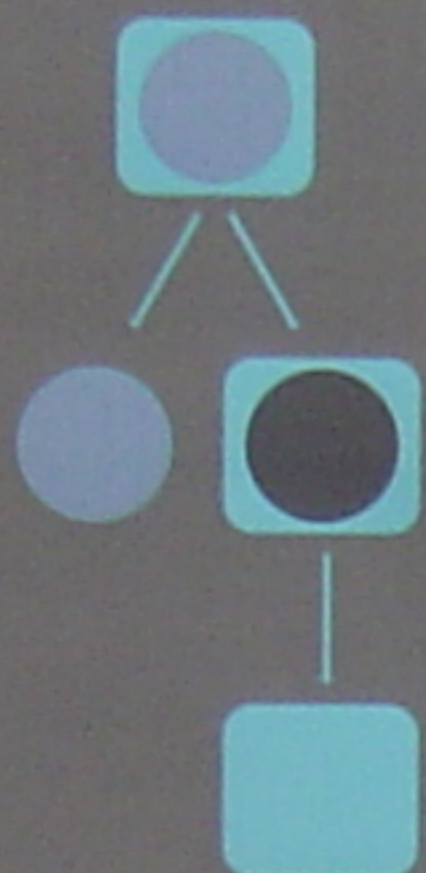


SPLITTING IMAGE

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Project Overview



Foreground Object Extraction

- Implemented algorithm proposed in "Optimized Color Sampling for Robust Matting" [5]
- The user traces the outline of the foreground object and selects any pixel in the foreground region to create a trimap.
- The trimap is then processed to produce a matte.



Foreground Object Extraction

- Each pixel in the unknown region of the trimap is processed:
 - Sample pairs are selected.
 - Each sample pair is processed to determine alpha and confidence values for the pair.
 - The alpha and confidence values of the 3 pairs with the highest confidence values are averaged and used as the alpha and confidence values for the unknown pixel.
- The alpha values and thresholds are used to determine the output images.

FOE: Results



Background Image Inpainting

- Implemented algorithm proposed in "Fast Digital Image Inpainting" [4]
- Input is original image and a mask image.
- The inpainting region is processed iteratively from the outer boundary inward.



Background Image Inpainting

- For each iteration a diffusion kernel is applied to all pixels in the inpainting region that have a value.
 - Two possible kernels:

0.072238	0.176765	0.072235	0.125	0.125	0.125
0.176765	0	0.176765	0.125	0	0.125
0.072235	0.176765	0.072235	0.125	0.125	0.125
- The iterative inpainting process is repeated until a certain number of iterations is reached or the inpainting region ceases to change.

BII: Results



Splitting Image: Results



Splitting Image: Results



Conclusion

- Limitations**
 - Inpainting method is only suitable for small areas of low contrast.
 - Both matte and inpainting quality depend on how well user paints outline of foreground object.
- Contribution**
 - This work is an improvement of current process used in JTIP program.
 - Offers a combined solution to two problems.
- Future Work**
 - Complete matte optimization.
 - Improve inpainting by adding diffusion barriers for high contrast edges.
 - Integration with JTIP program.

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