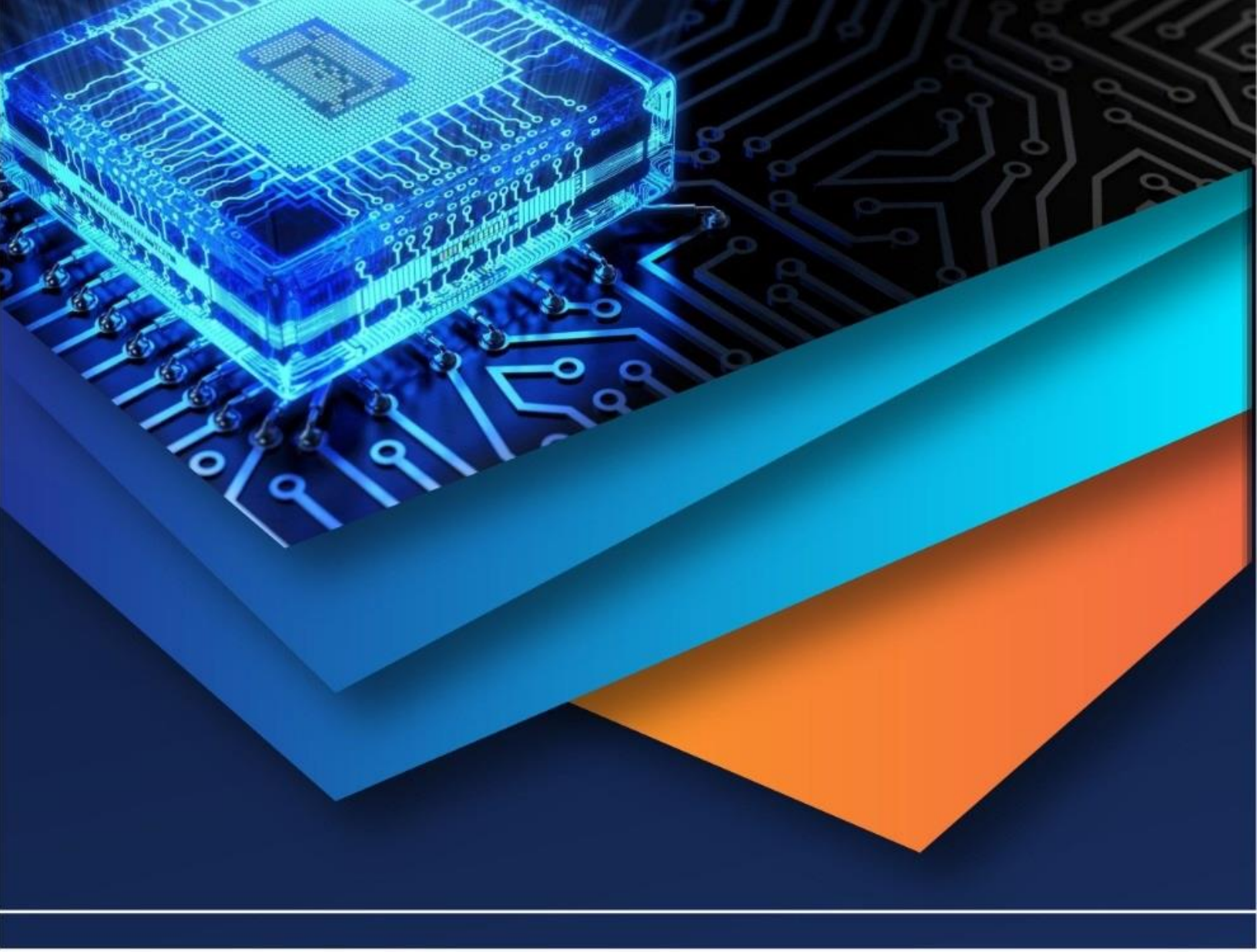
(3) elephant.png			
(4) net.png			
(5) pineapple.png			
(6) plant.png			
(7) plasticbag.png			
(8) Trolls.png			

III. CONCLUSION

Matting may be a central importance in image and video writing and cause a major challenge in pc vision. This method conjointly needed user interaction. Here we tend to took eight pictures and that they also are totally different to every alternative, and during this paper we've got done basic matting looking on that we tend to separate the foreground object from the background. this is often a basic image matting technique and in future we wish to develop our method and can be enforced it on on-line videos, real application etc.

REFERENCES

[1] Jian Sun, JiayaJia, Chie Keung Tang, Heung YeungShum:Poisson Matting
[2] Jonathan Finger, Oliver Wang, Video Matting from depth Maps
[3] P. Perez, M. Gangnet, and A. Blake, “Poisson Image Editing”, SIGGRAPH, 2003.
[4] Study and Implementation of Video and Image Matting Techniques:Siddharth Srivastava, Aditya Rastogi, ShailiBhati, Jasdeep Singh Khurana
[5] Image Matting Using Linear Optimization: Shifeng Chen, Zhenguo Li, Jianzhuang Liu,Xiaoou Tang
[6] Fast Matting Using Large Kernel Matting Laplacian Matrices:Kaiming He, Jian San, Xiaoou Tang
[7] A. Levin, A. Rav-Acha, and D. Lischinski, “Spectral matting,” IEEE Trans. Pattern Anal. Mach. Intell., vol. 30, no. 10, pp. 1699–1712, 2008.
[8] J. Sun, J. Jia, C.-K. Tang, and H.-Y. Shum, “Poisson matting,” ACM Trans. Graph., vol. 23, no. 3, p. 315, 2004.
[9] W. Hu, Y. Zhongming, M. Congbo, W. Hongyue, and O. Mingting, “A Fast Image Matting Method Based on Interval-Line Sampling,” 22017 IEEE Int. Conf. Comput. Sci. Eng. IEEE Int. Conf. Embed. Ubiquitous Comput., pp. 912–915, 2017.
[10] S. M. Assari, H. Idrees, and M. Shah, “Re-identification of Humans in Crowds using Personal, Social and Environmental Constraints,” vol. 1, pp. 626–643, 2016.
[11] G. L. Yao, “A Survey on Pre-Processing in Image Matting,” J. Comput. Sci. Technol., vol. 32, no. 1, pp. 122–138, 2017.



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY