Jiawen Yao

Curriculum Vitae

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Current Position

Aug 2019–Present **Senior Research Scientist**, *PAII Inc*, Bethesda, MD, USA.
Mentor: **Dr. Le Lu**

Education

2014 - 2019 **Ph.D. in Computer Science**, University of Texas at Arlington, USA.
Research Interests: Deep Learning, Machine Learning, Large-scale Medical Image Analysis
Supervisor: **Dr. Junzhou Huang**

2011 - 2014 **M.Sc. in Signal and Information Processing**, Xi'an Jiaotong University, China.

2007 - 2011 **B.Sc. in Information Engineering**, Xi'an Jiaotong University, China.

Industry Experience

2018 Fall **Research Intern**, PAII Inc, USA.

2018 Summer **Applied Research Intern**, NVIDIA Corp, DLMED Team.

Selected Publications

Journals

2020 **Jiawen Yao**, Xinliang Zhu, Jitendra Jonnagaddala, Nicholas Hawkins, Junzhou Huang, "Whole Slide Images based Cancer Survival Prediction using Attention Guided Deep Multiple Instance Learning Networks", *Medical Image Analysis (MEDIA)*, 65, 101789.

2018 **Jiawen Yao**, Zheng Xu, Xiaolei Huang, Junzhou Huang, "An Efficient Algorithm for Dynamic MRI Using Low-Rank and Total Variation Regularizations", *Medical Image Analysis (MEDIA)*, 44, 14-27.

2018 Zhibin Zhu, **Jiawen Yao**, Zheng Xu, Junzhou Huang, Benxin Zhang, "A simple primal-dual algorithm for nuclear norm and total variation regularization", *Neurocomputing*, 289, 1-12.

2018 Xin Liu, **Jiawen Yao**, Xiaopeng Hong, Xiaohua Huang, Ziheng Zhou, Chun Qi, Guoying Zhao, "Background subtraction using spatio-temporal group sparsity recovery", *IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)*, Vol. 28, No. 8, 1737-1751.

2015 Xin Liu, Guoying Zhao, **Jiawen Yao** and Chun Qi, "Background Subtraction Based on Low-rank and Structured Sparse Decomposition", *IEEE Transactions on Image Processing (TIP)*, Vol. 24, No. 8, pp. 2502 - 2514. **(Extension of ICME'14)**

Conferences

2020 **Jiawen Yao**, Yu Shi, Le Lu, Jing Xiao, Ling Zhang, "DeepPrognosis: Preoperative Prediction of Pancreatic Cancer Survival and Surgical Margin via Contrast-Enhanced CT Imaging", *International Conference on Medical Image Computing & Computer Assisted Intervention (MICCAI)*, Lima, Peru, 2020, pp. 272-282. **(Early Accept)**

2020 Ling Zhang, Yu Shi, **Jiawen Yao**, Yun Bian, Kai Cao, Dakai Jin, Jing Xiao, Le Lu, "Robust Pancreatic Ductal Adenocarcinoma Segmentation with Multi-institutional Multi-phase Partially-Annotated CT Scans", *International Conference on Medical Image Computing & Computer Assisted Intervention (MICCAI)*, Lima, Peru, 2020, pp. 491-500. **(Early Accept)**

2020 Ashwin Raju, **Jiawen Yao**, Mohammad MinHazul Haq, Jitendra Jonnagaddala, Junzhou Huang, "Graph Attention Multi-instance Learning for Accurate Colorectal Cancer Staging", *International Conference on Medical Image Computing & Computer Assisted Intervention (MICCAI)*, Lima, Peru, 2020, pp. 529-539. **(Early Accept)**

2019 **Jiawen Yao**, Jinzheng Cai, Dong Yang, Daguang Xu, Junzhou Huang, "Integrating 3D Geometry of Organ for Improving Medical Image Segmentation", *International Conference on Medical Image Computing & Computer Assisted Intervention (MICCAI)*, Shenzhen, China, 2019, pp. 318-326

2019 **Jiawen Yao**, Xinliang Zhu and Junzhou Huang, "Deep Multi-Instance Survival Learning from Whole Slide Images", *International Conference on Medical Image Computing & Computer Assisted Intervention (MICCAI)*, Shenzhen, China, 2019, pp. 496-504

2018 Ruoyu Li, **Jiawen Yao**, Xinliang Zhu, Yeqing Li, Junzhou Huang, "Graph CNN for Survival Analysis on Whole Slide Pathological Images", *International Conference on Medical Image Computing & Computer Assisted Intervention (MICCAI)*, Granada, Spain, 2018, pp. 174-182

2017 **Jiawen Yao**, Xinliang Zhu, Feiyun Zhu, Junzhou Huang, "Deep Correlational Learning for Survival Prediction from Multi-modality Data", *International Conference on Medical Image Computing & Computer Assisted Intervention (MICCAI)*, Quebec City, Canada, 2017, pp. 406-414. **(Oral presentation)**

2017 Xinliang Zhu, **Jiawen Yao**, Feiyun Zhu, Junzhou Huang, "WSISA: Making Survival Prediction from Whole Slide Pathology Images", *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Honolulu, Hawaii, 2017, pp. 7234-7242.

2016 **Jiawen Yao**, Sheng Wang, Xinliang Zhu, Junzhou Huang, "Imaging Biomarker Discovery for Lung Cancer Survival Prediction", *International Conference on Medical Image Computing & Computer Assisted Intervention (MICCAI)*, Athens, Greece, 2016, pp. 649-657. **(Oral presentation) (Travel Award)**

2016 Sheng Wang, **Jiawen Yao**, Zheng Xu, Junzhou Huang, "Subtype Cell Detection with an Accelerated Deep Convolution Neural Network", *International Conference on Medical Image Computing & Computer Assisted Intervention (MICCAI)*, Athens, Greece, 2016, pp. 640-648.

2016 Xinliang Zhu, **Jiawen Yao**, Junzhou Huang, "Deep convolutional neural network for survival analysis with pathological images", *IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, Shenzhen, China, 2016, pp. 544-547.

2015 **Jiawen Yao**, Zheng Xu, Xiaolei Huang, Junzhou Huang, "Accelerated Dynamic MRI Reconstruction with Total Variation and Nuclear Norm Regularization", *International Conference on Medical Image Computing & Computer Assisted Intervention (MICCAI)*, Munich, Germany, 2015, pp. 635-642. **(Early Accept) (Oral Presentation)**

2015 **Jiawen Yao**, Dheeraj Ganti, Xin Luo, Guanghua Xiao, Yang Xie, Shirley Yan and Junzhou Huang, "Computer-assisted Diagnosis of Lung Cancer using Quantitative Topology Features", *MLMI workshop with MICCAI*, Munich, Germany, 2015, pp. 288-295.

2014 **Jiawen Yao**, Xin Liu, Chun Qi, "Foreground detection using low rank and structured sparsity", *IEEE International Conference on Multimedia and Expo (ICME)*, Chengdu, China, 2014, pp. 1-6. **(Oral Presentation)**

Research Projects

Current **Learning for clinical outcome prediction from big medical data**

- Parsing medical image model to fit into clinical workflow practices by developing fully automated approaches for cancer screening, diagnosis and prognosis.
- Proposed several deep survival models (e.g., Graph CNN, Deep MIL, Deep Correlational Learning) using large-scale imaging (e.g. pathology slides and CT scans) and genetic data for the survival prediction of different cancer types.
- Contribute papers to MICCAI/CVPR/MedIA.

2018 **3D CT organ segmentation and mesh generation using Graph CNN**

- Performing CT organ segmentation and 3D mesh generation simultaneously using modern Graph Convolution Network in a unified multi-task learning framework. Segmentation results are improved with 3D geometry incorporated by the mesh network.
- Intern Project with one paper accepted by MICCAI 2019.

2014-2015 **Low-rank and Sparse Model in dynamic MRI reconstruction**

- Proposed an efficient primal-dual algorithm to solve the joint low rank and total variation optimization. The algorithm achieves good performance in dynamic MRI reconstruction in terms of both accuracy and time complexity.
- 1 paper accepted by MICCAI 2015 (MedIA 2018).

Honors & Awards

- MICCAI Travel Award, MICCAI 2015, 2016
- Winner of Microsoft Student Challenge (Top 1), Microsoft Research Asia (MSRA), 2012
- Summer 2019 Dissertation Fellowship, UT Arlington, 2019
- STEM Doctoral Teaching Assistant Fellowship, UT Arlington, 2014-2019
- COE Student Conference Travel Grant, UT Arlington, 2015

Academic Service

Journal Reviewer

IEEE Transactions on Medical Imaging

IEEE Transactions on Circuits and Systems for Video Technology

IEEE Access

IEEE Journal of Biomedical and Health Informatics

Medical Image Analysis

Pattern Recognition

Neurocomputing

Journal of Visual Communication and Image Representation

Artificial Intelligence in Medicine

Computer Methods and Programs in Biomedicine

Conference Program Committee/Reviewer

AAAI 2021

CVPR 2021

Medical Imaging with Deep Learning (MIDL) 2020

International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), 2017-2020

References

- **Le Lu**
  Executive Director, PAII Inc
  IEEE Fellow
  Bethesda, MD, USA

- **Junzhou Huang**
  Associate Professor
  Department of Computer Science and Engineering
  University of Texas at Arlington
  Arlington, Texas, USA