

## EDUCATION

- Ph.D. student in Data Science  
Peking University, Beijing, 2019–2025
- B.S. in Computer Science and Technology  
Hunan University, Changsha, 2015–2019

## RESEARCH INTERESTS

- Multimodal medicine AI  
Multimodal Data Processing, Multimodal feature extraction, Multimodal information fusion
- Cancer Treatment and Management Assistance  
Construction of Prediction Models, Key Pattern Mining, Clinical Insights and Discoveries

## PUBLICATIONS

### In Preparation

- **Zifan Chen**#, Xinyu Nan#, Jiazheng Li#, Jie Zhao, Haifeng Li, Ziling Lin, Haoshen Li, Heyun Chen, Yiting Liu, Lei Tang, Li Zhang, and Bin Dong, PAM: A Propagation-Based Model for Segmenting Any 3D Objects across Multi-Modal Medical Images, under review at *Nature Biomedical Engineering* (**IF: 26.8**), arXiv:2408.13836, 2024
- **Zifan Chen**#, Jie Zhao#, Yanyan Li#, Yilin Li, Xinyu Nan, Huimin Liu, Xujiao Feng, Bin Dong, Lin Shen, Yang Chen, and Li Zhang, Predicting response to patients with gastric cancer via dynamic-aware model with longitudinal liquid biopsy data, under review at *Clinical and Translational Medicine* (**IF: 7.9**), doi.org/10.21203/rs.3.rs-5181858/v1, 2024.
- Spatial typing of tumor immune microenvironment and prediction of immunotherapy response to patients with gastric cancer based on multi-scale and multi-modal learning, currently under manuscript preparation, 2025.

### Journal Articles

- **Zifan Chen**#, Yang Chen#, Yu Sun#, Lei Tang#, Li Zhang#, Yajie Hu, Meng He, Zhiwei Li, Siyuan Cheng, Jiajia Yuan, Zhenghang Wang, Yakun Wang, Jie Zhao, Jifang Gong, Liying Zhao, Baoshan Cao, Guoxin Li, Xiaotian Zhang, Bin Dong, and Lin Shen, Predicting gastric cancer response to anti-HER2 therapy or anti-HER2 combined immunotherapy based on multi-modal data, *Signal Transduction and Targeted Therapy* (**IF: 40.8**), **9**:222, doi.org/10.1038/s41392-024-01932-y, 2024.
- Meng He#, **Zifan Chen**#, Li Zhang, Xiangyu Gao, Xiaoyi Chong, Haoshen Li, Lin Shen, Xiaotian Zhang, Bin Dong, Ziyu Li, and Lei Tang, Associations of subcutaneous fat area and Systemic Immune-inflammation Index with survival in patients with advanced gastric cancer receiving dual PD-1 and HER2 blockade, *Journal for ImmunoTherapy of Cancer* (**IF: 12.5**), **11**(6):e007054, doi.org/10.1136/jitc-2023-007054, 2023.
- Meng He#, **Zifan Chen**#, Song Liu#, Yang Chen#, Huan Zhang#, Li Zhang, Jie Zhao, Jie Yang, Xiaotian Zhang, Lin Shen, Jianbo Gao, Bin Dong, and Lei Tang. Deep learning model based on multi-lesion and time series CT images for predicting the benefits from anti-HER2 targeted therapy in stage IV gastric cancer. *Insights into Imaging* (**IF: 4.1**), **15**(1): 59, doi.org/10.1186/s13244-024-01639-2, 2024.
- Jiajia Yuan#, Peng Bao#, **Zifan Chen**#, Mingze Yuan#, Jie Zhao, Jiahua Pan, Yi Xie, Yanshuo Cao, Yakun Wang, Zhenghang Wang, Zhihao Lu, Xiaotian Zhang, Jian Li, Lei Ma, Yang Chen, Li Zhang, Lin Shen, and Bin Dong, Advanced prompting as a catalyst: Empowering large language models in the management of gastrointestinal cancers. *The Innovation Medicine*, **1**(2):100019, 2023
- Jiazheng Li#, **Zifan Chen**#, Yang Chen, Jie Zhao, Meng He, Xiaoting Li, Li Zhang, Bin Dong, Xiaotian Zhang, Lei Tang, and Lin Shen, CT-based delta radiomics in predicting the prognosis of stage IV gastric cancer to immune checkpoint inhibitors, *Frontiers in Oncology* (**IF: 3.5**), doi.org/10.3389/fonc.2022.1059874, 2022.

- Yang Chen#, Keren Jia#, Yu Sun#, Cheng Zhang#, Yilin Li, Li Zhang, **Zifan Chen**, Jiangdong Zhang, Yajie Hu, Jiajia Yuan, Xingwang Zhao, Yanyan Li, Jifang Gong, Bin Dong, Xiaotian Zhang, Jian Li, and Lin Shen, Predicting response to immunotherapy in gastric cancer via multi-dimensional analyses of the tumour immune microenvironment, *Nature Communications (IF: 14.7)*, **13**(1):4851, 2022.
- Mingze Yuan, Peng Bao, Jiajia Yuan, Yunhao Shen, **Zifan Chen**, Yi Xie, Jie Zhao, Yang Chen, Li Zhang, Lin Shen, and Bin Dong, Large language models illuminate a progressive pathway to artificial intelligent healthcare assistant. *Medicine Plus*, **2024**:100030, 2024.

#### Conference Articles

- **Zifan Chen**#, Zhe Wu#, Xian Wu, Li Zhang, Jie Zhao, Yangtian Yan, and Yefeng Zheng, Contractible Regularization for Federated Learning on Non-IID Data, *The IEEE International Conference on Data Mining (ICDM'22, CCF-B)*, acceptance rate: 9.77%, Regular paper, 2022.
- Hexin Dong#, **Zifan Chen**#, Mingze Yuan, Yutong Xie, Jie Zhao, Fei Yu, Bin Dong, and Li Zhang, Region-Aware Metric Learning for Open World Semantic Segmentation via Meta-Channel Aggregation. *The International Joint Conference on Artificial Intelligence (IJCAI'22, CCF-A)*, 2022
- **Zifan Chen**, Jie Zhao, Hao Yu, Yue Zhang, and Li Zhang, Multi-Scale Context-Guided Lumbar Spine Disease Identification with Coarse-to-fine Localization and Classification, *IEEE International Symposium on Biomedical Imaging (ISBI'22)*, Oral, 2022.
- **Zifan Chen**, Jiazheng Li, Yiting Liu, Jie Zhao, Li Zhang, Lei Tang, and Bin Dong, Slice-propagated 3D Gastric Tumour Segmentation From A Single 2D Annotation, *European Congress of Radiology (ECR'21)*, Oral, 2021.
- Haoshen Li, **Zifan Chen**, Jie Zhao, Heyun Chen, Hexin Dong, Mingze Yuan, Bin Dong, and Li Zhang, Multi-scale Clinical-guided Binocular Fusion Framework for Predicting New-onset Hypertension over a Four-Year Period, *IEEE International Symposium on Biomedical Imaging (ISBI'24)*, Among the finalists for Best Paper Award, 2024.
- Heyun Chen, **Zifan Chen**, Jie Zhao, Haoshen Li, Jiazheng Li, Yiting Liu, Mingze Yuan, Peng Bao, Xinyu Nan, Bin Dong, Lei Tang, and Li Zhang, MSI-UNet: A Flexible UNet-based Multi-scale Interactive Framework for 3D Gastric Tumor Segmentation on CT Scans, *IEEE International Symposium on Biomedical Imaging (ISBI'24)*, Oral, 2024.
- Mingze Yuan, Yingda Xia, Hexin Dong, **Zifan Chen**, Jiawen Yao, Mingyan Qiu, Ke Yan, Xiaoli Yin, Yu Shi, Xin Chen, Zaiyi Liu, Bin Dong, Jingren Zhou, Le Lu, Ling Zhang, and Li Zhan, Devil is in the Queries: Advancing Mask Transformers for Real-world Medical Image Segmentation, OOD Detection and Localization, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR'23, CCF-A)*, Highlight, 2023.
- Yue Zhang, **Zifan Chen**, Hao Yu, Xinyu Yao, and Hongfeng Li, Feature Fusion for Segmentation and Classification of Skin Lesions, *IEEE International Symposium on Biomedical Imaging (ISBI'22)*, Poster, 2022.

#### TECHNOLOGY TRANSFER AND PATENTS

- Successfully transferred two patents on tumor immune microenvironment analysis into a research project with a funding of 6,000,000 RMB.
- Developed a software for 3D segmentation of general objects in multimodal medical imaging, currently under debugging and optimization, 2025.
- Developed an automatic software for tissues segmentation and parameters calculation, applied in the Department of Radiology at Peking University Cancer Hospital, 2024.
- Developed a dynamic CT image analysis and anti-HER2 treatment response prediction software, applied in the Department of Radiology at Peking University Cancer Hospital, 2024.
- Developed a software for gastroesophageal junction analysis, applied in the Department of Radiology at Peking University Cancer Hospital, 2024.
- Lin Shen, Yang Chen, Bin Dong, Li Zhang, Yilin Li, Jie Zhao, and **Zifan Chen**, Cancer Treatment Response Prediction System and Its Control Method, *China Patent CN117831789B*, 2024.

- Yan Zhang, Jianping Li, Yimeng Jiang, Li Zhang, Haoshen Li, **Zifan Chen**, Fangfang Fan, Jia Jia, Jie Zhao, Guangzheng'ao Yang, and Xingyu Luo, A Method, System, and Device for Hypertension Prediction Based on Binocular Fusion Network. *China Patent CN117788473B*, 2024.
- Lin Shen, Bin Dong, Yang Chen, Xiaotian Zhang, Yu Sun, Li Zhang, Lei Tang, Jie Zhao, and **Zifan Chen**, Tumor Treatment Prognosis Prediction Method, Device, Electronic Equipment, and Storage Medium. *China Patent CN116721772B*, 2023.
- **Zifan Chen**, Li Zhang, Jiafu Ji, Bin Dong, Jie Zhao, Lei Tang, Jiazhen Li, and Yiting Liu, Lesion Detection Method and Device Based on Target Images, *China Patent CN112634224B*, 2023.
- Lin Shen, Yang Chen, Jiangdong Zhang, Bin Dong, Xiaotian Zhang, Li Zhang, **Zifan Chen**, Yu Sun, Jie Zhao, and Keren Jia, Tumor Immunotherapy Efficacy Prediction Method, Device, Electronic Equipment, and Storage Medium. *China Patent CN115295154B*, 2023.
- Lin Shen, Yang Chen, Jiangdong Zhang, Xiaotian Zhang, Bin Dong, **Zifan Chen**, Li Zhang, Yu Sun, Jie Zhao, and Keren Jia, Tumor Immunotherapy Efficacy Evaluation Method, Device, Electronic Equipment, and Storage Medium, *China Patent CN115294129B*, 2023.

## HONORS AND AWARDS

- 2023-2024 Peking University Presidential Scholarship
- 2022-2023 Peking University Third-class Scholarship
- 2022-2023 Peking University Presidential Scholarship
- 2017-2018 National Scholarship of China
- 2016-2017 National Scholarship of China
- 2015-2016 National Scholarship of China

## COMPETITIONS

- **Zifan Chen**, Jie Zhao, and Li Zhang, **Runner-up** (out of 3,108 teams) of the Spinal Disease Intelligent Diagnosis AI Challenge, 2020.
- **Zifan Chen**, Hexin Dong, Fei Yu, Jie Zhao, Mingze Yuan, and Li Zhang, **Second Prize** of the Zero-shot Object Detection of Zhijiang Cup Global Artificial Intelligence Competition, 2021.
- **Zifan Chen**, Jie Zhao, and Li Zhang, **4th Place** in the preliminary of the National Digital Ecological Innovation Contest - Intelligent Algorithm Contest, 2021.
- Xing Tao and **Zifan Chen**, **Third Prize** in the Zero-shot Segmentation of Zhijiang Cup Global Artificial Intelligence Competition, 2020.

## INTERNSHIP EXPERIENCE

- **Algorithm Engineer**, Deepwise, 03/2021–05/2021 Developed an algorithm for benign and malignant breast nodule recognition.
- **Algorithm Engineer**, Tencent Jarvis Lab, 05/2021–10/2021 Developed a PASI (Psoriasis Area and Severity Index) scoring estimation algorithm for psoriasis, integrated into the "Tencent Medpedia" platform.