Yufan He

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google scholar: https://scholar.google.com/citations?user=btkEZXIAAAAJ&hl=en

INDUSTRY EXPERIENCES

Applied Research Scientist, NVidia, Santa Clara, USA Nov.2021-Present

- Developing artificial intelligence algorithms for healthcare.
- AutoML for medical image segmentation.
- Developing healthcare AI platform MONAI (https://monai.io/).

Intern, NVidia, Santa Clara, USA Jun.2020-Aug.2020

- Developed an efficient neural architecture search method for 3D medical image segmentation.
- Ranked first place in the Medical Segmentation Decathlon challenge live leaderboard.

Intern, SenseTime Research, Beijing, China Jun.2018-Aug.2018

- Developed a deep learning method for parking spot detection for autonomous driving.
- Developed a method for generating bird-view images from monocular RGB camera for autonomous driving.

Consultant, Sonavex Inc., Baltimore, USA May.2017-Jun.2017

- Developed a segmentation method for polymeric implant in surgical patients from ultrasound images.

EDUCATION

Department of Electrical and Computer Engineering, The Johns Hopkins University, USA Sep.2016-Nov.2021

Doctor of Philosophy, Electrical and Computer Engineering

Master of Science, Electrical and Computer Engineering

Overall GPA: 4.0/4.0 Core courses:

Medical Image Analysis (A)	Medical Imaging Systems (A)
Deep Learning (A)	Deep Learning in Discrete Optimization (A)
Vision as Bayesian Inference (A)	Bayesian Statistics (A)
Random Signal Analysis (A)	Statistical Pattern Recognition (A)
Approximation Algorithms (audit)	Compressed Sensing and Sparse Recovery (A)

Department of Electronic Engineering, Tsinghua University, China Aug.2012-Jul.2016

Bachelor of Electronic Information Science and Technology

School of Economics and Management, Tsinghua University, China Aug.2013-Jul.2016

Bachelor of Management (Second Degree)

RESEARCH EXPERIENCES

Image Analysis and Communication Lab, The Johns Hopkins University, USA Sep.2016-Present

Faculty Supervisor: Jerry. L. Prince

- Developed a set of deep learning algorithms for automated retinal optical coherence tomography images (OCT) and OCT Angiography images analysis.
- Developed a set of domain adaptation methods for deep networks.
- Developed a set of deep learning algorithms for brain MRI/CT image analysis.

Penn Image Computing and Science Lab, University of Pennsylvania, USA Jul.2015-Sep.2015

Faculty Supervisor: James. C. Gee

- Segmentation algorithm and user interface development for canine retinal OCT images.

Institute of Computer Software, Tsinghua University, China Apr.2015-Apr.2016

Faculty Supervisor: Yankui Sun

- Retinal OCT image segmentation using boundary surface enhancement and classification with sparse coding and SVM.

Institute of High-Speed Signal Processing and Network Transmission, Tsinghua University, China Oct.2014-Jun.2016

Faculty Supervisor: Yimin Liu

- Image motion correction and imaging device design for stepped-frequency microwave induced thermoacoustic tomography.

TEACHING EXPERIENCES

Teaching Assistant, Random Signal Analysis, The Johns Hopkins University, USA Sep.2017-Dec.2017

Faculty Supervisor: Archana Venkataraman

Teaching Assistant, Compressed Sensing and Sparse Recovery, The Johns Hopkins University, USA Feb.2018-May.2018

Faculty Supervisor: Trac D. Tran

AWARDS

- MICCAI 2020 Student Travel Award
- MICCAI 2019 Young Scientist Award
- MICCAI 2019 Student Travel Award
- The 2018 George M.L. Sommerman Engineering Graduate Teaching Assistant Award
- 4th MICCAI Workshop on Ophthalmic Medical Image Analysis 2017, Best Oral Paper Award

PUBLICATION

1. **Yufan He,** et al. "Autoencoder Based Self-Supervised Test-Time Adaptation for Medical Image Analysis", ***Medical Image Analysis,*** **2021.**
2. **Yufan He,** et al. "DiNTS: Differentiable Neural Network Topology Search for 3D Medical Image Segmentation", ***CVPR*** **2021. (Oral)**
3. **Yufan He,** et al. "Structured layer surface segmentation for retina OCT using fully convolutional regression networks", ***Medical Image Analysis,*** **2020.**
4. **Yufan He,** et al. "Self domain adapted network", ***MICCAI*** **2020. (Oral)**
5. **Yufan He,** et al. "Fully convolutional boundary regression for retina OCT segmentation", ***MICCAI*** **2019. (Oral)**
6. **Yufan He,** et al. "Deep learning based topology guaranteed surface and MME segmentation of multiple sclerosis subjects from retinal OCT", ***Biomedical Optics Express*****, 2019.**
7. **Yufan He, et al.** "Segmenting retinal OCT images with inter-B-scan and longitudinal information", ***SPIE Medical Imaging*** **2020.**
8. **Yufan He, et al.** "Adversarial domain adaptation for multi-device retinal OCT segmentation", ***SPIE Medical Imaging*** **2020 (Oral).**
9. **Yufan He, et al. "**Topology guaranteed segmentation of the human retina from OCT using convolutional neural networks." ***arXiv preprint arXiv:1803.05120*** **(2018*).***
10. **Yufan He,** et al. "Towards topological correct segmentation of macular OCT from cascaded FCNs." ***4th MICCAI workshop on Ophthalmic Medical Image Analysis*** **2017 (Oral).**
11. **Yufan He**, et al. "Automatic Segmentation of Canine Retinal OCT Using Adaptive Gradient Enhancement and Region Growing", ***SPIE Medical Imaging*** **2016.**
12. Junyu Chen, **Yufan He**, et al. "ViT-V-Net: Vision Transformer for Unsupervised Volumetric Medical Image Registration", ***MIDL*** **2021. (short paper)**
13. Shuo Han, **Yufan He**, et al. "Cerebellum parcellation with convolutional neural networks.", ***SPIE Medical Imaging*** **2019.**
14. Jacob Reinhold, **Yufan He**, et al. "Finding novelty with uncertainty", ***SPIE Medical Imaging*** **2020.**
15. Jacob Reinhold, **Yufan He**, et al. "Validating uncertainty in medical image translation", ***ISBI*** **2020.**
16. Shuo Han, Aaron Carass, **Yufan He**, et al. "Automatic cerebellum anatomical parcellation using U-Net with locally constrained optimization", ***NeuroImage,*** **2020**
17. Yihao Liu, Aaron Carass, **Yufan He,** et al. "Layer boundary evolution method for macular OCT layer segmentation", ***Biomedical Optics Express,*** **2019.**
18. Dawei Li, Jimin Wu, **Yufan He**, et al. "Parallel deep neural networks for endoscopic OCT image segmentation", ***Biomedical Optics Express,*** **2019.**
19. Sureerat Reaungamornrat, Aaron Carass, **Yufan He,** et al. "Inter-scanner variation independent descriptors for constrained diffeomorphic demons registration of retina OCT", ***SPIE Medical Imaging*** **2018**
20. Can Zhao, Aaron Carass, Junghoon Lee, **Yufan He,** et al. "Whole brain segmentation and labeling from CT using synthetic MR images", ***8th MICCAI Workshop on Machine Learning in Medical Imaging*** **2017.**
21. Blake Dewey, Lianrui Zuo, Aaron Carass, **Yufan He**, et al. "A Disentangled Latent Space for Cross-Site MRI Harmonization", ***MICCAI*** **2020.**
22. Yihao Liu, Lianrui Zuo, Aaron Carass, **Yufan He**, et al. "Variational Intensity Cross Channel Encoder for Unsupervised Vessel Segmentation on OCT Angiography", ***SPIE Medical Imaging*** **2020.**
23. Yihao Liu, Aaron Carass, Angeliki Filippatou, **Yufan He**, et al. "Projection Artifact Suppression for Inner Retina in OCT Angiography", ***ISBI*** **2018.**
24. Lianrui Zuo, Blake Dewey, Aaron Carass, Yiaho Liu, **Yufan He**, et al. "A Disentangled Latent Space for Cross-Site MRI Harmonization", ***IPMI*** **2021.**

Clinical Papers

1. Gonzalez, C. N., Antony, B., **He, Y.,** et al. "Analysis of agreement of retinal-layer thickness measures derived from the segmentation of horizontal and vertical spectralis OCT macular scans." ***Current eye research*****, 2018**
2. Filippatou, A. G., Vasileiou, E. S., **He, Y.,** et al. "Evidence of subclinical quantitative retinal layer abnormalities in AQP4-IgG seropositive NMOSD." ***Multiple Sclerosis Journal*****, 2020**
3. Filippatou, A. G., Vasileiou, E. S., **He, Y.,** et al. "Optic Neuritis–Independent Retinal Atrophy in Neuromyelitis Optica Spectrum

Disorder." ***Journal of Neuro-Ophthalmology*, 2021.**

4. Filippatou, A. G., Vasileiou, E. S., **He, Y.,** et al. "Evidence of subclinical quantitative retinal layer abnormalities in AQP4-IgG seropositive NMOSD." ***Multiple Sclerosis Journal*, 2020.**
5. Zusman, R., Carass, A., **He, Y.,** et al. "Longitudinal Reductions in Thickness of Foveal Inner Retinal Layers in Relation to Progressive Vision Loss in Retinitis Pigmentosa Patients." ***Investigative Ophthalmology & Visual Science, 2018***

REVIEWER EXPERIENCE

- IEEE Access
- International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)
- IEEE Transactions on Medical Imaging (TMI)
- Nature: Scientific Reports
- The Association for the Advancement of Artificial Intelligence (AAAI)