Weijie Gan

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RESEARCH INTERESTS

Computational Imaging, Medical Imaging and Machine Learning.

EDUCATION

Washington University in St. Louis, St. Louis, MO Aug. 2018 – Expected May. 2020
M.S. Student in Computer Science
GPA: 3.61/4.0
Thesis: *Toward Practical Learning-Based Image Reconstruction Methods*
Award: **Master's Fellowship** in the lab of Ulugbek Kamilov & 2019 Fall **Engineering School Tuition Scholarship**
Advisor: Prof. Ulugbek Kamilov

South China University of Technology, Guangzhou, China Aug. 2014 – May. 2018
B.Eng. in Automation
GPA: 3.53/4.0
Minor: B.Business in Administration
Award: **University Annual Third Prize Scholarship** (2015 & 2016)
Advisor: Prof. Hongxia Gao

RESEARCH EXPERIENCE

Graduate Research Assistant Aug. 2018 – Present
Computational Imaging Group, Washington University in St. Louis

- *Deep Learning 4D MR Reconstruction from Sparsely Data Without Ground Truth (ISMRM)*
  - Proposed an novel deep learning approach by directly learning artifact-free 4D motion-resolved MR images from noisy MR data plagued by streaking artifacts, without the need of ground truth.
  - Obtained high-quality and artifacts-free images in real down-sampled data from both WashU Capture and Siemens's Body Compress reconstruction.
- *Multi-Scale of Deep CNN for Unsupervised Image Denoising*
  - Proposed an novel unsupervised image denoising algorithm using only single corrupted images by capturing information from different scale in training.
  - Obtained closed-perform result($<$ 1 dB in PSNR) using much shorter running time, compared with traditional unsupervised method.
- *Iterative-Based Dynamic Fast MR Image Reconstruction Algorithm(ISMRM)*
  - Proposed an novel iterative method in real MRI reconstruction. Outperformed current state-of-art algorithm.

Undergraduate Research Assistant Aug. 2017 – May. 2018
Machine Vision Lab, South China University of Technology

- *Video Super-Resolution Reconstruction*
  - Proposed two methods to enhance the resolution of videos. GitHub: bit.ly/2q7v9rW.
  - Multi-Frame method was based on Max Posteriors Estimation (MAP) with total variation minimum and sparse representation restrictions. It has an average 2dB improvement over the common interpolation method on the PSNR(way to estimate quality of recovered image).
  - Deep-learning method was fulfilled by three-layer Convolutional Neural Network, which has about 4dB improvement in PSNR.