NANYANG TECHNOLOGICAL UNIVERSITY
SINGAPORE

School of Computer Science and Engineering
College of Engineering

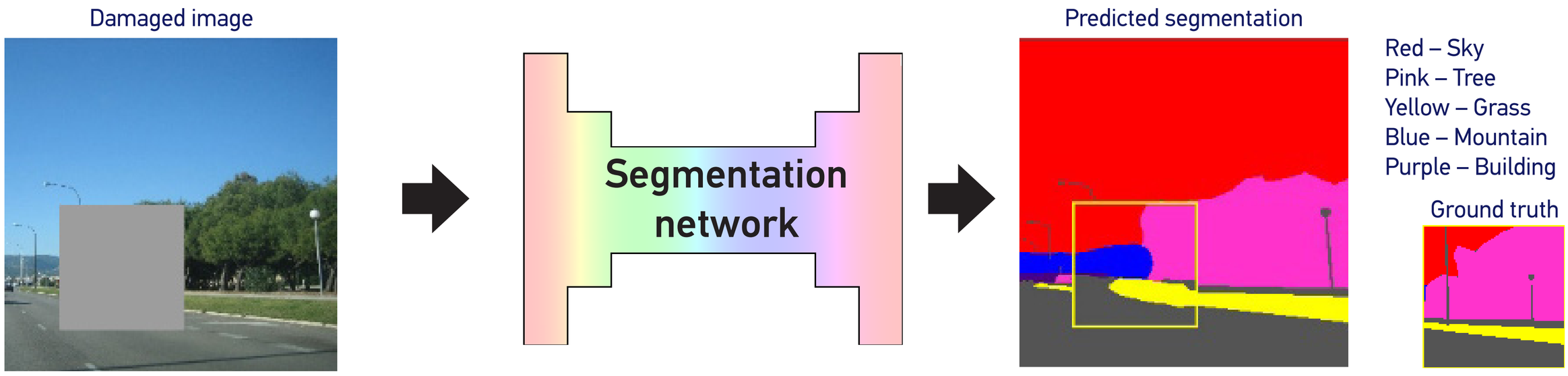
Deep Image Inpainting

Imagine and restore a damaged piece of image

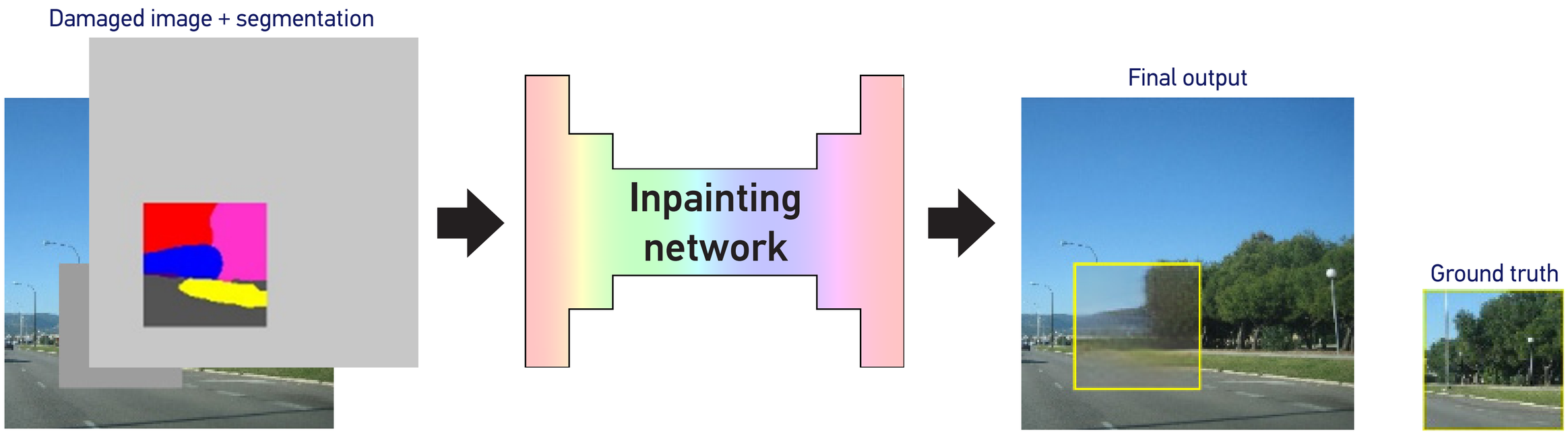
Student: Chua Hao Yang Supervisor: Assoc Professor Loy Chen Change

Image is a powerful visual illustrator. At times, unwanted details can be present in an image. These unwanted regions of an image can be marked for removal. Inpainting will do the job of guessing these regions so that the entire image still looks as natural as possible.

Stage 1: Predict segmentation of an area



Stage 2: Filling in texture and color



Both network basically comprises of a deep convolutional neural network. The first stage aims to predict the damaged region into its possible segmentation. The segmentations are a set of predefined category, such as sky and trees, to mark out the shape and category of prediction. This serves as an additional prior information given to the next stage. This can potentially aid in generating better shape and texture. The second stage is responsible for hallucinating the right colors and textures. Local and global discriminators are applied to final output. Pretrained VGG19 is employed for enhancement on perceptual and style qualities.