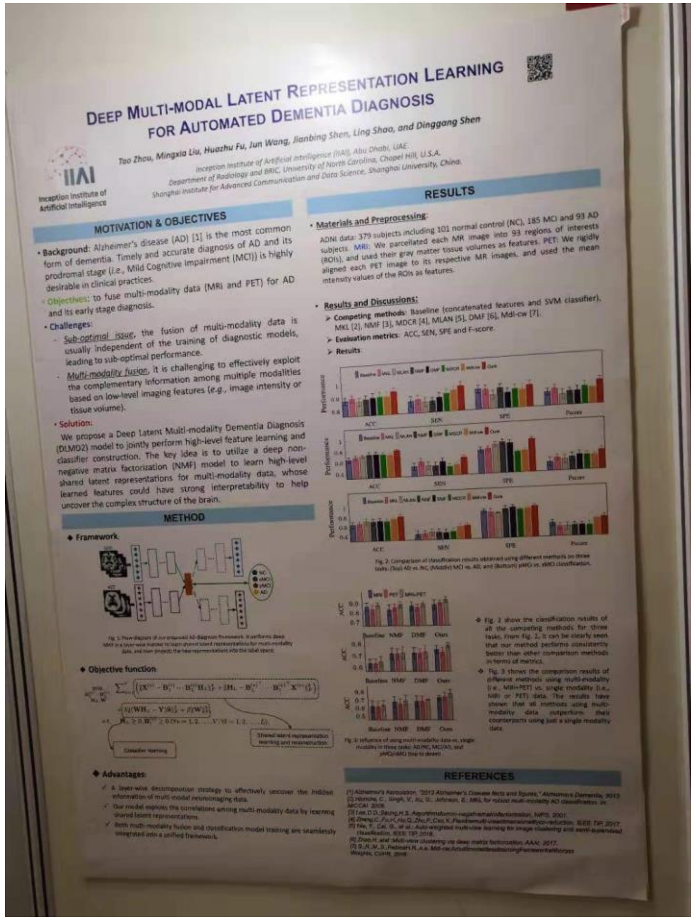
MICCAI 2019 papers on Diagnoses

Deep Multi-modal Latent Representation Learning for Automated Dementia Diagnosis



Tao Zhou[1], Mingxia Liu[2(✉)], Huazhu Fu[1], Jun Wang[3], Jianbing Shen[1(✉)], Ling Shao[1], and Dinggang Shen[2(✉)]

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$$\min_{\substack{\mathbf{B}_1^{(v)}\cdots\mathbf{B}_L^{(v)},\\ \mathbf{H}_L,\mathbf{W}}} \sum_{v=1}^{V}\left(\|\mathbf{X}^{(v)}-\mathbf{B}_1^{(v)}\cdots\mathbf{B}_L^{(v)}\mathbf{H}_L\|_F^2+\|\mathbf{H}_L-\mathbf{B}_L^{(v)\top}\cdots\mathbf{B}_1^{(v)\top}\mathbf{X}^{(v)}\|_F^2\right)$$

$$+\lambda\|(\mathbf{W}\mathbf{H}_L-\mathbf{Y})\mathbf{S}\|_F^2+\beta\|\mathbf{W}\|_F^2,$$

$$s.t.\quad \mathbf{H}_L\geq 0,\mathbf{B}_l^{(v)}\geq 0\ (\forall v=1,2,\ldots,V;\forall l=1,2,\ldots,L),$$

Deep NMF
没有采用梯度下降，而是直接优化B、W和H

Joint Shape Representation and Classification for Detecting PDAC

Fengze Liu[1(✉)], Lingxi Xie[1], Yingda Xia[1], Elliot Fishman[2], and Alan Yuille[1]

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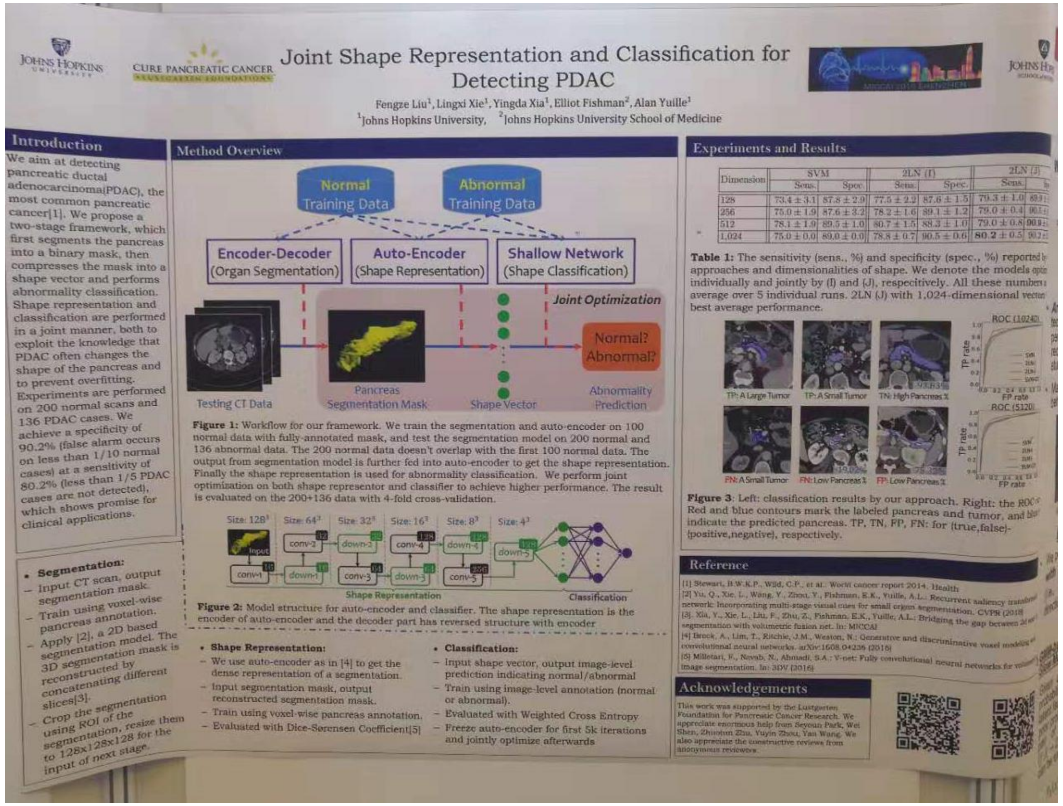
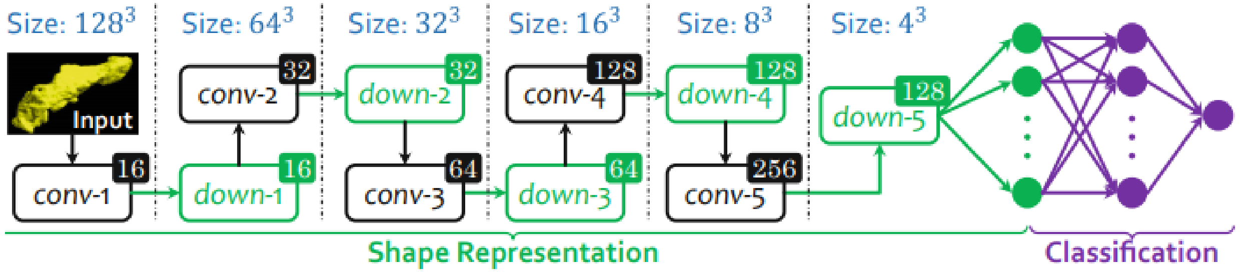
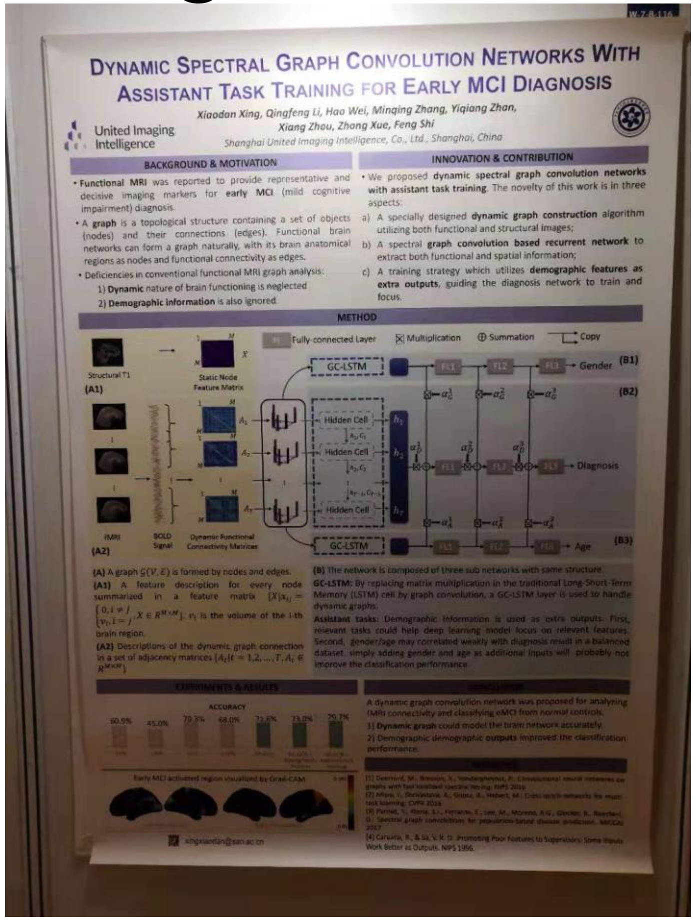




Dynamic Spectral Graph Convolution Networks with Assistant Task Training for Early MCI Diagnosis



Xiaodan Xing[1,2], Qingfeng Li[1,3], Hao Wei[1,4], Minqing Zhang[1,5], Yiqiang Zhan[1], Xiang Sean Zhou[1], Zhong Xue[1], and Feng Shi[1(✉)]

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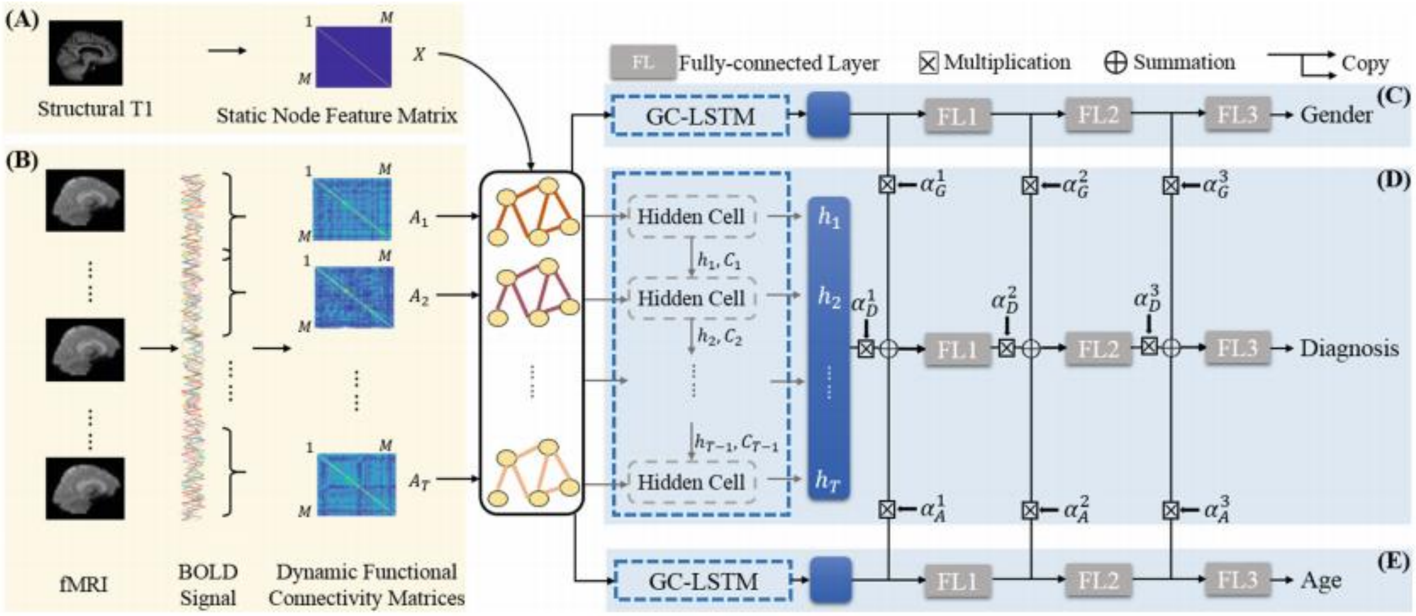
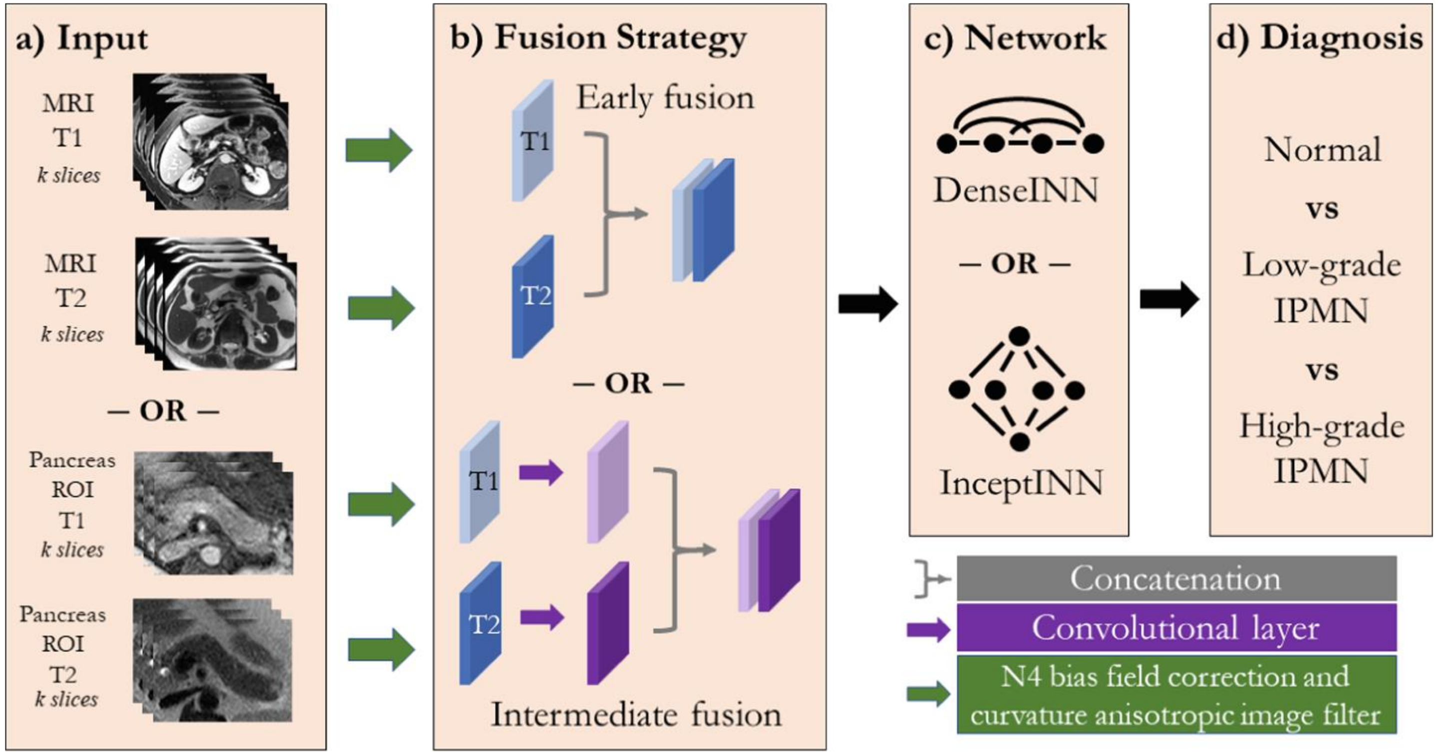


INN: Inflated Neural Networks for IPMN Diagnosis

Rodney LaLonde1 **University of Central Florida**



Inflated: tile the weights and expand **their 2D layers to 3D and bootstrap weights**

Proposed InceptINN and *DenseINN*, for the task of diagnosing IPMN from multi-sequence (T1 and T2) MRI

创新点:

1. one of the first studies to train an end-to-end deep network on multisequence MRI for IPMN diagnosis
2. **handle the extremely limited training data (139 MRI scans), while providing an absolute improvement of 8.76% in accuracy**
3. expanding the pre-trained kernels to handle any number of input modalities and different fusion strategies

Robust Multimodal Brain Tumor Segmentation via Feature Disentanglement and Gated Fusion

Cheng Chen[1(✉)], Qi Dou[2], Yueming Jin[1], Hao Chen[1,3], Jing Qin[4], and Pheng-Ann Heng[1,5]

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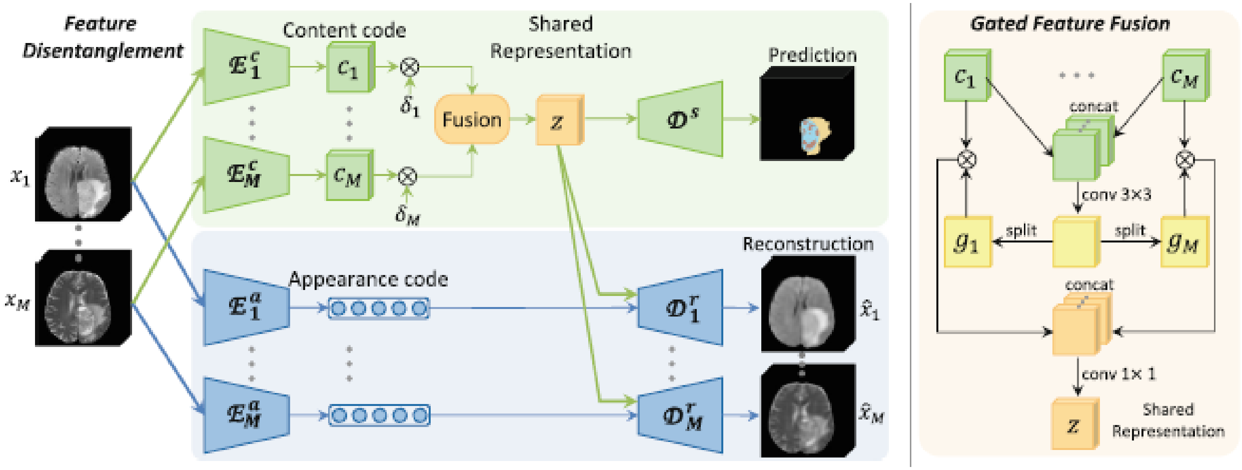

多模态融合分割肿瘤

- 空间拆分:
  - content+appearance
- 融合门:
  - 特征融合后获得一个权重控制模态信息混合
  - 确保保留各模态的有用信息
- 重建分路:
  - 通过重建分路提升code压缩性能