Yu Zhao

homepage Scholar

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Education

- **The University of Georgia** — Athens, GA
  Ph. D. - Computer Science; GPA: 3.95 — *Aug 2013 - Dec 2018*
  Thesis: *Deep learning frameworks for functional and structural medical image analysis*
- **Huazhong University of Science and Technology** — Wuhan, China
  B. E. - Control Science and Engineering; GPA: 89.01/100, Rank: 11/223 — *Aug 2009 - Jun 2013*
  Thesis: *Simultaneous Multi-frame Super-resolution Restoration (image processing)*

Experience

- **Siemens Healthineers** — Malvern, PA
  Senior Research Scientist, (Machine Learning, Deep Learning, Medical Images) — *Oct 2018 - present*
  - **Technical Lead in All MR-funded Projects**: Scanner Automation Algorithms, Similar Image Retrieval Systems
    - **MR AutoAlign/AutoViews**: Using 3D image landmark detection algorithm (AdaBoost, fRCNN, etc) to achieve automatic alignment of MR images of various anatomies or region of interest extraction.
    - **MR Protocol Recommendation**: Using metric learning/contrastive learning, clustering and classification algorithms to build image retrieval system.
    - **Radiotherapy Treatment Planning**: Using landmark detection, image registration, segmentation algorithms (including statistical model and deep learning models) to generate/synthesize attenuation maps from MR images
- **Siemens Healthineers** — Malvern, PA
  Research Intern — *May 2017 - Aug 2017*
  - **Project**: Cross modality synthesis (MRI to CT) using deep learning nets
- **Siemens Healthineers** — Malvern, PA
  Research Intern — *May 2018 - Aug 2018*
  - **Projects**: Landmark detection using deep reinforcement learning; MR auto-alignment.

Skills Summary

- **Expertise**: Machine Learning, Deep Learning, Medical Images, Computer Vision
- **Programming**: Python, C++, JAVA, Matlab, Bash
- **Tools**: Docker, GIT, MySQL
- **Framework APIs**: Pytorch, TensorFlow, Keras, Flask, Spark
- **Soft Skills**: Dedication, Research, Communication, Event Management

Selected First-Authored Publications

- **Journals**
  - **Yu Zhao, et al.**: Deep Learning Solution for Medical Image Localization and Orientation Detection. Medical image analysis(2022). 81, 102529.
  - **Yu Zhao, et al.**: 4D modeling of fMRI data via spatio-temporal convolutional neural networks (ST-CNN). IEEE transactions on cognitive and developmental systems(2020) 12 (3), 451
  - **Yu Zhao, et al.**: Automatic recognition of fMRI-derived functional networks using 3-D convolutional neural networks. IEEE Transactions on Biomedical Engineering(2017) 65 (9), 1975-1984
  - **Yu Zhao, et al.**: Constructing fine-granularity functional brain network atlases via deep convolutional autoencoder. Medical image analysis(2017) 42, 200-211
  - **Yu Zhao, et al.**: Automatic recognition of holistic functional brain networks using iteratively optimized convolutional neural networks (IO-CNN) with weak label initialization. Medical image analysis(2018) 47, 111-126
  - **Yu Zhao, et al.**: Connectome-scale group-wise consistent resting-state network analysis in autism spectrum disorder. NeuroImage: Clinical(2016) 12, 23-33
- **Conferences**
  - **Yu Zhao, et al.**: Towards MR-only radiotherapy treatment planning: synthetic CT generation using multi-view deep convolutional neural networks. International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI) 2018
  - **Yu Zhao, et al.**: 3D Deep Convolutional Neural Network Revealed the Value of Brain Network Overlap in Differentiating Autism Spectrum Disorder from Healthy Controls. MICCAI 2018
  - **Yu Zhao, et al.**: Modeling 4D fMRI Data via Spatio-Temporal Convolutional Neural Networks (ST-CNN). MICCAI 2018
  - **Yu Zhao, et al.**: Two-stage spatial temporal deep learning framework for functional brain network modeling. IEEE 16th International Symposium on Biomedical Imaging (ISBI), 2019
  - **Yu Zhao, et al.**: Template-guided Functional Network Identification via Supervised Dictionary Learning. ISBI 2017
  - **Yu Zhao, et al.**: Inter-subject fMRI registration based on functional networks. ISBI 2017
  - **Dehua Ren*, Yu Zhao*, et al.**: 3-D functional brain network classification using convolutional neural networks. ISBI 2017

Selected Patents

- **Yu Zhao, Yimo Guo, Shu Liao, et al.** Cross-modality image synthesis. US Patent 10,803,354
- **Yu Zhao, Pameet Bhatia, Ke Zeng, et al.** Medical image data, US Patent App. 17/109,505
- **Pameet Bhatia, Yimo Guo, Gerardo Valadez, Zhigang Peng, Yu Zhao** Method and system for detecting landmarks in medical images. US Patent App. 17/190,674

Professional Services

- **Active Peer Reviewer for journals** Human Brain Mapping, IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE/ACM Transactions on Computational Biology and Bioinformatics, IEEE Transactions on Automation Science and Engineering, IEEE Signal Processing Letters, IEEE Journal of Biomedical and Health Informatics, Public Library of Science (PLOS) ONE, etc.
- **Active Peer Reviewer for Conferences** International Conference on Medical Image Computing and Computer-Assisted Intervention, IEEE International Symposium on Biomedical Imaging, etc.