CS 736
MEDICAL IMAGE COMPUTING

Project Proposal

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Project Topic :
Semantic Image Inpainting with Deep Generative Models

Link to the paper :
http://openaccess.thecvf.com/content_cvpr_2017/papers/Yeh_Semantic_Image_Inpainting_CVPR_2017_paper.pdf

Details:

Imagine a trained GAN with a generator G and discriminator D. We want to inpaint a corrupted image x. We find the embedding $\hat{z}$ of x by back-propagation on G. Loss is based on a penalizing the correct part of the image to ensure that it's close to the original image and a prior to ensure that it's realistic. We mask the pixel-wise loss by weighing pixel near the missing regions more. The prior is based on the discriminator. Finally, to reconstruct the image, we're going to use both $G(\hat{z})$ and the corrupted image x. The method called Poisson blending is used to ensure that gradients are preserved so that no artifacts because of color variations are observed in the image.

We will implement this model for structural MRI images in 2D.