Zifan Chen

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EDUCATION

- Ph.D. Student in Data Science
  Academy for Advanced Interdisciplinary Studies (AAIS)
  Peking University, Beijing, 2019–present (expected June 2025 graduation)

- B.E. in Computer Science and Technology
  College of Computer Science and Electronic Engineering
  Hunan University, Changsha, 2015–2019

RESEARCH INTERESTS

- Multimodal Medicine AI
  Multimodal Data Processing, Multimodal Feature Extraction, Multimodal 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 *npj Digital Medicine*, arXiv:2408.13836, 2025.

- Spatial typing of the tumor immune microenvironment and prediction of immunotherapy response to patients with gastric cancer using multiscale and multimodal 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.

- **Zifan Chen**#, Jie Zhao#, Yanyan Li#, Xujiao Feng#, Yang Chen, Yilin Li, Xinyu Nan, Huimin Liu, Bin Dong, Lin Shen, and Li Zhang, Predicting response to patients with gastric cancer via dynamic-aware model with longitudinal liquid biopsy data, under review at *Gastric Cancer* (**IF: 5.1**), doi.org/10.1007/s10120-025-01628-4, 2025.

- 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, doi.org/10.59717/j.-med.2023.100019, 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, doi.org/10.1038/s41467-022-32570-z, 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, doi.org/10.1016/j..2024.100030, 2024.

Conference Proceedings

- **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.

- Jie Zhao#, **Zifan Chen#**, Guangzhengao Yang, Yijiang He, Li Zhang, and Bin Dong, Deep

Knowledge-Infused Transformer for NSCLC Lymph Node Station Metastasis Prediction: Development of an AI-Powered Intraoperative Decision System, *Medical Image Computing and Computer Assisted Intervention* (**MICCAI**), 2025.

- 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, **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, **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, 2023.

- Developed a quantitative software for the identification of Siewert type in gastroesophageal junction adenocarcinomas, applied in the Department of Radiology at Peking University Cancer Hospital, 2023.

- Lin Shen, Yang Chen, Bin Dong, Li Zhang, Yilin Li, Jie Zhao, and **Zifan Chen**, Cancer Treatment Response Prediction System and Its Control Method (癌症治疗反应预测系统及其控制方法), *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 (一种基于双眼融合网络预测高血压的方法、系统和设备), *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 (肿瘤治疗预后预测方法、装置、电子设备及存储介质), *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 (基于目标影像的病灶检测方法和装置), *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 Response Prediction Method, Device, Electronic Equipment, and Storage Medium (肿瘤免疫治疗疗效预测方法、装置、电子设备及存储介质), *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 Response Evaluation Method, Device, Electronic Equipment, and Storage Medium (肿瘤免疫治疗疗效评估方法、装置、电子设备及存储介质), *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** of the Zero-shot Segmentation of Zhijiang Cup Global Artificial Intelligence Competition, 2020.

INTERNSHIP EXPERIENCE

- **Algorithm Engineer**, Tencent Jarvis Lab, developed a PASI (Psoriasis Area and Severity Index) scoring estimation algorithm for psoriasis, integrated into the "Tencent Medpedia (腾讯医典)" platform, 05/2021–10/2021.

- **Algorithm Engineer**, Deepwise, developed an algorithm for benign and malignant breast nodule recognition in Molybdenum Target X-ray Images, 03/2021–05/2021.