

Yiqing Shen

Github: <https://github.com/yiqings>

Web: <https://yiqingshen.com>

Email: yshen92@jhu.edu

EDUCATION	The Johns Hopkins University , Baltimore, MD, USA	Aug 2022- Now
	<ul style="list-style-type: none">▪ Ph.D. in Computer Science	
	Shanghai Jiao Tong University , Shanghai, China	Sep 2018- Jun 2022
	<ul style="list-style-type: none">▪ B.Sc. in Mathematics & B. Eng. in Computer Science<ul style="list-style-type: none">• Major in Mathematics and Applied Mathematics• Minor in Computer Science and Technology	
INTERNSHIP	AI Lab, Amazon Web Service	Shanghai, China
	Applied Scientist Intern	Jan 2022- Aug 2022
	<ul style="list-style-type: none">▪ Research Focus: AutoML for multimodal data, tabular deep learning▪ Contribute to open source repository AutoGluon [Github] [PRs]	
	OPPO Research Institute, OPPO	Shanghai, China
	Research Intern	Mar 2021- Jan 2022
	<ul style="list-style-type: none">▪ Research Focus: knowledge distillation, data augmentations	
PUBLICATIONS	JOURNALS	
	[J-11] Yonghao Li, Yiqing Shen , Jiadong Zhang, Shujie Song; Zhenhui Li; Jing Ke; Dinggang Shen, “A Hierarchical Graph V-Net with Semi-supervised Pre-training for Histological Image based Breast Cancer Classification,” <i>IEEE Transactions on Medical Imaging (TMI)</i> , vol. TBD, pp. TBD, Sep 2023.	
	[J-10] Haoting Shi, Jingxuan Huang, Xue Wang, Runchuan Li, Yiqing Shen , Bowen Jiang, Jinjun Ran, Rong Cai, Fang Guo, Yufei Wang, Gang Ren, “Development and Validation of a Copper-related Gene Prognostic Signature in Hepatocellular Carcinoma,” <i>Frontiers in Cell and Developmental Biology</i> , vol. 11, pp. 1157841, Jul 2023.	
	[J-9] Jing Ke, Kai Liu, Yuxiang Sun, Yuying Xue, Jiaxuan Huang, Yizhou Lu, Jun Dai, Yaobing Chen, Xiaodan Han, Yiqing Shen , Dinggang Shen, “Artifact Detection and Restoration in Histology Images with Stain-Style and Structural Preservation,” <i>IEEE Transactions on Medical Imaging (TMI)</i> , vol. TBD, pp. TBD, Jun 2023.	
	[J-8] Qianqi Huang, Jingpu Wu, Nhat Le, Yiqing Shen , Pengfei Guo, Karisa C. Schreck, David Kamson, Lindsay Blair, Hye Young Heo, Xu Li, Wenbo Li, Haris L. Sair, Jaishri O. Blakeley, John Lattera, Matthias Holdhoff, Stuart A. Grossman, Debraj Mukherjee, Chetan Bettegowda, Peter van Zijl, Jinyuan Zhou, Shanshan Jiang, “CEST2022: Amide proton transfer-weighted MRI improves the diagnostic performance of multiparametric non-contrast-enhanced MRI techniques in patients with post-treatment high-grade gliomas,” <i>Magnetic Resonance Imaging</i> , vol. 102, pp. 222–228, Jun 2023. [pdf]	
	[J-7] Jing Ke, Yiqing Shen [†] , Yizhou Lu, Yi Guo, Dinggang Shen, “Mine Local Homogeneous Representation by Interaction Information Clustering with Unsupervised Learning in Histopathology Images,” <i>Computer Methods and Programs in Biomedicine (CMPB)</i> , vol. 235, pp. 107520, Jun 2023. [pdf]	
	[J-6] Jing Ke, Yizhou Lu, Yiqing Shen , Junchao Zhu, Yijin Zhou, Jinghan Huang, Jieteng Yao, Xiaoyao Liang, Yi Guo, Zhonghua Wei, Sheng Liu, Qin Huang, Fusong Jiang, Dinggang Shen, “ClusterSeg: A Crowd Cluster Pinpointed Nucleus Segmentation Framework with Cross-Modality Datasets,” <i>Medical Image Analysis (MedIA)</i> , vol. 85, no. 2023, pp. 102758, Apr 2023. [pdf]	
	[J-5] Yiqing Shen , Arcot Sowmya, Yulin Luo, Xiaoyao Liang, Dinggang Shen, Jing Ke, “A Federated Learning System for Histopathology Image Analysis with an Orchestral Stain-Normalization GAN,” <i>IEEE Transactions on Medical Imaging (TMI)</i> , vol. 42, no. 7, pp. 1969-1981, Nov 2022.	

- [J-4] Yiqing Shen, Dinggang Shen, Jing Ke, “Identify Representative Samples by Conditional Random Field of Cancer Histology Images,” *IEEE Transactions on Medical Imaging (TMI)*, vol. 41, no. 12, pp. 3835-3848, Dec 2022. [[pdf](#)]
- [J-3] Jiangfen Wu, Qian Xu, Yiqing Shen, Xiaoyao Liang, Weidao Chen, Kai Xu, Xian-Rong Qi, “Swin Transformer Improves the IDH Mutation Status Prediction of Gliomas Free of MRI-Based Tumor Segmentation,” *Journal of Clinical Medicine*, vol. 11, no. 15, pp. 4625, Aug 2022. [[pdf](#)]
- [J-2] Yiqing Shen, Jing Ke, “Sampling Based Tumor Recognition in Whole-Slide Histology Image with Deep Learning Approaches,” *IEEE/ACM Transactions on Computational Biology and Bioinformatics (TCBB)*, vol. 19, no. 4, pp. 2431-2441, Aug 2022. [[pdf](#)]
- [J-1] Jing Ke, Yiqing Shen, Yizhou Lu, Junwei Deng, Jason D Wright, Yan Zhang, Qin Huang, Dadong Wang, Naifeng Jing, Xiaoyao Liang, Fusong Jiang, “Quantitative Analysis of Abnormalities in Gynecologic Cytopathology with Deep Learning,” *Laboratory Investigation*, vol. 101, no. 4, pp. 513-524, Feb 2021. [[pdf](#)]

CONFERENCES

- [C-29] Kai Yi, Bingxin Zhou, Yiqing Shen, Pietro Lio, Yu Guang Wang, “Graph Denoising Diffusion for Inverse Protein Folding,” in *Thirty-seventh Conference on Neural Information Processing Systems (NeurIPS 2023)*, pp. TBD, Oct 2023.
- [C-28] Qingyang Wu, Yiqing Shen, Jing Ke, “A General Computationally-Efficient 3D Reconstruction Pipeline for Multiple Images with Point Clouds,” in *MICCAI 2023 1st International Workshop on Foundation Models for General Medical AI*, pp. TBD, Oct 2023.
- [C-27] Yiqing Shen, Pengfei Guo, Jingpu Wu, Qianqi Huang, Nhat Le, Jinyuan Zhou, Shanshan Jiang, Mathias Unberath, “MoViT: Memorizing Vision Transformers for Medical Image Analysis,” in *The 14th International Workshop on Machine Learning in Medical Imaging (MLMI 2023)*, pp. TBD, Oct 2023.
- [C-26] Yanzhou Su, Yiqing Shen, Jin Ye, Junjun He, Jian Chen, “Revisiting Feature Propagation and Aggregation in Polyp Segmentation,” in *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, pp. 632-641, Oct 2023.
- [C-25] Junchao Zhu, Yiqing Shen, Haolin Zhang, Jing Ke, “An Anti-Biased TBSRTC-Category Aware Nuclei Segmentation Framework with A Multi-Label Thyroid Cytology Benchmark,” in *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, pp. 580-590, Oct 2023.
- [C-24] Zhenqi He, Junjun He, Jin Ye, Yiqing Shen[†], “Artifact Restoration in Histology Images with Diffusion Probabilistic Models,” in *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, pp. 518-527, Oct 2023.
- [C-23] Yiqing Shen, Jing Ke, “StainDiff: Transfer Stain Styles of Histology Images with Denoising Diffusion Probabilistic Models and Self-Ensemble,” in *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, pp. 549-559, Oct 2023.
- [C-22] Eduard Lloret Carbonell*, Yiqing Shen*, Xin Yang, Jing Ke, “COVID-19 Pneumonia Classification with Transformer from Incomplete Modalities,” in *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, pp. 379-388, Oct 2023.
- [C-21] Zhenqi He, Mathias Unberath, Jing Ke, Yiqing Shen[†], “TransNuSeg: A Lightweight Multi-Task Transformer for Nuclei Segmentation,” in *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, pp. 206-215, Oct 2023.
- [C-20] Yiqing Shen, Liwu Xu, Yuzhe Yang, Yaqian Li, Yandong Guo, “Mixed Sample Augmentation for Online Distillation,” in *International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, pp. 1-5, Jun 2023. [[pdf](#)]
- [C-19] Yiqing Shen, Baiyun Liu, Ruize Yu, Yudong Wang, Shaokang Wang, Jiangfen Wu, Weidao Chen, “Federated Learning for Chronic Obstructive Pulmonary Disease Classification with Partial Personalized Attention Mechanism,” in *International Conference on Bioinformatics and Biomedicine (BIBM)*, pp. 1706-1709, Dec 2022. [[pdf](#)]

- [C-18] Yibo Feng, Yudong Wang, Ruize Yu, Yiqing Shen, Shaokang Wang, Jiangfen Wu, Weidao Chen, “MFA-DSLNet: Multi-scale Fusion Attention Mechanism with Dual-threshold Self-paced Learning for Pediatric Pneumonia Diagnosis,” in *International Conference on Bioinformatics and Biomedicine (BIBM)*, pp. 1530-1533, Dec 2022.
- [C-17] Yiqing Shen^{*}, Yulin Luo^{*}, Dinggang Shen, Jing Ke, “RandStainNA: Learning Stain-Agnostic Features from Histology Slides by Bridging Stain Augmentation and Normalization,” in *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, pp. 212-221, Sep 2022. [[pdf](#)] [[code](#)]
- [C-16] Junwei Deng, Yiqing Shen, Yi Guo, Jing Ke, “CellSegNet: An Adaptive Multi-Resolution Hybrid Network for Cell Segmentation,” in *Medical Imaging 2022: Digital and Computational Pathology*, pp. 242-248, Apr 2022. [[pdf](#)]
- [C-15] Yiqing Shen, “Personalized Stain Style Transfer Layers for Distributed Histology Classification,” in *Medical Imaging 2022: Digital and Computational Pathology*, pp. 134-139, Apr 2022. [[pdf](#)]
- [C-14] Yiqing Shen, Yuyin Zhou, Lequan Yu, “CD²-pFed: Cyclic Distillation-guided Channel Decoupling for Model Personalization in Federated Learning,” in *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 10041-10050, Mar 2022. [[pdf](#)]
- [C-13] Yiqing Shen^{*}, Liwu Xu^{*}, Yuzhe Yang, Yaqian Li, Yandong Guo, “Self-Distillation from the Last Mini-Batch for Consistency Regularization,” in *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 11943-11952, Mar 2022. [[pdf](#)] [[code](#)]
- [C-12] Yiqing Shen, Yizhou Lu, Yulin Luo, Jing Ke, “Cluster Image Patches with Multiple Mutual Information in Unlabelled Whole-Slide Image,” in *International Conference on Bioinformatics and Biomedicine (BIBM)*, pp. 1509-1512, Dec 2021. [[pdf](#)]
- [C-11] Jinghan Huang, Yiqing Shen, Dinggang Shen, Jing Ke, “CA^{2.5}-Net Nuclei Segmentation Framework with a Microscopy Cell Benchmark Collection,” in *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, pp. 445-454, Sep 2021. [[pdf](#)]
- [C-10] Jing Ke, Yiqing Shen[†], Xiaoyao Liang, Dinggang Shen, “Contrastive Learning Based Stain Normalization across Multiple Tumor in Histopathology,” in *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, pp. 571-580, Sep 2021. [[pdf](#)]
- [C-9] Yiqing Shen, Jing Ke, “SU-Sampling Based Active Learning for Large-Scale Histopathology Image,” in *International Conference on Image Processing (ICIP)*, pp. 116-120, Sep 2021. [[pdf](#)]
- [C-8] Yiqing Shen, Jing Ke, “Representative Region Based Active Learning for Histological Classification of Colorectal Cancer,” in *International Symposium on Biomedical Imaging (ISBI)*, pp. 1730-1733, Apr 2021. [[pdf](#)]
- [C-7] Jing Ke, Yiqing Shen, Yizhou Lu, “Style Normalization in Histology with Federated Learning,” in *International Symposium on Biomedical Imaging (ISBI)*, pp. 953-956, Apr 2021. [[pdf](#)]
- [C-6] Jing Ke, Yiqing Shen, Xinyu Jiang, Yi Guo, Yaobing Chen, Xiaoyao Liang “Multiple-datasets and Multiple-Label Based Color Normalization in Histopathology with cGAN,” in *Medical Imaging 2021: Digital Pathology*, pp. 263-268, Feb 2021. [[pdf](#)]
- [C-5] Jing Ke, Yiqing Shen, Jason D Wright, Naifeng Jing, Xiaoyao Liang, Dinggang Shen, “Identifying Patch-Level MSI from Histological Images of Colorectal Cancer by a Knowledge Distillation Model,” in *International Conference on Bioinformatics and Biomedicine (BIBM)*, pp. 1043-1046, Dec 2020. [[pdf](#)]
- [C-4] Jing Ke, Yiqing Shen, Yi Guo, Xiaoyao Liang, “Fast Tumor Detector in Whole-Slide Image with Dynamic Programming based Monte Carlo Sampling,” in *International Conference on Image Processing (ICIP)*, pp. 2471-2475, Oct 2020. [[pdf](#)]
- [C-3] Yiqing Shen, Jing Ke, “A Deformable CRF Model for Histopathology Whole-slide Image Classification,” in *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, pp. 500-508, Oct 2020. [[pdf](#)]
- [C-2] Jing Ke, Yiqing Shen, Yi Guo, Jason D Wright, Xiaoyao Liang, “A Prediction Model of Microsatellite Status from Histology Images,” in *International Conference on Biomedical Engineering and Technology*, pp. 334-338, Sep 2020. [[pdf](#)]

- [C-1] Jing Ke, Yiqing Shen, Yi Guo, Jason D Wright, Naifeng Jing, Xiaoyao Liang, “A High-Throughput Tumor Location System with Deep Learning for Colorectal Cancer Histopathology Image,” in *International Conference on Artificial Intelligence in Medicine*, pp. 260-269, Aug 2020. [[pdf](#)]

PREPRINTS

- [P-2] Yiqing Shen^{*}, Bingxin Zhou^{*}, Xinye Xiong, Ruitian Gao, Yu Guang Wang, “How GNNs Facilitate CNNs in Mining Geometric Information from Large-Scale Medical Images,” *arXiv preprint arXiv:2206.07599*, Jun 2022. [[pdf](#)] [[code](#)]
- [P-1] Yuefei Wang, Yiqing Shen, Meng Yuan, Jing Xu, Bin Yang, Chi Liu, Wenjia Cai, Weijing Cheng, Wei Wang, “A Deep Learning-based Quality Assessment and Segmentation System with a Large-scale Benchmark Dataset for Optical Coherence Tomographic Angiography Image,” *arXiv preprint arXiv:2107.10476*, Jul 2021. [[pdf](#)]

MISCELLANEOUS

- [M-5] Yiqing Shen, Nhat Le, Jingpu Wu, Pengpei Guo, Jinyuan Zhou, Mathias Unberath, Shanshan Jiang. “Memorizing Transformer for Small-scale Multi-parametric MRI Brain Tumor Diagnosis,” *ISMRM & ISMRT Annual Meeting & Exhibition (ISMRM)*, (peer-reviewed), Jun 2023. [Awarded Trainee (Educational) Stipend]
- [M-4] Yiqing Shen^{*}, Bingxin Zhou^{*}, Xinye Xiong, Ruitian Gao, Yu Guang Wang, “How Graph Neural Networks Enhance Convolutional Neural Networks Towards Mining the Topological Structures from Histology,” *ICML Workshop on Computational Biology*, (peer-reviewed), Jul 2022. [[pdf](#)]
- [M-3] Jing Ke, Yizhou Lu, Yiqing Shen, Jason D Wright, Xiaoyao Liang, “Multi-Center Federated Learning for Colorectal Cancer Image Classification,” *NVIDIA GPU Technology Conference (GTC)*, (peer-reviewed), P31205, Apr 2021. [[poster](#)]
- [M-2] Yiqing Shen, Jing Ke, “Localizing Tumor Tissue via Deep Neural Network and Scientific Computing in Large-Scale Image,” *NVIDIA GPU Technology Conference (GTC)*, (peer-reviewed), P31129, Apr 2021. [[poster](#)]
- [M-1] Yiqing Shen, Jing Ke, “Predicting Microsatellite Status in Histology with Knowledge Distillation,” *NVIDIA GPU Technology Conference (GTC)*, (peer-reviewed), P31214, Apr 2021. [[poster](#)]

PATENT

- [Pa-6] Kai Yi, Bingxin Zhou, Yiqing Shen, Yuguang Wang, “Protein Reverse Folding Design Method and Electronic Equipment,” CN116682487A, Published in Sep 2023. [[pdf](#)]
- [Pa-5] Yiqing Shen, Bingxin Zhou, Houying Zhu, Yuguang Wang, “Protein Engineering System and Platform based on Large Language Model,” CN116631514A, Published in Aug 2023. [[pdf](#)]
- [Pa-4] Yuguang Wang, Yiqing Shen, “Pathological Image Processing Method, Model and Equipment,” CN115294157A, Published in Nov 2022. [[pdf](#)]
- [Pa-3] Jing Ke, Yiqing Shen, “Image Classification Method and Device, Electronic Equipment and Storage Medium,” CN113177602A, Published in Jul 2021, Issued in May 2023. [[pdf](#)]
- [Pa-2] Jing Ke, Yiqing Shen, “Cell Pathological Image Segmentation Methods and Apparatus,” CN112508900A, Published in Mar 2021, Issued in Nov 2022.
- [Pa-1] Yiqing Shen, Jing Ke, “Medical Image Cutting Method and Device,” CN112132841A, Published in Dec 2020. [[pdf](#)]

(*denotes equal contribution; †denotes corresponding authorship.)

INVITED TALKS

- [2] “Mathematics of Geometric Deep Learning” Minisymposium at ICIAM 2023 [[link](#)] Aug 2023
Waseda University, Tokyo, Japan
Title: “Graph-Structured Knowledge Enhanced Large Language Model”
- [1] Pu Yuan International Symposium on Future Technologies [[link](#)] Dec 2022
Global Institute of Future Technology, Shanghai Jiao Tong University, Shanghai, China, Virtual
Title: “Trustworthy and Interpretable AI for Medical Imaging”

ACADEMIC SERVICES

Organizer and Committee Membership

- Organizer, ICIAM Minisymposium [[website](#)] 2023
“Mathematics of Geometric Deep Learning”
Minisymposium at the 10th International Congress on Industrial and Applied Mathematics (ICIAM)

- Program Committee Member, BIBM Main Conference [[website](#)] 2023
“IEEE International Conference on Bioinformatics and Biomedicine” (BIBM 2023)
- Student Committee Member 2023-2024
“Medical Imaging Computing Seminar” (MICS)
Responsibility: Student Challenge Organization
- Organizer, MICCAI Workshop [[website](#)] 2023
“1st International Workshop on Foundation Models for General Medical AI” (MedAGI)
Responsibility: Organization
- Program Committee Member, ICCV Workshop [[website](#)] 2021
“Computer Vision for Automated Medical Diagnosis” (CVAMD 2021)

Conference Reviewer

- American Medical Informatics Association Annual Symposium (AMIA) 2020
- International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI) 2021-2023
- European Conference on Computer Vision (ECCV) 2022
- Computer Vision and Pattern Recognition Conference (CVPR) 2022-2023
- Asian Conference on Computer Vision (ACCV) 2022
- The International Conference on Acoustics, Speech, & Signal Processing (ICASSP) 2023-2024
- International Conference on Computer Vision (ICCV) 2023
- IEEE International Conference on Bioinformatics and Biomedicine (BIBM) 2023

Journal Reviewer

- Artificial Intelligence In Medicine (AIIM).
- Biomedical Signal Processing and Control (BSPC);
- Computer Methods and Programs in Biomedicine (CMPB);
- Computers in Biology and Medicine (CIBM);
- Frontiers in Oncology;
- IET Computer Vision;
- Imaging Science Journal;
- International Journal of Medical Informatics (IJMEDI);
- iScience;
- Journal of Autonomous Intelligence (JAI);
- Journal of Biomedical and Health Informatics (JBHI).
- Magnetic Resonance Materials in Physics, Biology, and Medicine (MAGMA);
- Medical Image Analysis (MedIA);
- npj Digital Medicine;
- Open Veterinary Journal;
- Pattern Recognition (PR);
- PLOS One;
- Translational Vision Science & Technology (TVST);

AWARDS

- ISMRM Trainee (Educational) Stipend Feb 2023
- Zhiyuan Scholar Fellowship Jun 2020–Jun 2022
One of the highest honors in Shanghai Jiao Tong University for undergraduate researchers.
Granted with 100K RMB.
- Chun-Tsung Scholar Fellowship & Excellent Scholar Award Jun 2020–Jun 2021
This program is granted by Nobel Prize winner *Tsung-Dao Lee* to support the top 1% undergraduate students.
Granted with 16K RMB.
- National Undergraduate Innovation and Entrepreneurship Program Jun 2020–Jun 2021
Granted with 12.5K RMB.
- Outstanding Winner Award at Mathematical Contest in Modeling Jun 2020
Top 6 out of 7446 teams worldwide.

TEACHING

- Johns Hopkins University (JHU)
Course: Deep Learning EN.601.482/682 [[website](#)] Fall 2023
Role: Course Assistant

- Johns Hopkins University (JHU)
Course: Deep Learning EN.601.482/682 [[website](#)]
Role: Teaching Assistant

Spring 2023

SUPERVISION

- Zhenqi He, Undergraduate, The University of Hong Kong [C-21], [C-24]

Sep 2022-May 2023

[*compiled on 2023-10-11*]