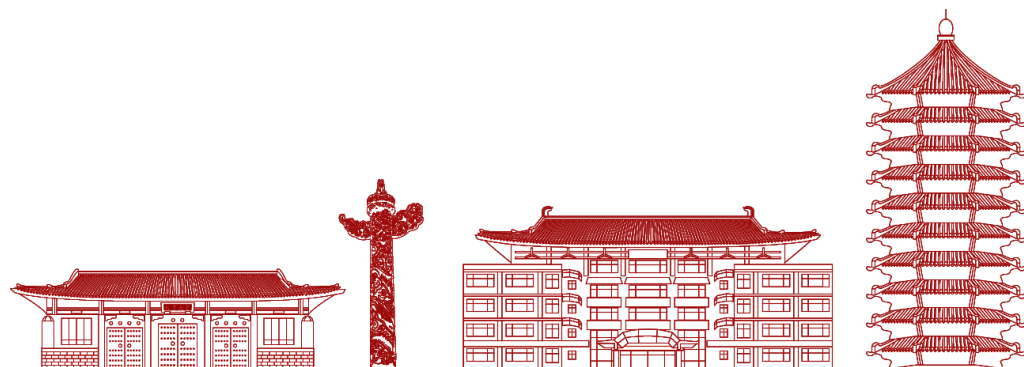
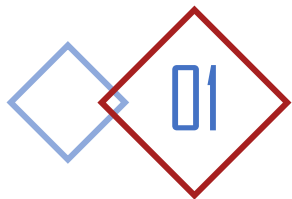


Multi-source Domain Adaptation for Semantic Segmentation

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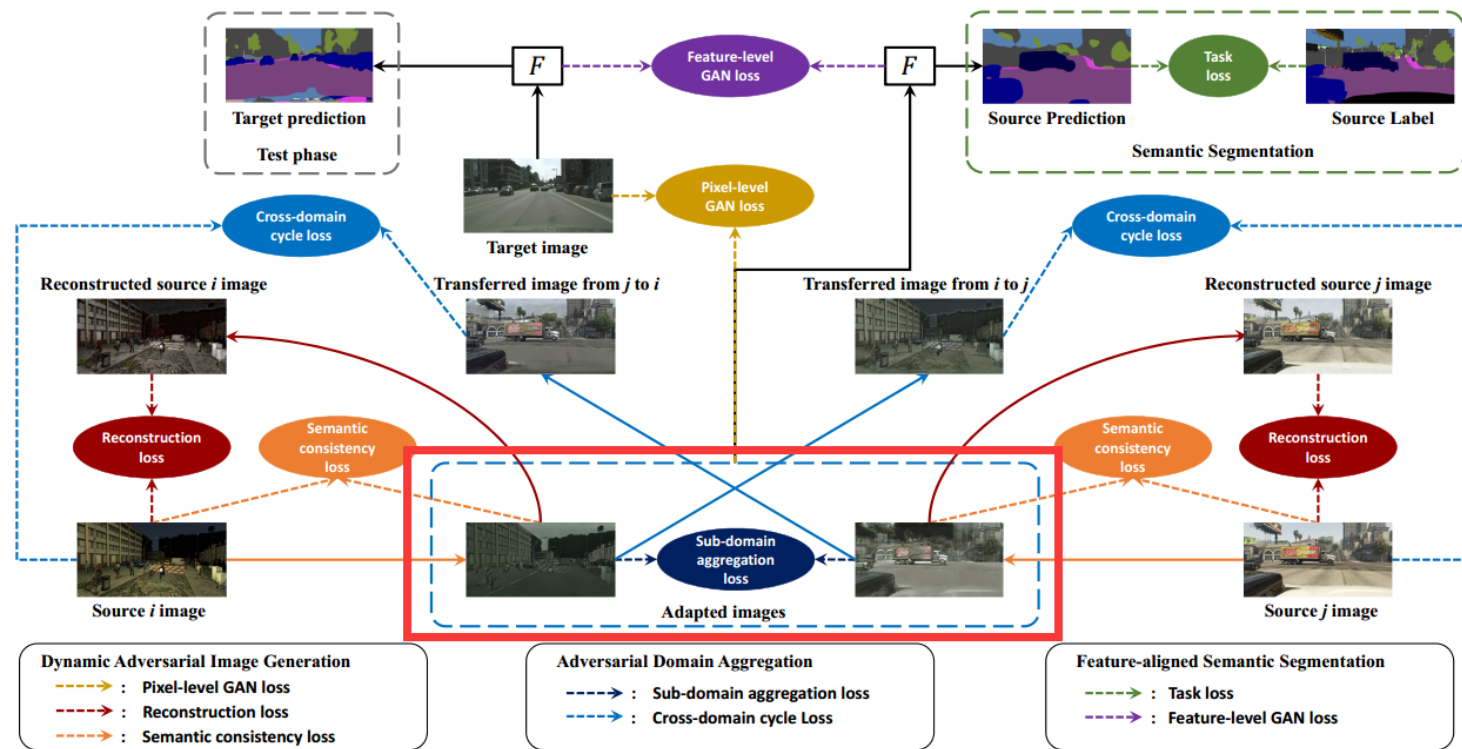


Introduction

Domain Adaptation in Medical Image:

1. 标注数据少，往往仅有自然图像数据集大小的1/10甚至更少。
2. 数据来源多，来自不同模态(MRI,CT),不同医院仪器设备等。
3. 需要更强的可解释性，所以pixel level method比较多见。





1.模型的可扩展性

2.降低模型对标注数据数量的依赖。

02

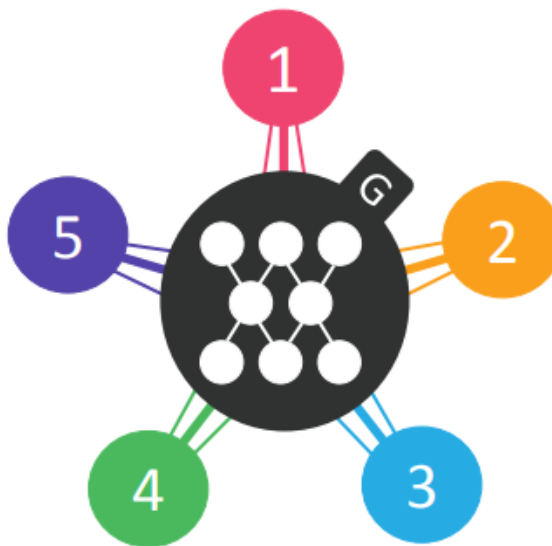
Method

Model的可扩展性，文章中的Generator和Discriminator的数量是 $O(n)$ 的量级，不利于扩展。简化为一个模型：

(a) Cross-domain models



(b) StarGAN



Adaptation+semi-supervised learning:

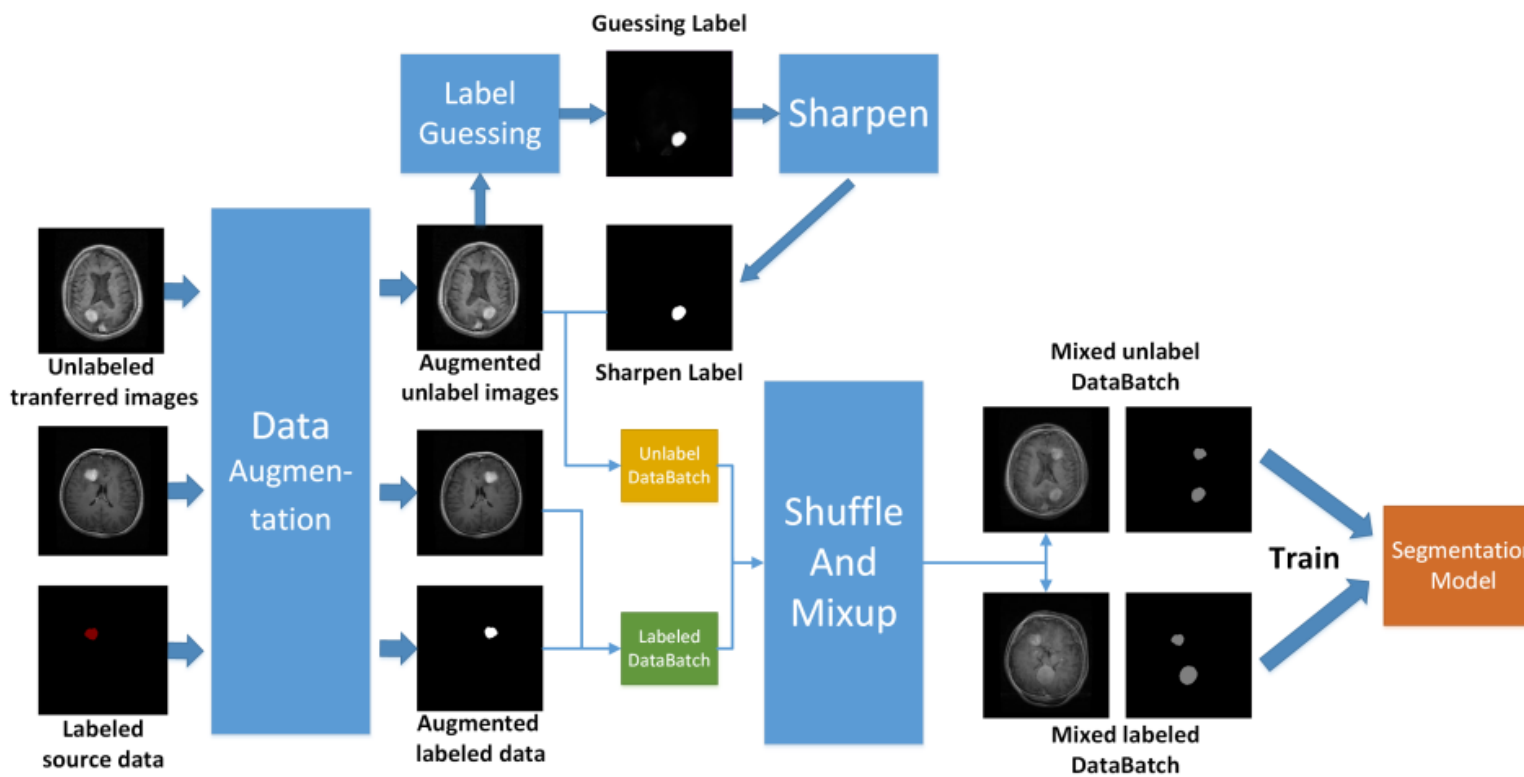
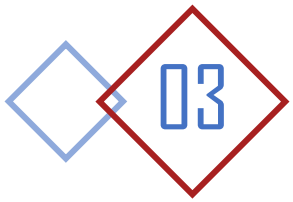
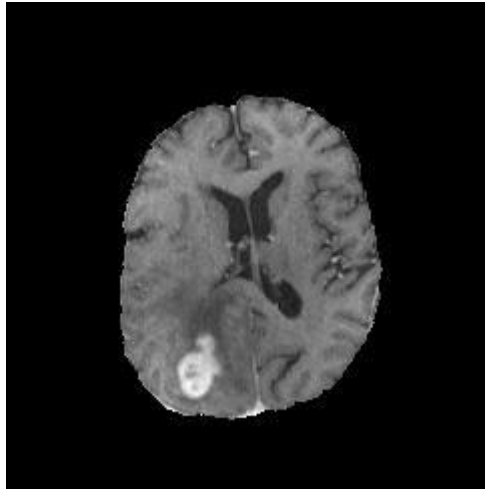


Fig. 2. MixMatch architexture

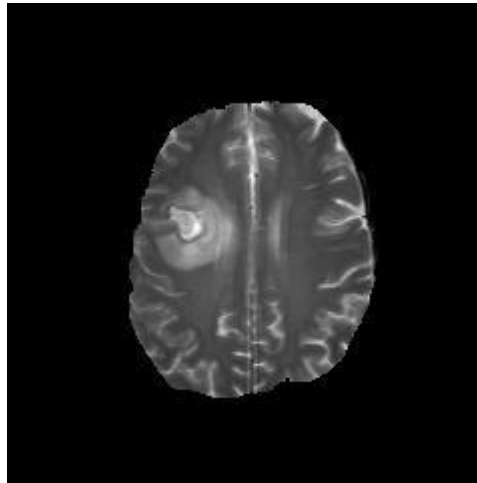


Results

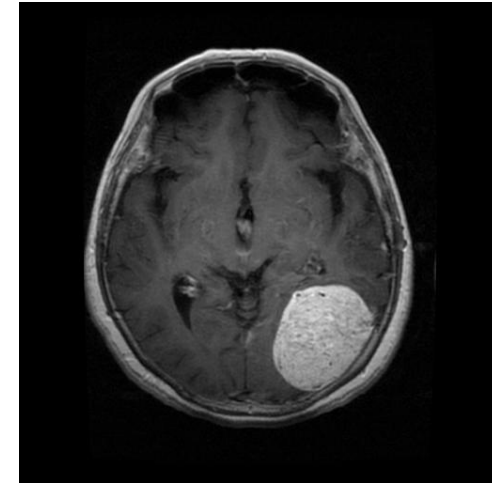
DataSet:



Source Domain S1
MRI-T1CE 1000 images

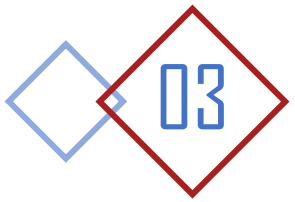


Source Domain S2
MRI-T2 800 images



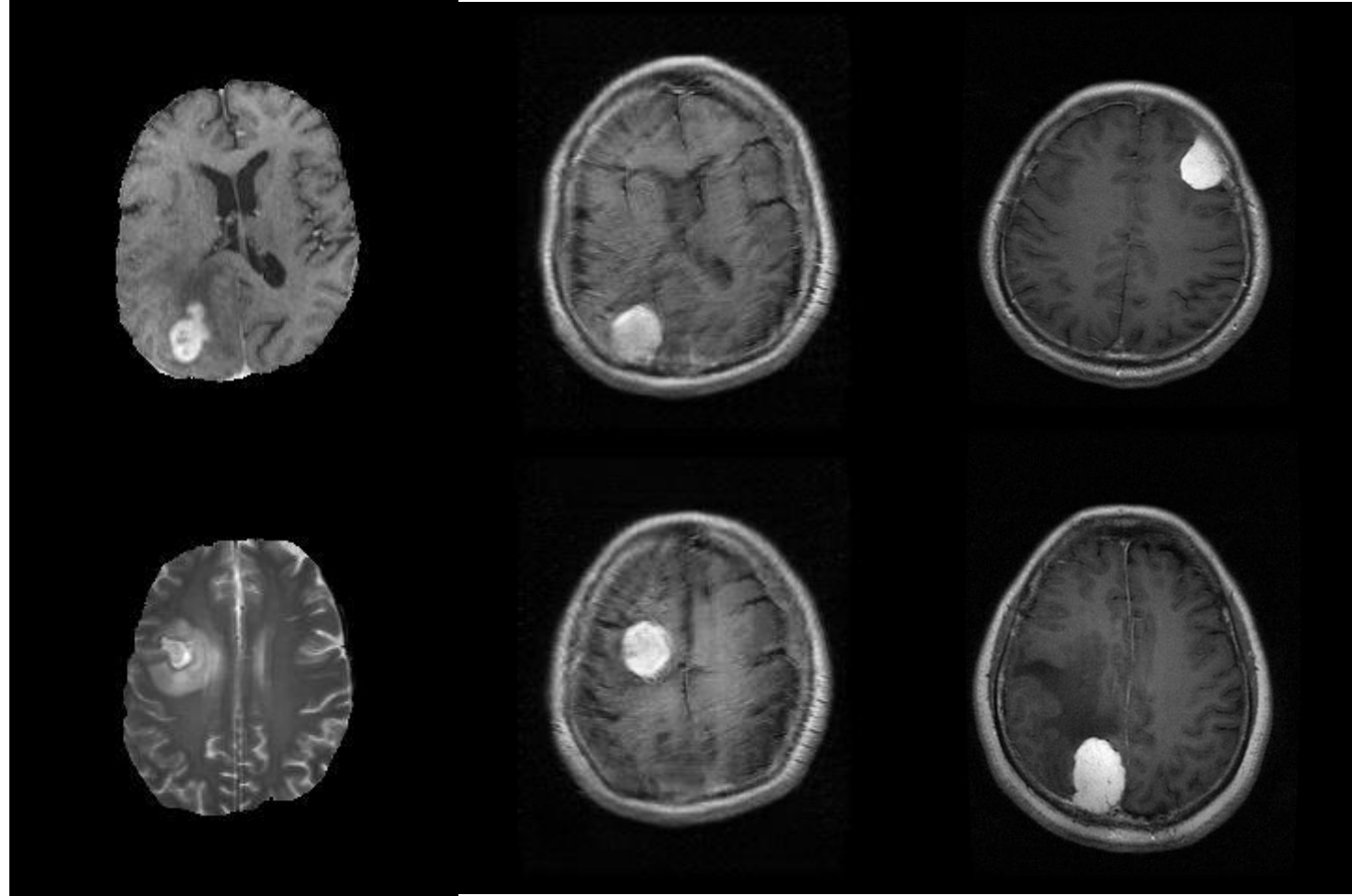
Target Domain t
MRI 500 images

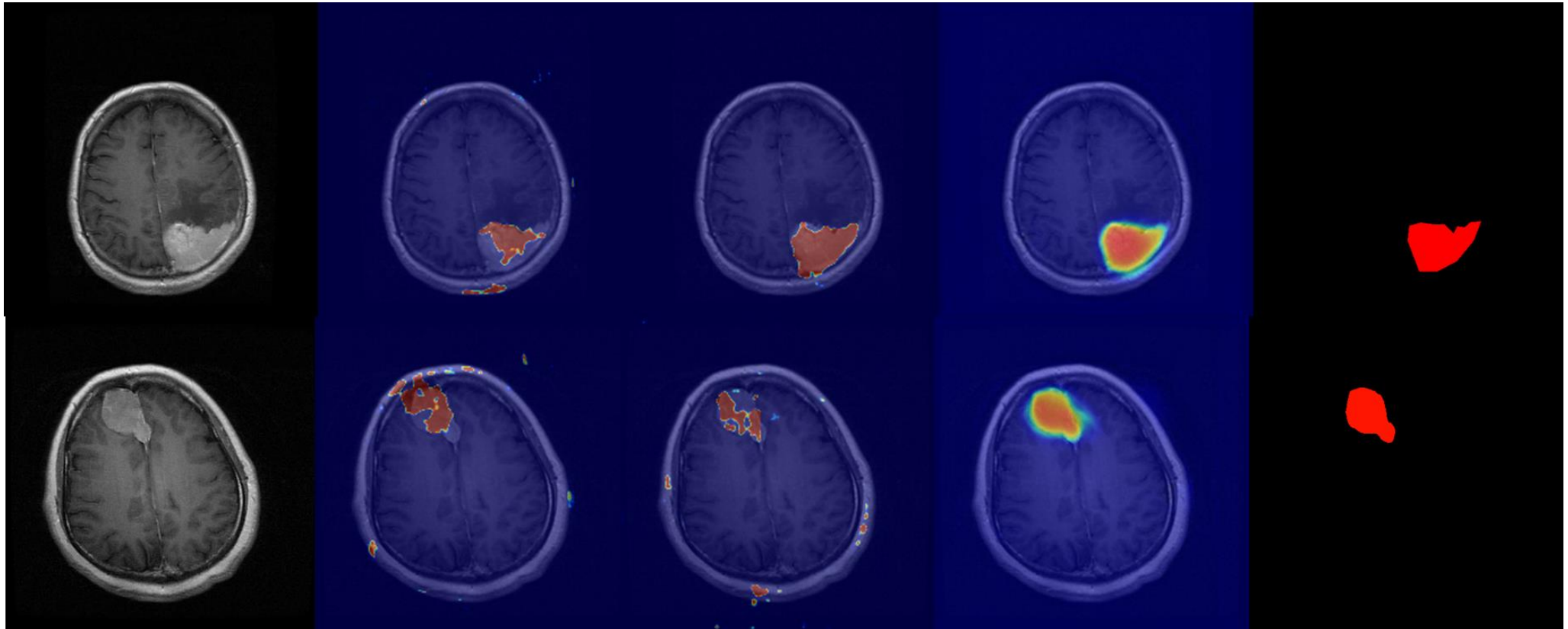




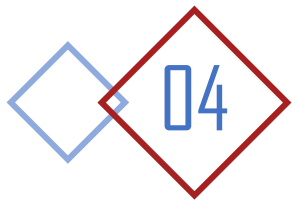
Results

starGAN:





method	prec	recall	MIoU	DICE
Without DA	0.434	0.574	0.385	0.443
Only DA	0.497	0.602	0.445	0.485
DA+SSL	0.656	0.588	0.506	0.543



Conclusions

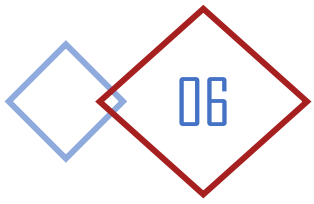
Improvement:

- Scalability — starGAN
- Semi-supervised method

Prospect

- training with tranfered image (false negative problem)





Q&A

