CURRICULUM VITAE

Rongchang Zhao, Ph.D.

Associate Professor, Ph.D./Master Supervisor

School of Computer Science and Engineering,
Central South University, Changsha, China, 410083
Computer Science Building 410
Voice (Wechat): 086-136 4744 9808
Email: Byrons.zhao@gmail.com
zhaorc@csu.edu.cn

A. Education and Work Experience

- Dec. 2018 -- Dec.2020 Western University, Postdoc, Medical Image Analysis and Artificial Intelligence
- Nov. 2012 -- Central South University, Computer Science and Engineering, Associate professor, Research area: Medical Image Analysis, Machine Learning, Computer Vision
- Jan. 2013– Apr.2016 Central South University, Control Science and Engineering, Postdoctoral, Research area: Medical Image Analysis
- Sept. 2006 – Dec. 2011 Lanzhou University, Radiophysics, PhD, Research area: Computer Vision and Pattern Recognition
- Sept. 2002 – Jun. 2006 Lanzhou University, Electronic Information Science and Technology, B.Eng

B. Research Interests

Medical Image Analysis, Artificial Intelligence, Deep Learning, Computer Vision.

I focus on interdisciplinary research in medical image analysis, computer vision, and artificial intelligence, for improving lesion detection, anatomical structure segmentation and quantification, computer-aided diagnosis, and 3D reconstruction, especially ophthalmic disease-related works.

Recently, I have devoted myself to investigating the evidence-based diagnosis and interpretative deep learning model for medical image analysis, with the advantages of tools such as OOD, TTA, causal reasoning, and so on. In addition, I also focus on weakly-supervised learning architecture in medical images..

C. Professional Positions and Employment

- Postdoc, the Digital Imaging Group (DIG) of London, Department of Medical Imaging (Clinical), the University of Western Ontario, 2018-2020
- Associate Professor, School of Computer Science and Engineering, Central South University, China, 2012-Present

D. Recent Selected Committee Memberships

- Associate Editor 2024-Present
  Computerized Medical Imaging and Graphics (CMIG)
- Area Chair 2022-Present
  MICCAI (Medical Image Computing and Computer Assisted Intervention) Conference
- Senior Program Committee Member 2020-Present
  AAAI (Association for the Advancement of Artificial Intelligence) Conference
- Program Committee Member 2018-Present
  MICS(Medical Imaging Computing Seminar)

E. Recent Selected Academic Activities

- Membership of IEEE, CCF
- Conference Services: PC Member of AAAI'19-26; Reviewer of CVPR'21-26, ICLR'21-25, ICML'20-25, NeurIPS'19-25, MICCAI'18-25
- Journal Reviews:
  Medical Image Analysis
  IEEE Transactions on Medical Imaging
  IEEE Transactions on Image Processing
  IEEE Transactions on Biomedical Engineering
  IEEE Journal of Biomedical and Health Informatics
  Computerized Medical Imaging and Graphics

F. Recent 10 Selected Publications

1. Jianyu Qi, Ding Zou, Wenrui Yan, Rui Ma, Jiaxu Li, Zhijie Zheng, ZHIGUO YANG, **Rongchang Zhao***. Revisiting the Data Sampling in Multimodal Post-training from a Difficulty-Distinguish View. AAAI 2026

2. **Rongchang Zhao**, Zijun Xia, Huanchi Liu, Xiangkun Jian, Jian Zhang, Zijian Zhang, and Shuo Li. MIST: Multi-Instance Selective Transformer for Histopathological Subtype Prediction. Medical Image Analysis(MedIA), In Press. 2024.

3. **Rongchang Zhao**, Xuanlin Chen, Zailiang Chen, and Shuo Li. Diagnosing glaucoma on imbalanced data with self-ensemble dual-curriculum learning. Medical Image Analysis (MedIA), 2022.

4. **Rongchang Zhao**, Xuanlin Chen, Zailiang Chen, and Shuo Li. EGDCL: An Adaptive Curriculum Learning Framework for Unbiased Glaucoma Diagnosis. 16th European Conference on Computer Vision, ECCV, 2020.

5. Zailiang Chen, Xianxian Zheng, Hailan Shen, Ziyang Zeng, Yukun Zhou, and **Rongchang Zhao**. Improving Knowledge Distillation via Category Structure. 16th European Conference on Computer Vision, ECCV, 2020.

6. **Rongchang Zhao** and Shuo Li. Multi-indices quantification of optic nerve head in fundus image via multitask collaborative learning, Medical Image Analysis (MedIA), 2020.

7. Wangmin Liao, Beiji Zou, **Rongchang Zhao**, YuanQiong Chen, ZhiYou He, and MengJie Zhou, Clinical Interpretable Deep Learning Model for Glaucoma Diagnosis, IEEE Journal of Biomedical

and Health Informatics (IEEE JBHI), 2019.

8. **Rongchang Zhao**, Xuanlin Chen, Xiyao Liu, Zailiang Chen, Fan Guo, and Shuo Li, Direct Cup-to-Disc Ratio Estimation for Glaucoma Screening via Semi-supervised Learning, IEEE Journal of Biomedical and Health Informatics (IEEE JBHI), 2020.

9. **Rongchang Zhao**, Zailiang Chen, Xiyao Liu, Beiji Zou, and Shuo Li, Multi-index Optic Disc Quantification via MultiTask Ensemble Learning, The 22nd International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), 2019.

10. **Rongchang Zhao**, Wangmin Liao, Beiji Zou, Zailiang Chen, and Shuo Li, Weakly-Supervised Simultaneous Evidence Identification and Segmentation for Automated Glaucoma Diagnosis, The Thirty-Third AAAI Conference on Artificial Intelligence (AAAI), 2019.

G. Research Experience

School of Information Science and Engineering, Lanzhou University

PhD student *Supervisor: Prof. Yide Ma* **Sept. 2006 – Dec. 2011**

- Thesis: Research on some key problems of Segmented Image Coding
- A novel segmentation algorithm based on spiking cortical model is proposed to be used in irregular segmented region coding. The segmentation algorithm partitions an image into irregular regions and tidy contours, the crucial regions corresponding to objects in scene are retained and a lot of tiny parts are merged.
- A model of neural network, named Tri-state cascading pulse coupled neural network, is proposed, which takes the ideas of three-state and pipelining used in circuit designing into neural network. The proposed model transmits signals in parallel way to find the shortest path.

College of Electrical Engineering, Northwest University for Nationalities

Lecturer **Jan. 2012 – Oct. 2012**

- An algorithm for image segmentation under complex background is proposed. Using the gradient coupling energy between adjacent pixels in the image, the uniformity of the pixels in the significant region and the smoothness of the region contour are constrained, and the Spiking Neural Network (SNN) is constructed to accurately segment the image significant region.

School of Computer Science and Engineering, Central South University

Postdoctoral Researcher *Supervisor: Prof. Min Wu* **Jan. 2013 – Jan. 2015**

- Thesis: Object segmentation and contour detection based on human visual system
- A contour detection algorithm based on feature integration is proposed. Based on the idea of feature integration, the algorithm correctly associates the local features of the separated images to form an effective representation of the whole object. Regression analysis method is applied to solve the problem of feature integration, and effectively improve the accuracy of object segmentation and contour detection.

Lecturer & associate professor **Nov. 2012 - Now**

- An automatic glaucoma classification approach is proposed, which aggregate

multichannel features to represent the glaucomatous characteristics. The approach improves the specificity of the automatic identification of glaucoma by aggregating the features of multi-channel images and based on multiple features and multi-scale techniques to represent the small changes in the shape and structure of the optic disc.

- a direct CDR estimation method is proposed based on the well-designed semi-supervised learning scheme, in which CDR estimation is formulated as a general regression problem while optic disc/cup segmentation is cancelled.
- An innovative weakly-supervised deep learning framework is proposed for accurate evidence identification, optic disc segmentation and automated glaucoma diagnosis. The weakly-supervised framework only uses binary diagnostic labels (normal/glaucoma) for training.

Dept. of Medical Imaging and Medical Biophysics, Schulich School of Medicine and Dentistry, University of Western Ontario

Postdoc **Nov. 2018 - Dec. 2020**

- Multitask ensemble learning framework (DMTFs) is proposed to achieve multi-index OD quantification for clinical assessment of ophthalmic disease.
- Dual-curriculum learning is developed to deal with the biased data distribution problem existing in medical image analysis with two interwoven issues: class imbalance and rate hard examples.
- Evidence reasoning is proposed to boost the prediction performance of image classification, quantification and/or segmentation by inference the visual evidence with graph neural networks.