Facial Expression Modification
The user can change the expression of a person to be happier or sadder where there are 5 levels for each expression.
Stylegan [Puzer/stylegan-encoder, GitHub] (NVIDIA)
-> Tensorflow implementation
- Face detection
- Face extraction and alignment
- Latent representation generation
- Expression modification

Object Removal
The user can remove objects from their photo by painting on them using a brush with different size.
Image inpainting [MathiasGruber/PConv-Keras, GitHub] (NVIDIA)
-> Keras implementation
- Mask creation according to user’s drawing
- Predicting the empty parts with the model that includes Partial Convolutional Layer

Quality Evaluation
The user can get a score out of 10 for the quality of photo(s).
NIMA [idealo/image-quality-assessment, GitHub] (Google)
-> Tensorflow 2 implementation
Aesthetic based Transfer learning with ImageNet pre-trained CNNs for fine-tuning

Theme Transfer
The user can transfer the theme of a target photo to the photo they want to modify.
Fast Photo Style [NVIDIA/FastPhotoStyle, GitHub]
-> PyTorch implementation
- Stylization
- Smoothing

Image Stitching
With both of the options, multiple images can be combined together by utilizing the overlapping areas.
Image Stitching: The user can stitch a photo to the photo they want to modify with this tool.
Panorama: With this option, the user can obtain a panorama from multiple photos.
OpenPano [ppwwyyxxx/OpenPano, GitHub]
-> C++ implementation
Features: SIFT
Transformation: RANSAC
Optimization: focal estimation, bundle adjustment...

Haze Removal
The user can remove the effects of the rain or haze from their photo.
GCANet [cdylfy/GCANet, GitHub]
-> PyTorch implementation
An end-to-end gated context aggregation network-GCANet

Rain Removal

Future Work - Head Pose Modification
3DDFA [cleardusk/3DDFA, GitHub]
-> PyTorch implementation