Yunxiang Li

Homepage: yunxiangli.top
Github: github.com/Kent0n-Li

Email: yunxiang.li@utsouthwestern.edu
Mobile: +1-945-230-5850

EDUCATION

- **University of Texas Southwestern Medical Center** — Dallas, USA
  PhD student of Medical Physics — *2022 - present*

- **Hangzhou Dianzi University** — Hangzhou, China
  Bachelor of Computer Science and Technology — *2018 - 2022*

- **The University of Adelaide** — Adelaide, Australia
  Visiting Student — *2019*

RESEARCH INTERESTS

- **Medical Image Analysis**: Classification, Segmentation, Transformer in vision, Diffusion Model, LLM

EXPERIENCE

- **Microelectronics CAD Center, Hangzhou Dianzi University**
  Supervisor: Dr. Yaqi Wang and Prof. Shuai Wang — *Aug 2019 - Sep 2021*
  - **Automatic Diagnosis of Root Canal Therapy**: Cooperation with National Clinical Research Center for Oral Diseases, West China Hospital of Stomatology (**4 first-author papers, including Top Journal IEEE JBHI (Impact factor = 7.7)**)

- **IDEA Lab, University of North Carolina at Chapel Hill**
  Supervisor: Prof. Li Wang — *Sep 2021 - Feb 2022*
  - **Infant Brain Segmentation**: Fetal/infant Brain Skull Stripping (**1 first-author paper in MICCAI**)

- **MAIA Lab, UT Southwestern Medical Center**
  Supervisor: Prof. You Zhang — *July 2022 - Present*
  - **Overview**: **9 first-author papers in total.**
  - **Diffusion Model**: CBCT-to-CT conversion (One has been published in **IEEE TMI (Impact factor = 10.6)**; MR-to-CT conversion
  - **LLM**: Chatdoctor (Nearly **200** citations in one year; **3.3k** stars in GitHub; Nearly **10** influential media outlets reported, including **Yahoo News** and **Nature Index**)
  - **Text and Visual Multimodal Segmentation**: LViT (**140+** citations; **240+** stars in GitHub; Top **5th** popular paper of IEEE TMI in recent one year)
  - **Image Segmentation Model and Toolbox**: nnSAM (**50** stars in GitHub); Medical Segmentation GUI Toolbox (**230** stars in GitHub)

FIRST/CO-FIRST AUTHOR PUBLICATIONS

- **Overview**: As first/co-first author, I have completed a total of **15** papers (Some are under review). I have received over **1200** citations (**H-index=12**) and **4k** stars on GitHub.

- **[1]**: **Y Li**, HC Shao, X Liang, L Chen, R Li, S Jiang, J Wang, Y Zhang. "Zero-shot Medical Image Translation via Frequency-Guided Diffusion Models." *IEEE Transactions on Medical Imaging* (**Highest Impact Factor 11.0**), 2023.

- **[2]**: **Y Li**, Z Li, K Zhang, R Dan, S Jiang, Y Zhang. "ChatDoctor: A Medical Chat Model Fine-Tuned on a Large Language Model Meta-AI (LLaMA) Using Medical Domain Knowledge." *Cureus* 15 (6), 2023.

- **[3]**: **Y Li**, S Wang, J Wang, G Zeng, W Liu, Q Zhang, Q Jin, Y Wang. "GT U-Net: A U-Net Like Group Transformer Network for Tooth Root Segmentation." *Oral, MICCAI 2021, Machine Learning in Medical Imaging*, 386-395, 2021.

- [4]: **Y Li**, G Zeng, Y Zhang, J Wang, Q Jin, L Sun, Q Zhang, Q Lian, G Qian, ... "AGMB-Transformer: Anatomy-Guided Multi-Branch Transformer Network for Automated Evaluation of Root Canal Therapy." *IEEE Journal of Biomedical and Health Informatics* (**Highest Impact Factor 7.7**), 2021.
- [5]: **Y Li**, R Dan, S Wang, Y Cao, X Luo, C Tan, G Jia, H Zhou, Y Zhang, ... "Plug-and-Play Shape Refinement Framework for Multi-site and Lifespan Brain Skull Stripping." *MICCAI 2022, Machine Learning in Medical Imaging*, 81-90, 2022.
- [6]: **Y Li**, X Kong, J Xie, ... "Denoising Diffusion Wavelet Models for Zero-shot Medical Image Translation" *Knowledge-Based Systems* (**Highest Impact Factor 8.8**), 2025.
- [7]: **Y Li**, B Jing, Z Li, J Wang, Y Zhang. "Plug-and-play Segment Anything Model Improves nnUNet Performance." *Medical Physics* (**Highest Impact Factor 4.5**), 2023.
- [8]: **Y Li**, M Chen, W Yang, K Wang, J Ma, AC Bovik, Y Zhang. "SAMScore: A Semantic Structural Similarity Metric for Image Translation Evaluation." *IEEE Transactions on Artificial Intelligence*, 2025.
- [9]: **Y Li**, HC Shao, X Qian, Y Zhang. "FDDM: Unsupervised Medical Image Translation with a Frequency-Decoupled Diffusion Model." *arXiv preprint arXiv:2311.12070*, 2023.
- [10]: **Y Li**, J Li, R Dan, S Wang, K Jin, G Zeng, J Wang, X Pan, Q Zhang, H Zhou, ... "Dispensed Transformer Network for Unsupervised Domain Adaptation." *arXiv preprint arXiv:2110.14944*, 2021.
- [11]: **Y Li**, X Liang, J Xie, J Deng, W Lu, Y Zhang "A Foundational Model for Medical Imaging Modality Translation in Head and Neck Radiotherapy" *under review*, 2024.
- [12]: **Y Li**, Y Zhang. "Patient-Specific MRI Super-Resolution via Implicit Neural Representations and Knowledge Transfer" *under review*, 2024.
- [13]: **Y Li**, J Deng, Y Zhang. "Universal Anatomical Prior Matching and Patient-Specific Spatial Encoding in Implicit Neural Representations for MRI Super-Resolution" *under review*, 2024.
- [14]: R Dan*, **Y Li***, Y Wang, G Jia, R Ge, J Ye, Q Jin, Y Wang. "CDNet: Contrastive Disentangled Network for Fine-Grained Image Categorization of Ocular B-Scan Ultrasound." *IEEE Journal of Biomedical and Health Informatics* (**Impact Factor 7.7**).
- [15]: K Wang*, **Y Li***, M Dohopolski, T Peng, W Lu, Y Zhang, J Wang. "Recurrence-free survival prediction under the guidance of automatic gross tumor volume segmentation for head and neck cancers." *3D Head and Neck Tumor Segmentation in PET/CT Challenge*, 144-153, 2022.

Co-Author Publications

- [1]: Z Li, **Y Li**, Q Li, P Wang, D Guo, L Lu, D Jin, Y Zhang, Q Hong. "Lvit: language meets vision transformer in medical image segmentation." *IEEE Transactions on Medical Imaging* (**Highest Impact Factor 11.0**), 2023.
- [2]: K Jin, Z Gao, X Jiang, Y Wang, X Ma, **Y Li**, J Ye. "MSHF: A Multi-Source Heterogeneous Fundus (MSHF) Dataset for Image Quality Assessment." *Nature Scientific Data* (**Highest Impact Factor 9.8**), 286, 2023.
- [3]: Y Zhang, F Ye, L Chen, F Xu, X Chen, H Wu, M Cao, **Y Li**, Y Wang, ... "Children's dental panoramic radiographs dataset for caries segmentation and dental disease detection." *Nature Scientific Data* (**Highest Impact Factor 9.8**), 380, 2023.
- [4]: HC Shao, **Y Li**, J Wang, S Jiang, Y Zhang. "Real-time liver tumor localization via combined surface imaging and a single x-ray projection." *Physics in Medicine & Biology* (**Highest Impact Factor 4.2**), 2023.
- [5]: X Feng, C Wang, C Wu, **Y Li**, Y He, S Wang, Y Wang. FDNet: Feature Decoupled Segmentation Network for Tooth CBCT Image" *IEEE International Symposium on Biomedical Imaging*
- [6]: A Shao, K Jin, **Y Li**, L Lou, W Zhou, J Ye. "Overview of global publications on machine learning in diabetic retinopathy from 2011 to 2021: Bibliometric analysis." *Frontiers in Endocrinology* (**Highest Impact Factor 6.1**), 2022.
- [7]: T Weng, Y Shen, K Jin, Z Cheng, **Y Li**, G Zhang, S Wang. "Enhancing point annotations with superpixel and confident learning guided for improving semi-supervised OCT fluid segmentation" *Biomedical Signal Processing and Control* (**Highest Impact Factor 5.1**),, 2023.

- [**8**]: D Lv, Y Wang, S Wang, Q Zhang, W Qi, **Y Li**, L Sun. "A Cascade-SEME network for COVID-19 detection in chest x-ray images." *Medical Physics* (**Highest Impact Factor 4.5**), 2021. **Top 10 most downloaded papers in Medical Physics**

- [**9**]: HC Shao, **Y Li**, J Wang, S Jiang, Y Zhang. "Real-time liver motion estimation via deep learning-based angle-agnostic X-ray imaging." *Medical Physics* (**Impact Factor 3.8**), 2023.

- [**10**]: Z Jiang, L Wang, Y Wang, G Jia, G Zeng, J Wang, **Y Li**, D Chen, G Qian, ... "A self-supervised learning based framework for eyelid malignant melanoma diagnosis in whole slide images." *IEEE/ACM Transactions on Computational Biology and Bioinformatics* (**Impact Factor 4.5**), 2022.

- [**11**]: K Jin, X Huang, J Zhou, **Y Li**, Y Yan, Y Sun, Q Zhang, Y Wang, J Ye. "Fives: A fundus image dataset for artificial Intelligence based vessel segmentation." *Nature Scientific Data* (**Impact Factor 9.8**), 2022.

- [**12**]: Y Wang, R Dan, S Luo, L Sun, Q Wu, **Y Li**, X Chen, K Yan, X Ye, D Yu. "AMSC-Net: Anatomy and multi-label semantic consistency network for semi-supervised fluid segmentation in retinal OCT" *Expert Systems with Applications* (**Impact Factor 8.5**)

- [**13**]: X Huang, X Kong, Z Shen, J Ouyang, **Y Li**, K Jin, J Ye. "GRAPE: A multi-modal dataset of longitudinal follow-up visual field and fundus images for glaucoma management." *Nature Scientific Data* (**Impact Factor 9.8**), 2023.

- [**14**]: HC Shao, **Y Li**, J Wang, S Jiang, Y Zhang. "Real-time liver motion estimation via combined surface imaging and single x-ray imaging using a deep learning-based approach (Surf-X)." *Medical Imaging 2023: Image-Guided Procedures, Robotic Interventions*

- [**15**]: Jiacheng Xie, Hua-Chieh Shao, **Yunxiang Li**, You Zhang. "Prior Frequency Guided Diffusion Model for Limited Angle (LA)-CBCT Reconstruction." *Physics in Medicine & Biology* (**Highest Impact Factor 4.2**), 2024
  More details about my research and publications are available on my homepage "www.yunxiangli.top".

Conference Abstract

- **AAPM 2023 (oral)**: CBCT-to-CT Synthesis via a CT-domain Frequency-Guided Diffusion Model (FGDM).
  Yunxiang Li, Hua-Chieh Shao, Xiao Liang, Liyuan Chen, Ruiqi Li, Steve Jiang, Jing Wang, You Zhang

- **AAPM 2023**: Brain MRI Synthesis with Controllable Tumor Inpainting by a Segmentation-Guided Diffusion Model (SGDM).
  Yunxiang Li, Hua-Chieh Shao, You Zhang

- **AAPM 2023 (oral)**: Dynamic MR Image Reconstruction Using Spatial and Temporal Implicit Neural Representation Learning.   Hua-Chieh Shao, **Yunxiang Li**, Tielige Mengke, You Zhang

- **AAPM 2023 (oral)**: Novel View Synthesis of Dynamic Cone-Beam Projections Using Implicit Neural Representation.
  Hua-Chieh Shao, **Yunxiang Li**, Tinsu Pan and You Zhang

- **AAPM 2023**: HU Variability in MR-to-CT Synthesis (sCT) Via Cyclegan for MR-Guided Adaptive Radiotherapy.
  Sean J. Domal1, Tsuicheng D. Chiu, Xiao Liang, Jie Deng, **Yunxiang Li**, Viktor M. Iakovenko, Christopher Kabat1, Thomas I. Banks, Mu-Han Lin, Arnold Pompos, Amir M. Owrangi, Steve Jiang, You Zhang

- **CT Meeting 2024 (oral)**: Prior Frequency Guided Diffusion Model for Limited Angle (LA)-CBCT Reconstruction.
  Jiacheng Xie, Hua-Chieh Shao, **Yunxiang Li**, You Zhang

- **ICCR 2024 (oral)**: Unsupervised MR-to-CT Translation with a Frequency-Decoupled Diffusion Model.
  Yunxiang Li, Hua-Chieh Shao, Xiaoxue Qian, You Zhang

- **AAPM 2024**: Enhancing Nnunet Performance with a Plug-and-Play Segment Anything Model for Few-Shot Medical Image Segmentation (nnSAM).   **Yunxiang Li**, Bowen Jing, Jing Wang, You Zhang

- **AAPM 2024 (oral)**: Zero-Shot Cone-Beam Computed Tomography (CBCT) to CT Conversion Using a Denoising Diffusion Wavelet Model (DDWM).   **Yunxiang Li**, You Zhang

Professional Service

- **Overview**: As a reviewer, I was responsible for reviewing a total of about **70** papers.
- **[1] Program Committee (PC) member**: MICCAI MLMI
- **[2] Reviewer**: IEEE Transactions on Medical Imaging (TMI)
- **[3] Reviewer**: IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)
- **[4] Reviewer**: IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- **[5] Reviewer**: IEEE Transactions on Human-Machine Systems
- **[6] Reviewer**: IEEE Journal of Biomedical and Health Informatics (JBHI)
- **[7] Reviewer**: Neurocomputing
- **[8] Reviewer**: Medical Physics
- **[9] Reviewer**: ACM Multimedia
- **[10] Reviewer**: International Conference on Medical Image Computing and Computer-Assisted Intervention
- **[11] Reviewer**: Pattern Recognition
- **[12] Reviewer**: Medical & Biological Engineering & Computing (MBEC)
- **[13] Reviewer**: Scientific Reports
- **[14] Reviewer**: Artificial Intelligence Review
- **[15] Reviewer**: Computers in Biology and Medicine
- **[16] Reviewer**: Earth Science Informatics
- **[17] Reviewer**: ICRA: International Conference on Robotics and Automation
- **[18] Reviewer**: AI in Medicine
- **[19] Reviewer**: Cognitive Computation
- **[20] Reviewer**: The Visual Computer
- **[21] Reviewer**: BMC Medical Imaging
- **[22] Reviewer**: International Journal of Machine Learning and Cybernetics
- **[23] Reviewer**: Plant Methods
- **[24] Reviewer**: Communications Medicine (Nature)
- **[25] Reviewer**: IEEE Transactions on Network Science and Engineering
- **[26] Community Member**: IEEE Member, MICCAI Student Member, AAPM Student Memeber, AHA Student Member

Patent

- **Patent**: **Yunxiang Li**, Yaqi Wang, Yifan Zhang, Ruizi Peng, Neng Xia, Kai Tang, Guiping Qian, Ruilong Dan "An interactive annotation method for tooth root X-ray images." Chinese Invention Patent; Application Number: *CN202110648218.8*
- **Patent**: **Yunxiang Li**, Yaqi Wang, Yifan Zhang, Neng Xia, Ruizi Peng, Kai Tang, Dingguo Yu, Suiyu Zhang "Neural network architecture and implementation method of multi branch deep self attention transformation network." Chinese Invention Patent; Application Number: *CN202110648214.X*
- **Patent**: **Yunxiang Li**, Yaqi Wang, Yifan Zhang, Kai Tang, Dingguo Yu, Neng Xia, Ruizi Peng, Suiyu Zhang "A method of root image segmentation by landmark detection polynomial fitting curve." Chinese Invention Patent; Application Number: *CN202110648219.2*

Honors and Awards

- Top Downloaded Article Award in **Medical Physics**

- National Encouragement Scholarship, 2019

- Third place of MICCAI HECKTOR challenge, 2022

- Man of the Year Award, School of Computer Science, Hangzhou Dianzi University, 2021

Invited Talks

- Beijing Academy of Artificial Intelligence; "ChatDoctor: A Medical Chat Model Fine-Tuned on a Large Language Model Meta-AI (LLaMA) Using Medical Domain Knowledge." (Over a thousand listeners)

- Beijing Academy of Artificial Intelligence; "Zero-shot Medical Image Translation via Frequency-Guided Diffusion Models" (Over a thousand listeners)

Media Reports

- **Neuronad**: ChatDoctor: Revolutionizing Medical Communication with AI-powered Language Models

- **Yahoo News**: Can We Build Trustworthy AI?

- **Nature Index**: How AI is being used to accelerate clinical trials

- **Marktechpost**: This AI Paper Survey Addresses the Role of Large Language Models (LLMs) in Medicine: Their Challenges, Principles And Applications

- **Marktechpost**: Researchers From China Propose 'LViT', A Language-Vision Model To Leverage Text Medical Reports For Improved Segmentation

- **Marktechpost**: AI News: Meet ChatDoctor — LLMs Can Outperform Humans on Data Annotation