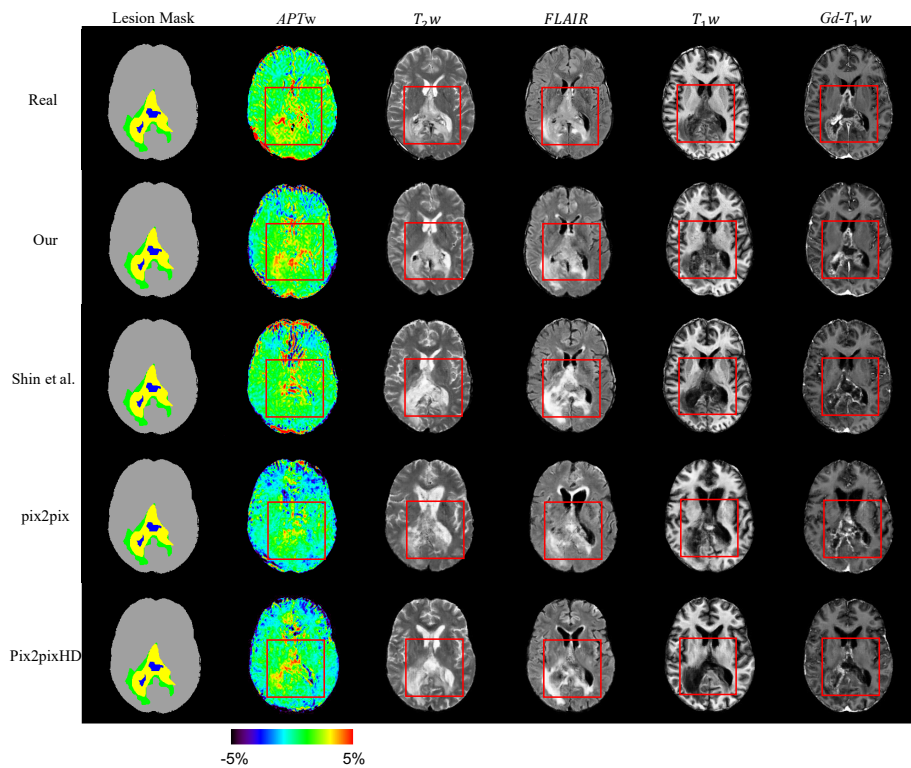


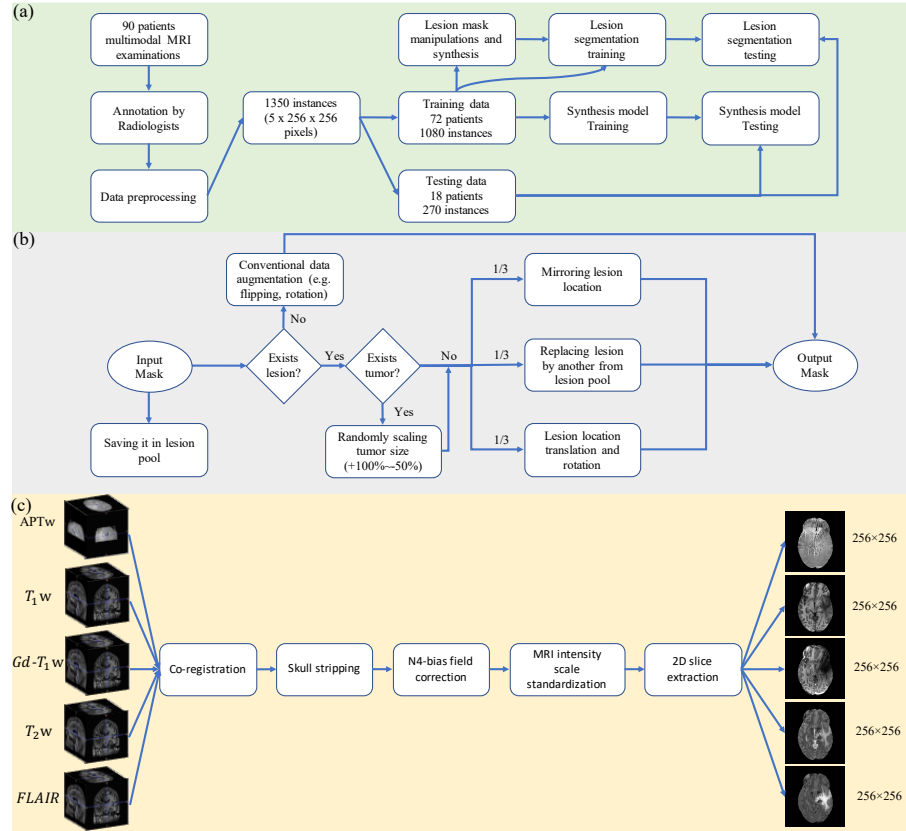
–Supplemental Document–  
Lesion Mask-based Simultaneous  
Synthesis of Anatomic and Molecular  
MR Images using a GAN

Pengfei Guo<sup>1</sup>, Puyang Wang<sup>2</sup>, Jinyuan Zhou<sup>3</sup>,  
Vishal M. Patel<sup>1,2</sup>, Shanshan Jiang<sup>3</sup>

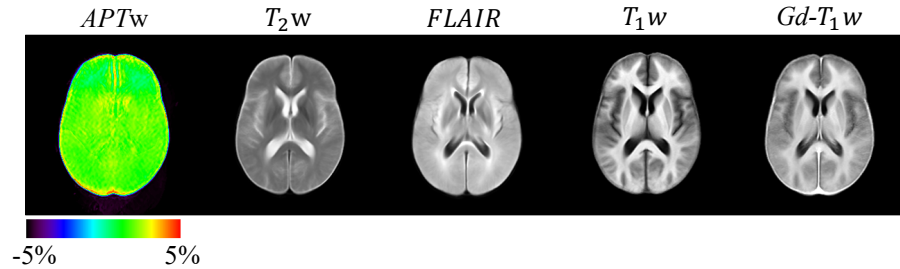
- <sup>1</sup> Department of Computer Science, Johns Hopkins University, MD, USA  
<sup>2</sup> Department of Electrical and Computer Engineering, Johns Hopkins University,  
MD, USA  
<sup>3</sup> Department of Radiology, Johns Hopkins University, Baltimore, MD, USA



**Fig. 1.** Qualitative comparison of different methods. The same lesion mask is used to synthesize images from different methods. In lesion masks, gray, green, yellow, and blue represent normal brain, edema, tumor, and cavity caused by surgery. Red boxes indicate the lesion region.



**Fig. 2.** (a) An overview of data flow in this study. (b) Flowchart for lesion mask manipulations. (c) Data preprocessing pipeline. Imaging parameters for *APT<sub>w</sub>* were set as follows: field of view (FOV),  $212 \times 212 \times 66 \text{ mm}^3$ ; resolution,  $0.82 \times 0.82 \times 4.4 \text{ mm}^3$ ; size in voxel,  $256 \times 256 \times 15$ . Imaging parameters for other anatomic MRI were set as follows: FOV,  $212 \times 212 \times 165 \text{ mm}^3$ ; resolution,  $0.41 \times 0.41 \times 1.1 \text{ mm}^3$ ; size in voxel,  $512 \times 512 \times 150$ .



**Fig. 3.** Atlas of five sequences.