Yirui Wang

Google Scholar https://scholar.google.com/citations?user=O4ZTkNgAAAAJ&hl=en

Contact Information Email: yiruiwang06@gmail.com

Summary

- Leading industrial working experience on medical image analysis and computer-aided diagnosis (CAD) for both research prototype, productization and real clinical evaluation/validation
- Experienced in designing, implementing, and deploying CAD algorithms and systems
- Published academic papers on top international conferences, including ECCV and MICCAI. Chapter co-author for textbook in medical image analysis
- Review for top academic journals and conferences on medical image analysis, computer-aided diagnosis, computer vision, and artificial intelligence
- Has records for the USPTO non-provisional and provisional patent applications

Working Experience

PAII Inc. Bethesda, MD, USA

Research Software Engineer Sept. 2018 - Oct. 2020
Senior Research Software Engineer Oct. 2020 - current

- Perform data curation for large-scale medical image analysis, including data collection, data cleaning, and data pre-processing, by using techniques such as text parsing and matching, Linux bash script programming
- Collaborate with clinical physicians to study task-specific clinical background and expertise
- Conduct literature study and propose novel computer-aided diagnosis solutions for challenging real-world clinical problems, especially in the field of emergency trauma
- Design and implement the proposed solutions, and conduct experiments to qualitatively and quantitatively evaluate the proposed methods
- Build user-friendly software packages from initial prototypes and deploy it in the clinical environment for further clinical study
- Analyze the feedback from clinical physicians and design model updates
- Summarize the proposed methods and publish academic papers

Education

Johns Hopkins University (JHU) Baltimore, Maryland, USA

Master in Computer Science GPA: 3.85/4.00 Sep. 2016 - May. 2018
Courses include: machine learning, deep learning, computer vision, machine translation, algorithms, data structures, and database

East China Normal University (ECNU) Shanghai, China

Bachelor in Computer Science Rank: Top 5% (out of over 120) Sep. 2012 - Jun. 2016
Courses include: Operating Systems, Computer Networks, Data Structure, Databases, Principles of Compiler, Modern Software Engineering, Computer Architecture

Conference Publication

Xinyu Zhang*, **Yirui Wang***, Chi-Tung Cheng, Le Lu , Jing Xiao, Chien-Hung Liao, Shun Miao: "A New Window Loss Function for Bone Fracture Detection and Localization in X-ray Images with Point-based Annotation." *the Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI-21)*, 2021.

*** Equally contributed**

Haomin Chen*, **Yirui Wang***, Kang Zheng, Weijian Li, Chi-Tung Cheng, Adam P Harrison, Jing Xiao, Gregory D Hager, Le Lu, Chien-Hung Liao, Shun Miao: "Anatomy-aware Siamese network: exploiting semantic asymmetry for accurate pelvic fracture detection in x-ray images." *the European Conference on Computer Vision (ECCV)*, Glasgow, UK, 2020.

Yirui Wang, Le Lu, Chi-Tung Cheng, Dakai Jin, Adam P Harrison, Jing Xiao, Chien-Hung Liao, Shun Miao: "Weakly Supervised Universal Fracture Detection in Pelvic X-Rays." *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, Shenzhen, China 2019.

Yuhang Lu, Weijian Li, Kang Zheng, **Yirui Wang**, et al. "Learning to Segment Anatomical Structures Accurately from One Exemplar." *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, Lima, Peru, 2020.

Journal Publication

Aimin Zhou*, **Yirui Wang***, and Jinyuan Zhang: "Objective extraction via fuzzy clustering in evolutionary many-objective optimization." Information Sciences, Elsevier, 2020.

Yuhang Lu, Kang Zheng, weijian Li, **Yirui Wang**, Adam P. Harrison, Chi-huang Lin, Jing Xiao, Song Wang, Le Lu, Chang-Fu Kuo, and Shun miao: "Contour Transformer Network for One-shot Segmentation of Anatomical Structures." *IEEE Transaction on Medical Imaging*

Book Chapter

Dakai Jin, Adam P. Harrison, Ling Zhang, Ke Yan, **Yirui Wang**, Jinzheng Cai, Shun Miao, Le Lu: "Artificial intelligence in radiology." *Artificial Intelligence in Medicine: Technical Basis and Clinical Applications*, Elsevier, 2020

Clinical Abstract

Chi-Tung Cheng*, **Yirui Wang***, Shun Miao, Huan-Wu Chen, Chien-Hung Liao, Le Lu:"PelviXNet: A Generalized Trauma Finding Detection Algorithm of Pelvic Radiography." **(Oral presentation)** *RSNA* 2019

Chi-Tung Cheng, Chien-Hung Liao, **Yirui Wang**, Shun Miao, Le Lu, et al.: "Universal High Performance Pelvic/Hip Fracture Detection on Pelvic Radiographs of Trauma Patients using Cascaded Deep Networks." *RSNA* 2020

Kang Zheng, **Yirui Wang**, Le Lu, Shun Miao, et al.: "Consistent and Coherent Computer-Aided Knee Osteoarthritis Assessment from Plain Radiographs." *RSNA* 2020

Patent Application

Yirui Wang, Le Lu, Dakai Jin, Adam P. Harrison, Shun Miao: "Fracture detection method, electronic device and storage medium."Patent Application number US16,546/624, filed Aug 21, 2019

Yirui Wang, Haomin Chen, Kang Zheng, Adam P. Harrison, Le Lu, Shun Miao: "Device and method for computer-aided diagnosis based on image" USPTO nonprovisional patent (16/850,622), filed on April 16, 2020

Yirui Wang, Le Lu, Dakai Jin, Adam P. Harrison, Shun Miao: "Smart Healthcare: Weakly Supervised ROI Mining Toward Universal Fracture Detection in Pelvic X-rays." USPTO provisional

*** Equally contributed**

patent

Paper Review

Academic Journals and Letters

- IEEE Transactions on Medical Imaging (8 reviews)
  2020
- IEEE Journal of Biomedical and Health Informatics (6 reviews)
  2019, 2020
- IEEE Signal Processing Letters (8 reviews)
  2020

Academic Conferences

- IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2021) (4 reviews)
  2021
- AAAI Conference on Artificial Intelligence (AAAI) (5 reviews)
  2020, 2021
- Medical Image Computing and Computer Assisted Intervention (MICCAI) (4 reviews)
  2020, 2021
- IEEE International Symposium on Biomedical Imaging (ISBI) (5 reviews)
  2020
- IEEE Global Conference on Signal and Information Processing (GlobalSIP) (2 reviews)
  2019

Honors and Awards

Excellent Bachelor Degree's Thesis (Top 5 out of over 120)	2016
Scholarship for Excellent Student (Top 15 out of over 120)	2016
Second Prize of National Microsoft Imagine Cup (Top 10 out of over 1000 teams)	2015