

Computational Photography

Final Project Final Presentation

Anti-Virtual Reality

Group 7

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Anti-Virtual Reality



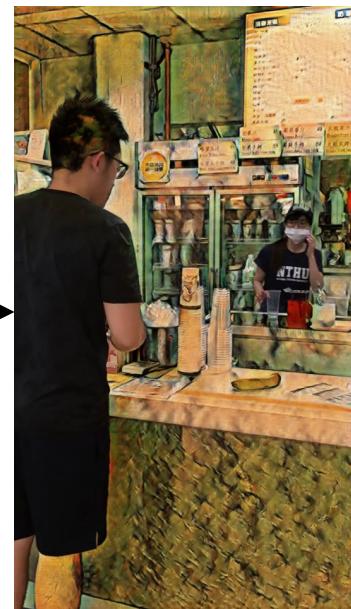
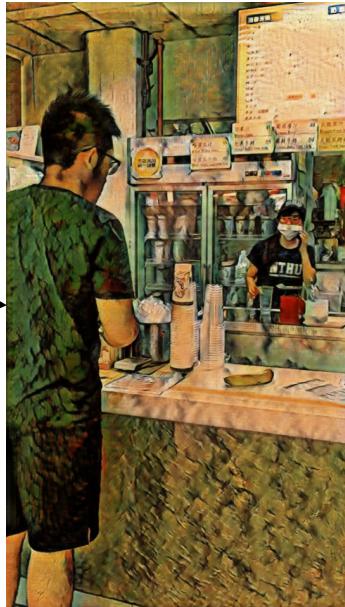




segmentation



style transfer



Segmentation Artifact

- Artifacts near foreground edge
- Use matting instead of segmentation





Matting

Learning-based matting method
Learn Matting (ECCV'16)

using tri-maps and apply
algorithm

Segmentation models tend to predict
as foreground pixel, but not



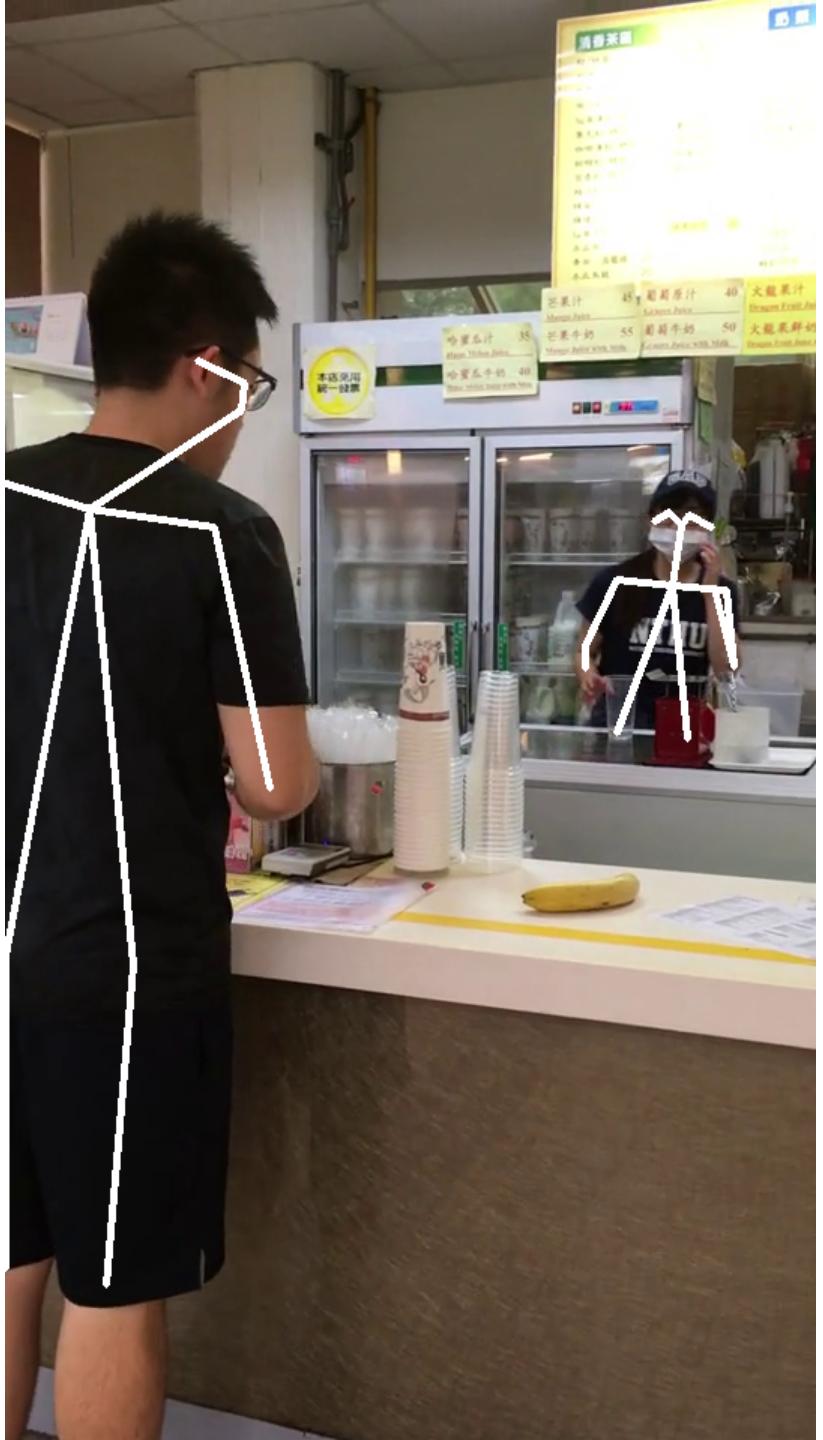
segmentation

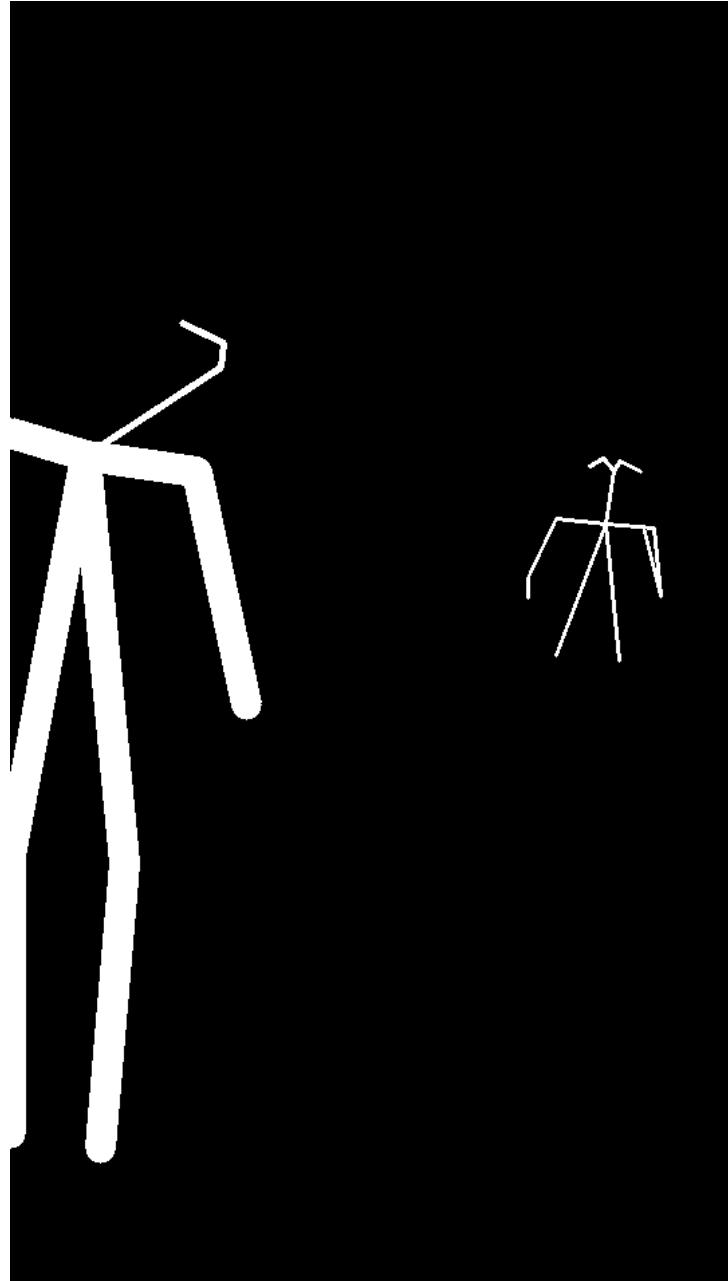


tri-map without foreground

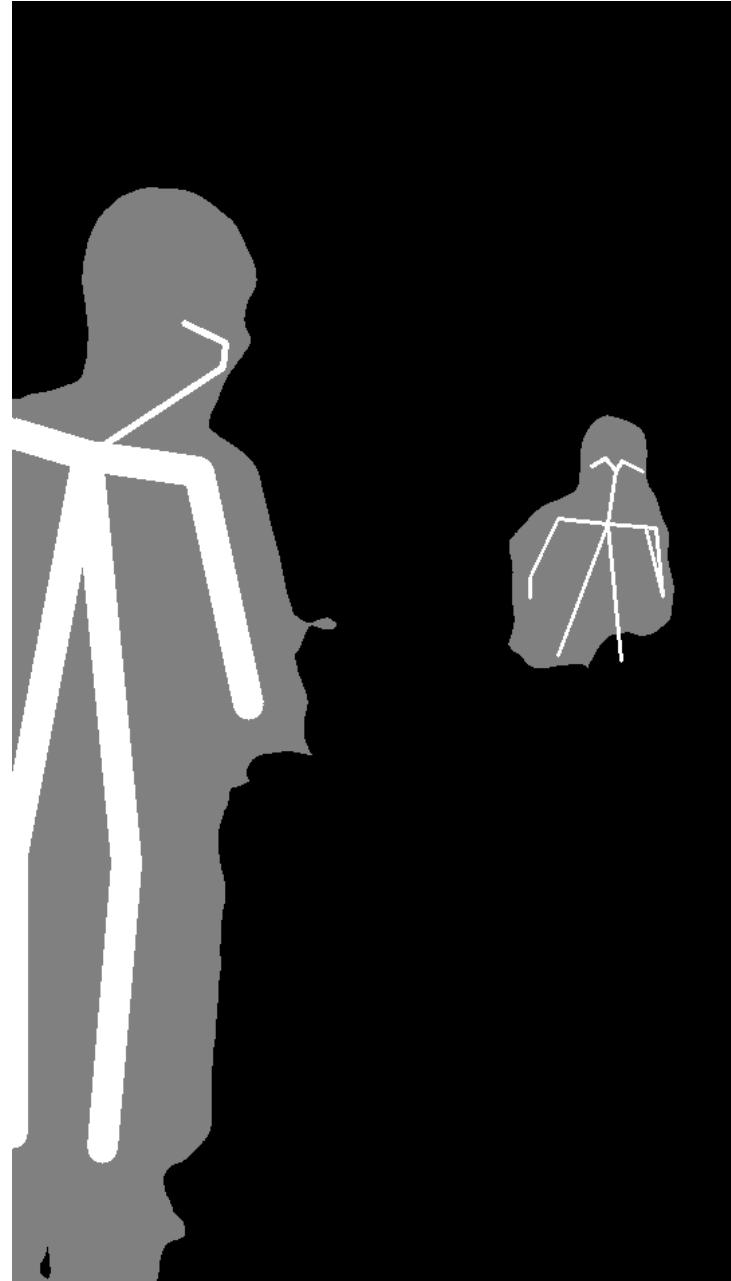
Generating Foreground

- Pose estimation labels body parts
 - Realtime Multi-Person Pose Estimation (CVPR'16)





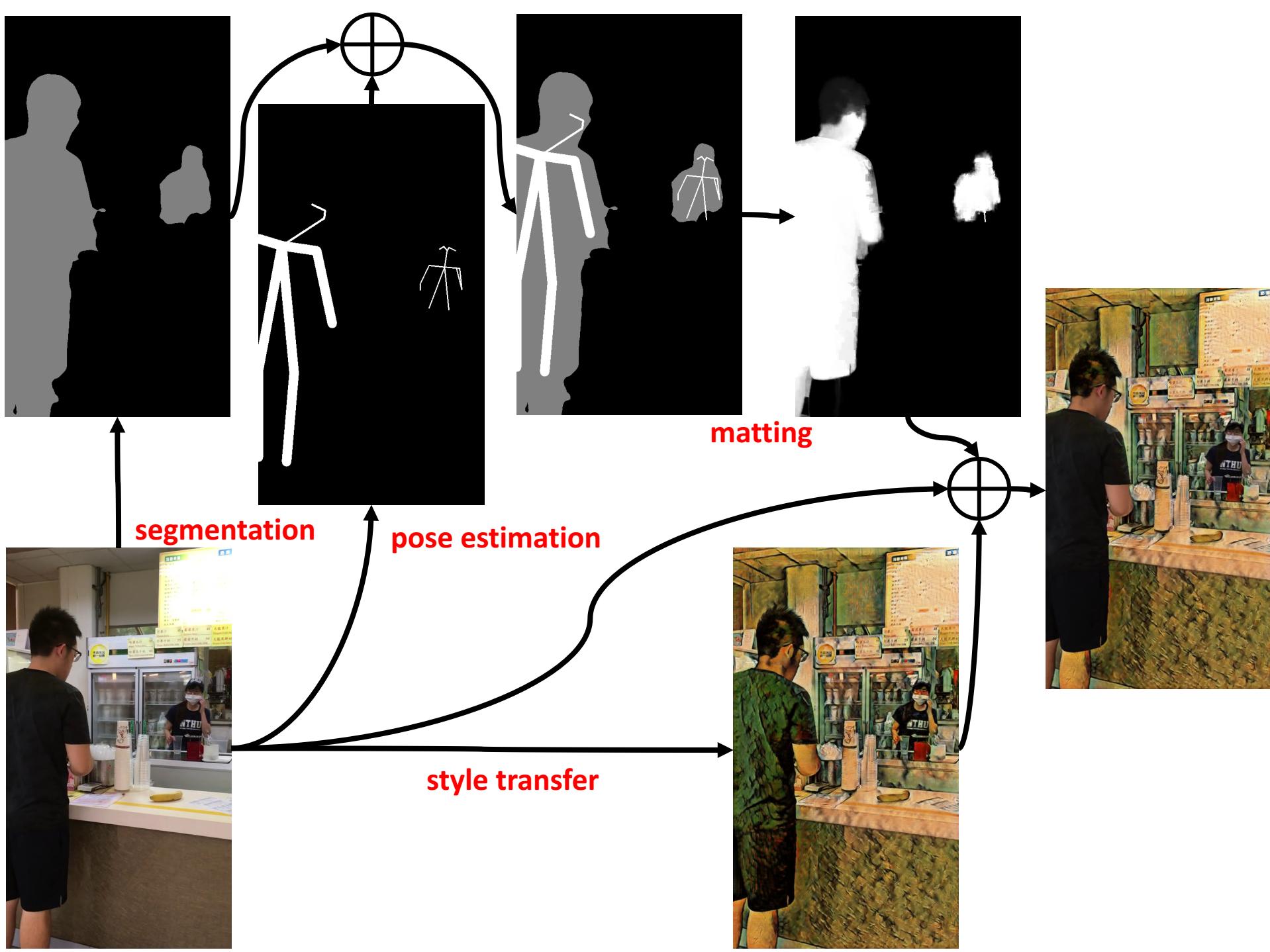
pose estimation



tri-map

Choosing a Matting Algorithm

- Our generated tri-map is not precise
- Matting algorithm that can tolerate rough tri-map
 - A Closed Form Solution to Natural Image Matting (CVPR'06)



Behind the Scenes.....

- At first, we want to use learning-based method to do matting automatically
- Based on the ECCV paper, we design the network architecture and prepare the training set
 - Design a tri-map drawing tools for generating training pairs😊
 - We carefully drew over 300 tri-maps😊
 - But it turns out the model failed😢

Tri-map Drawing Tool



Behind the Scenes.....

- For style transfer, we also tried ONE-PIECE style, and trained many days, but it turns out weird ☹



Our Contributions

- Design a model for image matting, and create a small but delicate tool for easily drawing tri-maps, and finally, we draw 300 tri-maps by hand
- Combine the results of semantic segmentation and pose estimation to automatically generate tri-maps
- Read related papers and read/modify/debug code from GitHub, and write many scripts to automate the entire system