## YUEXIANG LI

No. 22 Shuangyong Road  $\diamond$  Nanning, China (+86) 18577842038  $\diamond$  leeyuexiang@163.com  $\diamond$  https://yuexiangli.github.io

#### RESEARCH INTEREST

Computer Vision, Medical Image Analysis, Computer-aided Diagnosis, Self-supervised Learning, and Foundation Model

#### **EDUCATION**

#### PhD in Electronic Engineering

Oct. 2012 - Jul. 2016

University of Nottingham, Nottingham, United Kingdom

Ranked the 130 of Worldwide University Rankings 2023 | Times Higher Education

Supervisors: John Crowe & Siu-Yeung Cho & Tommy W.S. Chow, IEEE Fellow (External)

#### Master in Electronic Engineering

Sep. 2011 - Jun. 2012

Hong Kong University of Science and Technology, Hong Kong

### Bachelor in Telecomunication Engineering

Sep. 2007 - Jul. 2011

Beijing University of Posts and Telecommunications, Beijing, China

#### **EXPERIENCE**

### Full Professor | Guangxi Medical University Life Sciences Institute

Nanning, China Jul. 2023 - Present

- Academic leader of the discipline of artificial intelligence.
- Leads the Medical AI ReSearch (MARS) group.
- Focused on the application of AI for clinical scenarios.

## Senior Researcher | Tencent

Shenzhen, China

Tencent Jarvis Research Center

Dec. 2019 - Jul. 2023

- Directed by Yefeng Zheng, *IEEE Fellow*.
- Responsible for the development of computer aided diagnosis system for COVID-19.
- Obtained the NMPA licence for COVID-19 AI diagnosis system.
- Rich experiences on the collaboration with physicians.

#### Senior Researcher | Tencent YouTu Lab

Shenzhen, China May 2018 - Dec. 2019

• Directed by Jiaya Jia, IEEE Fellow.

- Responsible for the development of computer aided diagnosis system for cervical cancer.
- The developed AI achieved a comparable diagnosis accuracy to experienced physicians.

## Postdoctoral Fellowship | Shenzhen University

Shenzhen, China

Computer Vision Institute

Jul. 2016 - May 2018

• Mainly worked on developing automatic processing algorithms for microscopic images.

#### CONCURRENT POST

### Visiting Professor | Guangdong Provincial People's Hospital MEDIA Lab

Guangzhou, China Aug. 2024 - Present

- Directed by Zaiyi Liu, NSFC Distinguished Young Scholar.
- Collaboration on developing the AI system for prostate cancer diagnosis.

## Principal Scientist | Guangxi Institute of Precision Medicine Artificial Intelligence (AI) Research Center

Nanning, China Apr. 2024 - Present

- Leads a R&D group for medical AI development.
- Conducts researches and industrial technologies on medical foundation models.
- Aimed to develop a general AI system performing the robust grading for diverse diseases.

# Medical Multimodal Foundation Model Principal Researcher

Guangxi Institute of Precision Medicine

Jan. 2024 - Present

- Integrate multimodal information such as medical images (MRI, CT, etc.), patient test results, and admission reports to develop a large medical multimodal model.
- The developed model is planned to achieve stable and accurate lesion classification for a variety of diseases in clinical scenarios, so as to achieve the purpose of accurate grading diagnosis and treatment.
- On the basis of lesion grading tasks, the function of the model is further expanded to achieve a variety of clinical tasks including multi-disease lesion segmentation.

# Intelligent Early Warning System for Critical Care Wards Principal Researcher

The First Affiliated Hospital of GXMU

Oct. 2023 - Present

- Cooperated with Mindray Medical Company (Shenzhen) to develop a severe warning system.
- The developed system is based on multi-modal large model technology.
- The system has been tested in the First Affiliated Hospital of Guangxi Medical University (GXMU).

# The National Open Innovation Platform for Medical Imaging Principal Researcher

Tencent

• Build a medical imaging research platform, empower hospitals and scientific research institutes, and help medical artificial intelligence industry-university-research innovation cooperation and achievement transformation.

- Cutting-edge medical imaging AI algorithm development and deployment to the cloud.
- Development of a hands-on course on artificial intelligence medical imaging.

### Fatigue Fracture Grading System Principal Researcher

Tencent

Oct. 2020 - Oct. 2021

Nov. 2020 - Mar. 2023

- Developed an automated grading system for fatigue fracture.
- Collaborated with Jinling Hospital, Medical School of Nanjing University and published several academic papers.

## ${\bf Computer-aided~COVID-19~Diagnosis~System}$

Tencent

## Principal Researcher

Feb. 2020 - Aug. 2021

- Developed three core modules for COVID-19 automated diagnosis system, including COVID-19 identification, lesion segmentation and lung segmentation.
- Obtained the NMPA licence for COVID-19 AI diagnosis system.

## Automated Screening System for Cervical Cancer Principal Researcher

Tencent

Sep. 2018 - Jul. 2023

- Implemented seven core modules, including image quality assessment, cervical cancer identification and biopsy localization.
- Collaborated with Shenzhen Maternity & Child Healthcare Hospital and published several academic papers on clinical medicine.

#### **FUNDING**

# Scientific and Technical Innovation 2030—"New Generation Artificial Intelligence" Project Principal Participant Nov

China

• Comprehensive analysis of cross modal medical imaging for multidisciplinary assisted diagnosis and treatment of tumors, No. 2020AAA0104100, 5,620,000, In Progress.

#### Natural Science Foundation of China

China

**Principal Investigator** 

Jan. 2018 - Dec. 2020

A research on 3D cell image segmentation technology based on deep learning, No. 61702337, 250,000, Finished.

## Postdoctoral Science Foundation of China

China

**Principal Investigator** 

Dec. 2017 - Jul. 2018

• A research on artificial intelligence segmentation algorithm for 3D microscopic images, No. 2017M622779, 50,000, Finished.

## Nanning City Science and Technology Bureau Principal Investigator

China

• Research and application of SmartCity intelligent lighting cloud platform, No. 20171121-2, 200,000, Finished.

Jan. 2017 - Dec. 2018

Published **70**+ academic papers; Total impact factor reached **150**+.

#### Conference Paper

Only listing the publications as First Author# / Corresponding Author\*

#### • CCF-A

- 1 Haozhe Liu<sup>#</sup>, Wentian Zhang<sup>#</sup>, Bing Li<sup>\*</sup>, Haoqian Wu, Nanjun He, Yawen Huang, **Yuexiang Li**<sup>\*</sup>, Bernard Ghanem, and Yefeng Zheng: AdaptiveMix: Improving GAN training via feature space shrinkage, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023.
- 2 Jinheng Xie<sup>#</sup>, Yuexiang Li\*, Yawen Huang, Haozhe Liu, Wentian Zhang, Yefeng Zheng, and Mike Zheng Shou\*: BoxDiff: Text-to-image synthesis with training-free box-constrained Diffusion, *International Conference on Computer Vision (ICCV)*, 2023.
- 3 Wentian Zhang<sup>#</sup>, Haozhe Liu<sup>#</sup>, Bing Li\*, Jinheng Xie, Yawen Huang, **Yuexiang Li\*** et al.: Dynamically masked discriminator for generative adversarial networks, *Neural Information Processing Systems (NeurIPS)*, 2023.
- 4 Qi Bi<sup>#</sup>, Jingjun Yi<sup>#</sup>, Hao Zheng<sup>\*</sup>, Wei Ji, Yawen Huang, **Yuexiang Li**<sup>\*</sup>, and Yefeng Zheng: Learning generalized medical image segmentation from decoupled feature queries, **AAAI Conference on Artificial Intelligence (AAAI)**, 2024.
- 5 Haozhe Liu<sup>#</sup>, Bing Li\*, Haoqian Wu, Hanbang Liang, Yawen Huang, **Yuexiang Li\***, Bernard Ghanem, and Yefeng Zheng: Combating mode collapse in GANs via manifold entropy estimation, *AAAI Conference on Artificial Intelligence* (*AAAI*) (Oral), 2023.
- 6 Jiawei Chen<sup>#</sup>, **Yuexiang Li\***, Kai Ma, and Yefeng Zheng: Generative adversarial networks for video-to-video domain adaptation, **AAAI Conference on Artificial Intelligence** (**AAAI**), 2020.
- 7 Hong Wang<sup>#</sup>, Yuexiang Li\*, Deyu Meng\*, and Yefeng Zheng: Adaptive convolutional dictionary network for CT metal artifact reduction, *International Joint Conference on Artificial Intelligence (IJCAI)*, 2022.
- 8 Jingjun Yi<sup>#</sup>, Qi Bi, Hao Zheng\*, Haolan Zhan, Wei Ji, Yawen Huang, **Yuexiang Li\***, and Yefeng Zheng: Learning spectral-decomposited tokens for domain generalized semantic segmentation, *ACM International Conference on Multimedia* (MM), 2024.

## • CCF-B

- 9 Xinpeng Xie<sup>#</sup>, Jiawei Chen<sup>#</sup>, **Yuexiang Li\***, Linlin Shen, Kai Ma, and Yefeng Zheng: Self-supervised CycleGAN for object-preserving image-to-image domain adaptation, *European Conference on Computer Vision (ECCV)*, 2020.
- 10 Shuo Wang<sup>#</sup>, Yuexiang Li\*, Kai Ma, Ruhui Ma\*, Haibing Guan, and Yefeng Zheng: Dual adversarial network for deep active learning, *European Conference on Computer Vision (ECCV)*, 2020.
- 11 Hong Wang<sup>#</sup>, Qi Xie<sup>\*</sup>, Yuexiang Li<sup>\*</sup>, Yawen Huang, Deyu Meng, and Yefeng Zheng: Orientation-shared convolution representation for CT metal artifact learning, *International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI)*, 2022.
- 12 Wentian Zhang<sup>#</sup>, Xu Sun<sup>#\*</sup>, **Yuexiang Li**<sup>#</sup>, Haozhe Liu, Nanjun He, Feng Liu<sup>\*</sup> et al.: A multi-task network with weight decay skip connection training for anomaly detection in retinal fundus images, *International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI)*, 2022.
- 13 Haoqin Ji<sup>#</sup>, Haozhe Li<sup>#</sup>, **Yuexiang Li**<sup>#</sup>, Jinheng Xie, Nanjun He<sup>\*</sup>, Yawen Huang et al.: Point beyond class: A benchmark for weakly semi-supervised abnormality localization in chest X-rays, *International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI)*, 2022.
- 14 Yuexiang Li<sup>#\*</sup>, Yanping Wang<sup>#</sup>, Guang Lin, Yi Lin, Dong Wei, Qirui Zhang et al.: Triplet-branch network with prior-knowledge embedding for fatigue fracture grading, *International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI)*, 2021.
- 15 Yuexiang Li<sup>#\*</sup>, Nanjun He, Sixiang Peng, Kai Ma, and Yefeng Zheng: Deep reinforcement exemplar learning for annotation refinement, *International Conference on Medical Image Computing and Computer Assisted Interventions* (MICCAI), 2021.
- 16 Yuexiang Li<sup>#\*</sup>, Jiawei Chen, Xinpeng Xie, Kai Ma, and Yefeng Zheng: Self-Loop uncertainty: A novel pseudo-label for semi-supervised medical image segmentation, *International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI)*, 2020.
- 17 Xing Tao<sup>#</sup>, Yuexiang Li\*, Wenhui Zhou, Kai Ma, and Yefeng Zheng: Revisiting Rubik's cube: Self-supervised learning with volume-wise transformation for 3D medical image segmentation, *International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI)*, 2020.
- 18 Xinpeng Xie<sup>#</sup>, Jiawei Chen<sup>#</sup>, Yuexiang Li\*, Linlin Shen, Kai Ma, and Yefeng Zheng: Instance-aware self-supervised learning for nuclei segmentation, *International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI)*, 2020.

19 Xinrui Zhuang<sup>#</sup>, Yuexiang Li\*, Yifan Hu, Kai Ma, Yujiu Yang\*, and Yefeng Zheng: Self-supervised feature learning for 3D medical images by playing a Rubik's cube, *International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI)*, 2019.

#### • Others

- 20 Ziqi Zhang<sup>#</sup>, Yuexiang Li\*, Hongxin Wei, Kai Ma, Tao Xu, and Yefeng Zheng: Alleviating noisy-label effects in image classification via probability transition matrix, *British Machine Vision Conference (BMVC)*, 2021.
- 21 Yuexiang Li<sup>#</sup>, Xinpeng Xie<sup>#</sup>, Shaoxiong Liu, Xuechen Li, and Linlin Shen\*: GT-Net: A deep learning network for gastric tumor diagnosis, *International Conference on Tools with Artificial Intelligence (ICTAI)*, 2018.
- 22 Yuexiang Li<sup>#</sup>, Linlin Shen\*, Xiande Zhou, and Sinqi Yu: HEp-2 specimen classification with fully convolutional network, *International Conference on Pattern Recognition (ICPR)*, 2016.
- 23 Yuexiang Li<sup>#</sup>, Jiawei Chen, Kai Ma, and Yefeng Zheng\*: Feature library: A benchmark for cervical lesion segmentation, International Conference on Information Processing in Medical Imaging (IPMI), 2021.
- 24 Xing Tao<sup>#</sup>, Chenglang Yuan, Cheng Bian\*, **Yuexiang Li\***, Kai Ma, Dong Ni, and Yefeng Zheng: The winner of AGE challenge: Going one step further from keypoint detection to scleral spur localization, *International Symposium on Biomedical Imaging (ISBI)*, 2021.
- 25 Yuexiang Li<sup>#\*</sup>, Jiawei Chen, and Yefeng Zheng: A multi-task self-supervised learning framework for scopy images, *International Symposium on Biomedical Imaging (ISBI)*, 2020.
- 26 Yuexiang Li<sup>#</sup>, Xuechen Li, Xinpeng Xie, and Linlin Shen\*: Deep learning based gastric cancer identification, *International Symposium on Biomedical Imaging (ISBI)*, 2018.
- 27 Yu Chen<sup>#</sup>, Jiawei Chen, Dong Wei, **Yuexiang Li\***, and Yefeng Zheng: OctopusNet: A deep learning segmentation network for multi-modal medical images, *International Workshop on Multiscale Multimodal Medical Imaging (MMMI)*, 2019. (Best paper)

#### Journal Paper

Only listing the publications as First Author# / Corresponding Author\* (IF: Impact Factor)

#### • JCR Q1

- 1 Yawen Huang<sup>#</sup>, Hao Zheng, **Yuexiang Li\***, Feng Zheng, Xiantong Zhen, GuoJun Qi, Ling Shao, and Yefeng Zheng\*: Multi-constraint transferable generative adversarial networks for cross-modal brain image synthesis, *International Journal of Computer Vision (IJCV)*, 2024. (IF = 19.500)
- 2 Yuexiang Li<sup>#</sup>, Zhi-Hua Liu<sup>#</sup>, Peng Xue, Jiawei Chen, Kai Ma, Tianyi Qian et al.: GRAND: A large-scale dataset and benchmark for cervical intraepithelial neoplasia grading with fine-grained lesion description, *Medical Image Analysis* (MIA), 2021. (IF = 10.900)
- 3 Jiuwen Zhu<sup>#</sup>, Yuexiang Li\*, Yifan Hu, S. Kevin Zhou, Kai Ma, and Yefeng Zheng: Rubik's cube+: A self-supervised feature learning framework for 3D medical image analysis, *Medical Image Analysis (MIA)*, 2020. (IF = 10.900)
- 4 Qingsong Xie<sup>#</sup>, Yuexiang Li<sup>#</sup>, Nanjun He<sup>\*</sup>, Munan Ning, Kai Ma, Guoxing Wang et al.: Unsupervised domain adaptation for medical image segmentation by disentanglement learning and self-training, *IEEE Transactions on Medical Imaging* (TMI), 2024. (IF = 10.600)
- 5 Jiawei Chen<sup>#</sup>, Ziqi Zhang<sup>#</sup>, Xinpeng Xie<sup>#</sup>, **Yuexiang Li\***, Tao Xu, Kai Ma, and Yefeng Zheng: Beyond mutual information: Generative adversarial network for domain adaptation using information bottleneck constraint, *IEEE Transactions* on *Medical Imaging (TMI)*, 2021. (IF = 10.600)
- 6 Hong Wang<sup>#</sup>, Yuexiang Li\*, Nanjun He, Kai Ma, Deyu Meng\*, and Yefeng Zheng: DICDNet: Deep interpretable convolutional dictionary network for metal artifact reduction in CT images, *IEEE Transactions on Medical Imaging (TMI)*, 2021. (IF = 10.600)
- 7 He Zhao<sup>#</sup>, Yuexiang Li\*, Nanjun He, Kai Ma, Leyuan Fang, Huiqi Li\* et al.: Anomaly detection for medical images using self-supervised and translation-consistent features, *IEEE Transactions on Medical Imaging (TMI)*, 2021. (IF = 10.600)
- 8 Yuexiang Li<sup>#</sup>, Jiawei Chen<sup>#</sup>, Peng Xue, Chao Tang, Jia Chang, Chunyan Chu et al.: Computer-aided cervical cancer diagnosis using time-lapsed colposcopic images, *IEEE Transactions on Medical Imaging (TMI)*, 2020. (IF = 10.600)
- 9 Yuexiang Li<sup>#</sup>, Linlin Shen\*, and Shiqi Yu: HEp-2 specimen image segmentation and classification using very deep fully convolutional network, *IEEE Transactions on Medical Imaging (TMI)*, 2017. (IF = 10.600)
- 10 Yunlu Yan<sup>#</sup>, Hong Wang<sup>#</sup>, Yawen Huang, Nanjun He, Lei Zhu\*, Yong Xu, **Yuexiang Li\***, and Yefeng Zheng: Cross-modal vertical federated learning for MRI reconstruction, *IEEE Journal of Biomedical and Health Informatics (JBHI)*, 2024. (IF = 7.700)
- 11 Yuexiang Li<sup>#</sup>, Jiawei Chen<sup>#</sup>, Dong Wei<sup>#</sup>, Yanchun Zhu, Jianrong Wu, Junfeng Xiong et al.: Mix-and-Interpolate: A training strategy to deal with source-biased medical data, *IEEE Journal of Biomedical and Health Informatics (JBHI)*, 2021. (IF = 7.700)

- 12 Yuexiang Li<sup>#</sup>, Dong Wei<sup>#</sup>, Jiawei Chen<sup>#</sup>, Shilei Cao, Hongyu Zhou, Yanchun Zhu et al.: Efficient and effective training of COVID-19 classification networks with self-supervised dual-track learning to rank, *IEEE Journal of Biomedical and Health Informatics (JBHI)*, 2020. (IF = 7.700)
- 13 Wentian Zhang<sup>#</sup>, Haozhe Liu<sup>#</sup>, Jinheng Xie, Yawen Huang, Yu Zhang, **Yuexiang Li\***, Raghavendra Ramachandra, and Yefeng Zheng: Anomaly detection via gating highway connection for retinal fundus images, *Pattern Recognition*, 2023. (IF = 8.000)
- 14 Yuexiang Li<sup>#\*</sup>, Yanping Wang, Guang Lin, Yawen Huang, Jingxin Liu, Yi Lin, Dong Wei, Qirui Zhang, Kai Ma et al.: Triplet-branch network with contrastive prior-knowledge embedding for disease grading, *Artificial Intelligence In Medicine*, 2024. (IF = 7.500)

#### • Others

- 15 Yanping Wang<sup>#</sup>, Yuexiang Li<sup>#</sup>, Guang Lin, Qirui Zhang, Jing Zhong, Yan Zhang et al.: Lower-extremity fatigue fracture detection and grading based on deep learning models of radiographs, *European Radiology*, 2022. (IF = 5.900)
- 16 Yuexiang Li<sup>#</sup>, Xinpeng Xie, Linlin Shen\*, and Shaoxiong Liu: Reverse active learning based atrous DenseNet for pathological image classification, *BMC Bioinformatics*, 2019. (IF = 3.000)
- 17 Yuexiang Li<sup>#</sup>, and Linlin Shen\*: HEp-Net: A smaller and better deep-learning network for HEp-2 cell classification, Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization, 2018. (IF = 1.600)

#### **AWARD**

## Cerebral Aneurysm Detection Challenge MICCAI

Virtual 2020

• First Prize in Rupture Risk Estimation.

## Angle Closure Glaucoma Evaluation Challenge MICCAI

Shenzhen, China 2019

• First Prize in Angle Closure Classification & Scleral Spur Localization.

## HEp-2 Indirect Immuno-Fluorescence Contest ICPR

Cancun, Mexico 2016

• First Prize in HEp-2 Specimen Classification & Segmentation.

#### INTERN

#### PhD Students

- Jinheng Xie (Dec. 2021 Jul. 2023) PhD student in National University of Singapore
- Wentian Zhang (Sep. 2021 Jul. 2023) PhD student in University of Chinese Academy of Sciences, co-supervised with Prof. Ling Shao
- Haozhe Liu (Aug. 2021 Jul. 2023) PhD student in King Abdullah University of Science and Technology, co-supervised with Prof. Jürgen Schmidhuber
- Yunlu Yan (Aug. 2021 Oct. 2022) PhD student in Hong Kong University of Science and Technology (Guangzhou)
- He Zhao (Mar. 2021 Jul. 2021) PhD student in Beijing Institute of Technology
- Quanziang Wang (Feb. 2021 Nov. 2021) PhD student in Xi'an Jiaotong University, co-supervised with Prof. Deyu Meng
- Ziqi Zhang (Dec. 2020 Apr. 2022) PhD student in Tsinghua University (Shenzhen)
- Hong Wang (Nov. 2020 Feb. 2022) PhD student in Xi'an Jiaotong University, co-supervised with Prof. Devu Meng
- Xing Tao (May 2019 Sep. 2019) PhD student in Shenzhen University

## **Master Students**

- Haoqin Ji (Jul. 2021 Jul. 2022) Master student in Shenzhen University
- **Heqin Zhu** (Jun. 2021 Nov. 2021) Master student in University of Science and Technology of China, co-supervised with Prof. Kevin S. Zhou, *IEEE Fellow*
- Shuo Wang (Oct. 2019 Mar. 2020) Master student in Shanghai Jiao Tong University
- Xinpeng Xie (Aug. 2019 Jul. 2020) Master student in Shenzhen University
- Jiuwen Zhu (Jun. 2019 Sep. 2019) Master student in University of Science and Technology of China, co-supervised with Prof. Kevin S. Zhou, *IEEE Fellow*
- Xinrui Zhuang (Dec. 2018 Mar. 2019) Master student in Tsinghua University (Shenzhen)
- Yu Chen (Jun. 2018 Sep. 2018) Master student in Nanjing University

#### PROFESSIONAL SERVICE

#### Leading Organizer

• Cross-Scanner Adenocarcinoma Segmentation (COSAS 2024) Challenge @ MICCAI 2024

#### Area Chair

- The 27th International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI 2024)
- The 26th International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI 2023)

## Senior Program Committee

- The 33rd International Joint Conference on Artificial Intelligence (IJCAI 2024)
- The 32nd International Joint Conference on Artificial Intelligence (IJCAI 2023)

#### **Program Committee**

- The 39th AAAI Conference on Artificial Intelligence (AAAI 2025)
- The 38th AAAI Conference on Artificial Intelligence (AAAI 2024)
- The 37th AAAI Conference on Artificial Intelligence (AAAI 2023)
- The 36th AAAI Conference on Artificial Intelligence (AAAI 2022)
- The 35th AAAI Conference on Artificial Intelligence (AAAI 2021)

#### Journal Reviewer

- IEEE Transactions on Pattern Analysis and Machine Intelligence
- IEEE Transactions on Neural Networks and Learning System
- IEEE Transactions on Medical Imaging
- IEEE Journal of Biomedical and Health Informatics
- Medical Image Analysis

#### Conference Reviewer

- IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
- International Conference on Computer Vision (ICCV)
- European Conference on Computer Vision (ECCV)
- International Conference on Machine Learning (ICML)
- Annual Conference on Neural Information Processing Systems (NeurIPS)
- AAAI Conference on Artificial Intelligence (AAAI)
- International Joint Conference on Artificial Intelligence (IJCAI)
- British Machine Vision Conference (BMVC)
- International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI)
- International Symposium on Biomedical Imaging (ISBI)

## 李悦翔

双拥路 22 号 ◇ 南宁, 中国

(+86) 18577842038 \$\dight\text{leeyuexiang@163.com} \$\dight\text{https://yuexiangli.github.io}\$

## 研究方向

计算机视觉, 医学图像分析, 计算机辅助诊断, 自然语言/视觉大模型, 自监督

#### 教育背景

英国诺丁汉大学(University of Nottingham, Nottingham)

世界排名第 130 位 | Times Higher Education

导师: John Crowe & Siu-Yeung Cho & Tommy W.S. Chow, IEEE Fellow (External)

香港科技大学 (Hong Kong University of Science and Technology)

电信工程学士 九月 2007 - 七月 2011

北京邮电大学(Beijing University of Posts and Telecommunications)

#### 工作经历

• 智能医学学科带头人

- 组建 Medical AI ReSearch (MARS) 课题组
- 专注临床场景下的医学人工智能研究
- 实现包括大语言模型、智能诊断在内的多个人工智能研究成果转化

● 实验室负责人: 郑冶枫, IEEE Fellow

- 负责新冠肺炎 AI 辅助诊断系统的开发与落地
- 引擎已部署到武汉、广州多家医院,新冠肺炎敏感度超越医生平均水平

高级研究员 | 腾讯 深圳 优图实验室 五月 2018 - 十二月 2019

- 实验室负责人: 贾佳亚, IEEE Fellow
- 负责用于宫颈癌筛查的 AI 电子阴道镜的开发与落地
- 国内首款智能阴道镜
- 产品部署到多家医院,实现盈利

博士后 | 深圳大学深圳计算机视觉研究所七月 2016 - 五月 2018

• 负责显微图像自动处理算法的开发与研究

## 行业兼职

客座教授 | 广东省人民医院 广东省医学影像智能分析与应用重点实验室 广州 八月 2024 - 今

- 实验室负责人: 刘再毅, 国家杰青
- 开展多模态前列腺癌智能诊断相关研究

首席科学家 | 广西精准医学产业技术研究院 人工智能中心

南宁四月 2024 - 今

- 管理医学人工智能技术研发团队
- 从事多模态医疗大模型方向研究与成果转化
- 旨在研发对多种疾病保持鲁棒性能的病变分级人工智能算法

医学多模态基础模型 项目负责人 广西精准医学产业技术研究院

一月 2024 - 今

- 整合医学图像 (MRI、CT 等)、患者检验结果及入院主述等多模态信息, 开发医学多模态基础模型
- 所开发模型计划在临床场景下对多种疾病实现稳定精确的病变分级,达到准确分级诊疗的目的
- 在病变分级任务的基础上进一步拓展模型功能,实现包括多疾病病灶分割等多种临床任务

危重病房智能预警系统 项目负责人 广西医科大学第一附属医院

十月 2023 - 今

- 与深圳迈瑞医疗公司合作开发重症预警系统
- 所开发系统基于多模态大模型技术,通过接入迈瑞危重监测仪器,实现智能监控患者病情与及时预警等功能
- 该系统已在广西医科大学第一附属医院进行灰度测试

## 医疗影像国家新一代人工智能开放创新平台 项目骨干

腾讯

十一月 2020 - 三月 2023

- 打造医学影像科研平台,赋能医院、科研院所,助力医学人工智能产学研创新合作与成果转化
- 前沿的医疗影像 AI 算法开发, 部署上云
- 开发人工智能医疗影像实践课程

疲劳骨折分级系统

腾讯

- 与东部战区总医院合作开发 AI 辅助疲劳骨折分级系统,用于降低运队员和军人罹患疲劳骨折的风险
- 项目依托国家级重大专项,目前已成功验收并落地东部战区总医院
- 与医生合作发表多篇临床医学学术论文

新冠肺炎 AI 辅辅助诊断系统 项目负责人 腾讯

二月 2020 - 八月 2021

- 负责新冠肺炎辅助诊断系统开发的全部流程(包括 AI 引擎开发、工程化及 NMPA 三类证申请)
- 引擎开发初期,带领团队快速迭代引擎并成功通过移动 CT 车的方式落地部署到武汉、广州多家医院
- 2021 年八月获得 BAT 中首张 NMPA 三类证

### 基于阴道镜的 AI 辅辅助宫颈癌筛查系统 项目负责人

腾讯

九月 2018 - 七月 2023

- 带领团队开发包括阴道镜图像质量检测、初步拟诊、病灶分割及活检点预测等7个功能模块
- 所开发的 AI 引擎通过科研合作的方式实现赢利,目前已进入 NMPA 三类证申请流程
- 与医生合作产出多篇期刊、会议学术论文

#### 科研经费

## 中华人民共和国科学技术部,科技创新 2030-"新一代人工智能"重大项目 项目骨干

中国 十一月 2020 - 十月 2024

• 肿瘤多学科辅助诊疗的跨模态医学影像综合分析,基金号 2020AAA0109501,562 万元,在研

国家自然科学基金青年基金

中国

项目负责人

一月 2018 - 十二月 2020

• 基于深度学习的三维细胞图像分割技术的研究,基金号 61702337, 25 万元,已结题

中国博士后基金

中国

项目负责人

十二月 2017 - 七月 2018

• 三维细胞图像智能分割算法的研究,基金号 2017M622779,5 万元,已结题

#### 发表论文

共发表 70+ 学术论文; 累计影响因子达 150+.

会议论文

此处只列举作为第一作者 # / 通讯作者 \* 的论文

• CCF-A

- 1 Haozhe Liu<sup>#</sup>, Wentian Zhang<sup>#</sup>, Bing Li<sup>\*</sup>, Haoqian Wu, Nanjun He, Yawen Huang, **Yuexiang Li**<sup>\*</sup>, Bernard Ghanem, and Yefeng Zheng: AdaptiveMix: Improving GAN training via feature space shrinkage, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023.
- 2 Jinheng Xie<sup>#</sup>, Yuexiang Li\*, Yawen Huang, Haozhe Liu, Wentian Zhang, Yefeng Zheng, and Mike Zheng Shou\*: BoxDiff: Text-to-image synthesis with training-free box-constrained Diffusion, *International Conference on Computer Vision (ICCV)*, 2023.
- 3 Wentian Zhang<sup>#</sup>, Haozhe Liu<sup>#</sup>, Bing Li\*, Jinheng Xie, Yawen Huang, **Yuexiang Li\*** et al.: Dynamically masked discriminator for generative adversarial networks, *Neural Information Processing Systems (NeurIPS)*, 2023.
- 4 Qi Bi<sup>#</sup>, Jingjun Yi<sup>#</sup>, Hao Zheng<sup>\*</sup>, Wei Ji, Yawen Huang, **Yuexiang Li**<sup>\*</sup>, and Yefeng Zheng: Learning generalized medical image segmentation from decoupled feature queries, **AAAI Conference on Artificial Intelligence (AAAI)**, 2024.
- 5 Haozhe Liu<sup>#</sup>, Bing Li\*, Haoqian Wu, Hanbang Liang, Yawen Huang, **Yuexiang Li\***, Bernard Ghanem, and Yefeng Zheng: Combating mode collapse in GANs via manifold entropy estimation, *AAAI Conference on Artificial Intelligence* (*AAAI*) (Oral), 2023.
- 6 Jiawei Chen<sup>#</sup>, **Yuexiang Li\***, Kai Ma, and Yefeng Zheng: Generative adversarial networks for video-to-video domain adaptation, **AAAI Conference on Artificial Intelligence** (**AAAI**), 2020.
- 7 Hong Wang<sup>#</sup>, Yuexiang Li\*, Deyu Meng\*, and Yefeng Zheng: Adaptive convolutional dictionary network for CT metal artifact reduction, *International Joint Conference on Artificial Intelligence (IJCAI)*, 2022.
- 8 Jingjun Yi<sup>#</sup>, Qi Bi, Hao Zheng\*, Haolan Zhan, Wei Ji, Yawen Huang, **Yuexiang Li\***, and Yefeng Zheng: Learning spectral-decomposited tokens for domain generalized semantic segmentation, *ACM International Conference on Multimedia* (MM), 2024.

#### • CCF-B

- 9 Xinpeng Xie<sup>#</sup>, Jiawei Chen<sup>#</sup>, Yuexiang Li\*, Linlin Shen, Kai Ma, and Yefeng Zheng: Self-supervised CycleGAN for object-preserving image-to-image domain adaptation, *European Conference on Computer Vision (ECCV)*, 2020.
- 10 Shuo Wang<sup>#</sup>, Yuexiang Li\*, Kai Ma, Ruhui Ma\*, Haibing Guan, and Yefeng Zheng: Dual adversarial network for deep active learning, *European Conference on Computer Vision (ECCV)*, 2020.
- 11 Hong Wang<sup>#</sup>, Qi Xie<sup>\*</sup>, Yuexiang Li<sup>\*</sup>, Yawen Huang, Deyu Meng, and Yefeng Zheng: Orientation-shared convolution representation for CT metal artifact learning, *International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI)*, 2022.
- 12 Wentian Zhang<sup>#</sup>, Xu Sun<sup>#\*</sup>, Yuexiang Li<sup>#</sup>, Haozhe Liu, Nanjun He, Feng Liu<sup>\*</sup> et al.: A multi-task network with weight decay skip connection training for anomaly detection in retinal fundus images, *International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI)*, 2022.
- 13 Haoqin Ji<sup>#</sup>, Haozhe Li<sup>#</sup>, **Yuexiang Li**<sup>#</sup>, Jinheng Xie, Nanjun He\*, Yawen Huang et al.: Point beyond class: A benchmark for weakly semi-supervised abnormality localization in chest X-rays, *International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI)*, 2022.
- 14 Yuexiang Li<sup>#\*</sup>, Yanping Wang<sup>#</sup>, Guang Lin, Yi Lin, Dong Wei, Qirui Zhang et al.: Triplet-branch network with prior-knowledge embedding for fatigue fracture grading, *International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI)*, 2021.
- 15 Yuexiang Li<sup>#\*</sup>, Nanjun He, Sixiang Peng, Kai Ma, and Yefeng Zheng: Deep reinforcement exemplar learning for annotation refinement, *International Conference on Medical Image Computing and Computer Assisted Interventions* (MICCAI), 2021.
- 16 Yuexiang Li<sup>#\*</sup>, Jiawei Chen, Xinpeng Xie, Kai Ma, and Yefeng Zheng: Self-Loop uncertainty: A novel pseudo-label for semi-supervised medical image segmentation, *International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI)*, 2020.
- 17 Xing Tao<sup>#</sup>, Yuexiang Li\*, Wenhui Zhou, Kai Ma, and Yefeng Zheng: Revisiting Rubik's cube: Self-supervised learning with volume-wise transformation for 3D medical image segmentation, *International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI)*, 2020.
- 18 Xinpeng Xie<sup>#</sup>, Jiawei Chen<sup>#</sup>, Yuexiang Li\*, Linlin Shen, Kai Ma, and Yefeng Zheng: Instance-aware self-supervised learning for nuclei segmentation, *International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI)*, 2020.
- 19 Xinrui Zhuang<sup>#</sup>, Yuexiang Li\*, Yifan Hu, Kai Ma, Yujiu Yang\*, and Yefeng Zheng: Self-supervised feature learning for 3D medical images by playing a Rubik's cube, *International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI)*, 2019.

#### 其他

20 Ziqi Zhang<sup>#</sup>, Yuexiang Li\*, Hongxin Wei, Kai Ma, Tao Xu, and Yefeng Zheng: Alleviating noisy-label effects in image classification via probability transition matrix, *British Machine Vision Conference (BMVC)*, 2021.

- 21 Yuexiang Li<sup>#</sup>, Xinpeng Xie<sup>#</sup>, Shaoxiong Liu, Xuechen Li, and Linlin Shen\*: GT-Net: A deep learning network for gastric tumor diagnosis, *International Conference on Tools with Artificial Intelligence (ICTAI)*, 2018.
- 22 Yuexiang Li<sup>#</sup>, Linlin Shen\*, Xiande Zhou, and Sinqi Yu: HEp-2 specimen classification with fully convolutional network, *International Conference on Pattern Recognition (ICPR)*, 2016.
- 23 Yuexiang Li<sup>#</sup>, Jiawei Chen, Kai Ma, and Yefeng Zheng\*: Feature library: A benchmark for cervical lesion segmentation, *International Conference on Information Processing in Medical Imaging (IPMI)*, 2021.
- 24 Xing Tao<sup>#</sup>, Chenglang Yuan, Cheng Bian\*, **Yuexiang Li\***, Kai Ma, Dong Ni, and Yefeng Zheng: The winner of AGE challenge: Going one step further from keypoint detection to scleral spur localization, *International Symposium on Biomedical Imaging (ISBI)*, 2021.
- 25 Yuexiang Li<sup>#\*</sup>, Jiawei Chen, and Yefeng Zheng: A multi-task self-supervised learning framework for scopy images, *International Symposium on Biomedical Imaging (ISBI)*, 2020.
- 26 Yuexiang Li<sup>#</sup>, Xuechen Li, Xinpeng Xie, and Linlin Shen\*: Deep learning based gastric cancer identification, *International Symposium on Biomedical Imaging (ISBI)*, 2018.
- 27 Yu Chen<sup>#</sup>, Jiawei Chen, Dong Wei, **Yuexiang Li\***, and Yefeng Zheng: OctopusNet: A deep learning segmentation network for multi-modal medical images, *International Workshop on Multiscale Multimodal Medical Imaging (MMMI)*, 2019. (Best paper)

#### 期刊论文

此处只列举作为第一作者 # / 通讯作者 \* 的论文

#### • JCR Q1

- 1 Yawen Huang<sup>#</sup>, Hao Zheng, **Yuexiang Li\***, Feng Zheng, Xiantong Zhen, GuoJun Qi, Ling Shao, and Yefeng Zheng\*: Multi-constraint transferable generative adversarial networks for cross-modal brain image synthesis, *International Journal of Computer Vision (IJCV)*, 2024. (IF = 19.500)
- 2 Yuexiang Li<sup>#</sup>, Zhi-Hua Liu<sup>#</sup>, Peng Xue, Jiawei Chen, Kai Ma, Tianyi Qian et al.: GRAND: A large-scale dataset and benchmark for cervical intraepithelial neoplasia grading with fine-grained lesion description, *Medical Image Analysis* (MIA), 2021. (IF = 10.900)
- 3 Jiuwen Zhu<sup>#</sup>, Yuexiang Li\*, Yifan Hu, S. Kevin Zhou, Kai Ma, and Yefeng Zheng: Rubik' s cube+: A self-supervised feature learning framework for 3D medical image analysis, *Medical Image Analysis (MIA)*, 2020. (IF = 10.900)
- 4 Qingsong Xie<sup>#</sup>, **Yuexiang Li**<sup>#</sup>, Nanjun He<sup>\*</sup>, Munan Ning, Kai Ma, Guoxing Wang et al.: Unsupervised domain adaptation for medical image segmentation by disentanglement learning and self-training, *IEEE Transactions on Medical Imaging* (*TMI*), 2024. (IF = 10.600)
- 5 Jiawei Chen#, Ziqi Zhang#, Xinpeng Xie#, Yuexiang Li\*, Tao Xu, Kai Ma, and Yefeng Zheng: Beyond mutual information: Generative adversarial network for domain adaptation using information bottleneck constraint, *IEEE Transactions* on *Medical Imaging (TMI)*, 2021. (IF = 10.600)
- 6 Hong Wang<sup>#</sup>, Yuexiang Li\*, Nanjun He, Kai Ma, Deyu Meng\*, and Yefeng Zheng: DICDNet: Deep interpretable convolutional dictionary network for metal artifact reduction in CT images, *IEEE Transactions on Medical Imaging (TMI)*, 2021. (IF = 10.600)
- 7 He Zhao<sup>#</sup>, Yuexiang Li\*, Nanjun He, Kai Ma, Leyuan Fang, Huiqi Li\* et al.: Anomaly detection for medical images using self-supervised and translation-consistent features, *IEEE Transactions on Medical Imaging (TMI)*, 2021. (IF = 10.600)
- 8 Yuexiang Li<sup>#</sup>, Jiawei Chen<sup>#</sup>, Peng Xue, Chao Tang, Jia Chang, Chunyan Chu et al.: Computer-aided cervical cancer diagnosis using time-lapsed colposcopic images, *IEEE Transactions on Medical Imaging (TMI)*, 2020. (IF = 10.600)
- 9 Yuexiang Li<sup>#</sup>, Linlin Shen\*, and Shiqi Yu: HEp-2 specimen image segmentation and classification using very deep fully convolutional network, *IEEE Transactions on Medical Imaging (TMI)*, 2017. (IF = 10.600)
- 10 Yunlu Yan<sup>#</sup>, Hong Wang<sup>#</sup>, Yawen Huang, Nanjun He, Lei Zhu\*, Yong Xu, **Yuexiang Li\***, and Yefeng Zheng: Cross-modal vertical federated learning for MRI reconstruction, *IEEE Journal of Biomedical and Health Informatics (JBHI)*, 2024. (IF = 7.700)
- 11 Yuexiang Li<sup>#</sup>, Jiawei Chen<sup>#</sup>, Dong Wei<sup>#</sup>, Yanchun Zhu, Jianrong Wu, Junfeng Xiong et al.: Mix-and-Interpolate: A training strategy to deal with source-biased medical data, *IEEE Journal of Biomedical and Health Informatics (JBHI)*, 2021. (IF = 7.700)
- 12 Yuexiang Li<sup>#</sup>, Dong Wei<sup>#</sup>, Jiawei Chen<sup>#</sup>, Shilei Cao, Hongyu Zhou, Yanchun Zhu et al.: Efficient and effective training of COVID-19 classification networks with self-supervised dual-track learning to rank, *IEEE Journal of Biomedical and Health Informatics (JBHI)*, 2020. (IF = 7.700)
- 13 Wentian Zhang<sup>#</sup>, Haozhe Liu<sup>#</sup>, Jinheng Xie, Yawen Huang, Yu Zhang, **Yuexiang Li\***, Raghavendra Ramachandra, and Yefeng Zheng: Anomaly detection via gating highway connection for retinal fundus images, *Pattern Recognition*, 2023. (IF = 8.000)

- 14 Yuexiang Li<sup>\*\*</sup>, Yanping Wang, Guang Lin, Yawen Huang, Jingxin Liu, Yi Lin, Dong Wei, Qirui Zhang, Kai Ma et al.: Triplet-branch network with contrastive prior-knowledge embedding for disease grading, Artificial Intelligence In Medicine, 2024. (IF = 7.500)
- 其他
- 15 Yanping Wang<sup>#</sup>, Yuexiang Li<sup>#</sup>, Guang Lin, Qirui Zhang, Jing Zhong, Yan Zhang et al.: Lower-extremity fatigue fracture detection and grading based on deep learning models of radiographs, European Radiology, 2022. (IF = 5.900)
- 16 Yuexiang Li<sup>#</sup>, Xinpeng Xie, Linlin Shen\*, and Shaoxiong Liu: Reverse active learning based atrous DenseNet for pathological image classification, **BMC Bioinformatics**, 2019. (IF = 3.000)
- 17 Yuexiang Li#, and Linlin Shen\*: HEp-Net: A smaller and better deep-learning network for HEp-2 cell classification, Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization, 2018. (IF = 1.600)

### 获奖情况

## Cerebral Aneurysm Detection Challenge MICCAI

线上

• 动脉瘤破裂风险预测冠军

### Angle Closure Glaucoma Evaluation Challenge **MICCAI**

深圳

• 开闭角青光眼分类及房角检测冠军

### HEp-2 Indirect Immuno-Fluorescence Contest **ICPR**

墨西哥 2016

• HEp-2 细胞样本分类与分割冠军

#### 实习生培养

#### 博士生 (PhD Students)

- Jinheng Xie (Dec. 2021 Jul. 2023) PhD student in National University of Singapore
- Wentian Zhang (Sep. 2021 Jul. 2023) PhD student in University of Chinese Academy of Sciences, co-supervised with Prof. Ling Shao
- Haozhe Liu (Aug. 2021 Jul. 2023) PhD student in King Abdullah University of Science and Technology, co-supervised with Prof. Jürgen Schmidhuber
- Yunlu Yan (Aug. 2021 Oct. 2022) PhD student in Hong Kong University of Science and Technology (Guangzhou)
- He Zhao (Mar. 2021 Jul. 2021) PhD student in Beijing Institute of Technology
- Quanziang Wang (Feb. 2021 Nov. 2021) PhD student in Xi'an Jiaotong University, co-supervised with Prof. Deyu Meng
- Ziqi Zhang (Dec. 2020 Apr. 2022) PhD student in Tsinghua University (Shenzhen)
- Hong Wang (Nov. 2020 Feb. 2022) PhD student in Xi'an Jiaotong University, co-supervised with Prof. Deyu Meng
- Xing Tao (May 2019 Sep. 2019) PhD student in Shenzhen University

#### 硕士生(Master Students)

- Haoqin Ji (Jul. 2021 Jul. 2022) Master student in Shenzhen University
- Heqin Zhu (Jun. 2021 Nov. 2021) Master student in University of Science and Technology of China, co-supervised with Prof. Kevin S. Zhou, *IEEE Fellow*
- Shuo Wang (Oct. 2019 Mar. 2020) Master student in Shanghai Jiao Tong University
- Xinpeng Xie (Aug. 2019 Jul. 2020) Master student in Shenzhen University
- Jiuwen Zhu (Jun. 2019 Sep. 2019) Master student in University of Science and Technology of China, co-supervised with Prof. Kevin S. Zhou, IEEE Fellow
- Xinrui Zhuang (Dec. 2018 Mar. 2019) Master student in Tsinghua University (Shenzhen)
- Yu Chen (Jun. 2018 Sep. 2018) Master student in Nanjing University

#### 专业服务

#### 赛事主席 (Leading Organizer)

• Cross-Scanner Adenocarcinoma Segmentation (COSAS 2024) Challenge @ MICCAI 2024

#### 领域主席 (Area Chair)

2020

2019

- The 27th International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI 2024)
- The 26th International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI 2023)

## 高级委员 (Senior Program Committee)

- The 33rd International Joint Conference on Artificial Intelligence (IJCAI 2024)
- The 32nd International Joint Conference on Artificial Intelligence (IJCAI 2023)

#### 程序委员 (Program Committee)

- The 38th AAAI Conference on Artificial Intelligence (AAAI 2024)
- $\bullet\,$  The 37th AAAI Conference on Artificial Intelligence (AAAI 2023)
- The 36th AAAI Conference on Artificial Intelligence (AAAI 2022)
- The 35th AAAI Conference on Artificial Intelligence (AAAI 2021)

#### 期刊审稿人

- IEEE Transactions on Pattern Analysis and Machine Intelligence
- IEEE Transactions on Neural Networks and Learning System
- IEEE Transactions on Medical Imaging
- IEEE Journal of Biomedical and Health Informatics
- Medical Image Analysis

#### 会议审稿人

- IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
- International Conference on Computer Vision (ICCV)
- European Conference on Computer Vision (ECCV)
- International Conference on Machine Learning (ICML)
- Annual Conference on Neural Information Processing Systems (NeurIPS)
- AAAI Conference on Artificial Intelligence (AAAI)
- International Joint Conference on Artificial Intelligence (IJCAI)
- British Machine Vision Conference (BMVC)
- International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI)
- International Symposium on Biomedical Imaging (ISBI)