Shengqiang Chi

Associate Research Fellow
Research Center for Data Hub and Security, Zhejiang Lab, Hangzhou, China
Send to: sqchi1991@163.com

I have been actively involved in research areas including medical informatics, healthcare informatics and medical big data and artificial intelligence. Our goal is to transform clinical practice and enhance healthcare quality through the application of information technology. My research interests focus on machine learning and data mining, with particular emphasis on their applications in trustworthy artificial intelligence (such as interpretability, robustness, domain generalization, causal inference, and uncertainty quantification) and computational medicine (including predictive modeling, medical imaging, and real-world evidence).

Education
[1] Zhejiang University, Biomedical Engineering, Ph.D., 2014 to 2019.
[2] Central South University, Medical Informatics, B.Sc., 2010 to 2014.

Work Experience
[1] Associate Research Fellow, Research Center for Data Hub and Security, Zhejiang Lab, 2024 to present.
[2] Associate Research Fellow, Research Center for Healthcare Data Science, Zhejiang Lab, 2022-2024.
[3] Assistant Research Fellow, Research Center for Healthcare Data Science, Zhejiang Lab, 2019-2022.
[4] Postdoc, Research Center for Healthcare Data Science, Zhejiang Lab, 2019-2022.

Publications (selected)
[1] Yang Zhang, Ting Yu, **Shengqiang Chi**, Zhen Wang, Yue Gao, Ji Zhang, Tianshu Zhou. Attribute Diversity Aware Community Detection on Attributed Graphs Using Three-view Graph Attention Neural Networks[J]. ACM Transactions on Knowledge Discovery from Data, 2024.
[2] **Shengqiang Chi**, Yu Tian, Xueyao Li, Feng Wang, Tianshu Zhou, Jingsong Li. Temporal Phenotyping in Longitudinal Electronic Health Records Based on Self-Supervised Graph Neural Networks[C]. 2024 China Biomedical Engineering Conference & Medical Innovative Summit, 2024.
[3] Peixian Li, **Shengqiang Chi**, Tianshu Zhou, Qi Zhang, Tingbo Liang, Jinsong Li, Yu Tian*. Clinical Attention-Driven Enhancement Methods for Reasoning in Medical Large Language Model Research [C]. 2024 China Biomedical Engineering Conference & Medical Innovative Summit, 2024.
[4] **Shengqiang Chi**, Yuqing Wang, Ying Zhang, Weiwei Zhu, Jingsong Li. Graph Neural Network Based Multi-Label Hierarchical Classification for Disease Predictions in General Practice[J]. Studies in Health Technology and Informatics (MEDINFO

2023), 2024, 310: 725-729.

[5] **Shengqiang Chi**, Tianshu Zhou, Weiwei Zhu, Xueyao Li, Jingsong Li. A knowledge-based and data-driven approach for predicting acute kidney injury in patients with heart failure[C]. the 45th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC). IEEE, 2023: 1-4.

[6] **Shengqiang Chi**, Yu Tian, Feng Wang, Tianshu Zhou, Shan Jin, Jingsong Li. A Novel Lifelong Machine Learning-based Method to Eliminate Calibration Drift in Clinical Prediction Models[J]. Artificial Intelligence in Medicine, 2022, 125: 102256.

[7] **Shengqiang Chi**, Yu Tian, Feng Wang, Yu Wang, Ming Chen, Jingsong Li. Deep Semisupervised Multitask Learning Model and its Interpretability for Survival Analysis[J]. IEEE Journal of Biomedical and Health Informatics, 2021, 25(8): 3185-3196.

[8] **Shengqiang Chi**, Xinhang Li, Yu Tian, Jun Li, Xiangxing Kong, Kefeng Ding, Chunhua Weng, Jingsong Li. Semi-supervised learning to improve generalizability of risk prediction models[J]. Journal of Biomedical Informatics, 2019, 92(4):103-117.

[9] Xiangxing Kong, Jun Li, Yibo Cai, Yu Tian, **Shengqiang Chi**, Danyang Tong, Yeting Hu, Qi Yang, Jingsong Li, Graeme Poston, Ying Yuan, Kefeng Ding. A modified TNM staging system for non-metastatic colorectal cancer based on nomogram analysis of SEER database[J]. BMC Cancer, 2018, 18(1):50.

[10] **Shengqiang Chi**, Yu Tian, Jun Li, Danyang Tong, Xiangxing Kong, Graeme Poston, Kefeng Ding, Jingsong Li. Time-dependent and nonlinear effects of prognostic factors in nonmetastatic colorectal cancer[J]. Cancer Medicine, 2017, 6(8):1882-1892.

Research Support

Patents
Chinese Patents: 35 granted.
PCT Patents:
[1] Time series deep survival analysis system in combination with active learning. Jinsong Li, Tianshu Zhou, Ziyue Yang, **Shengqiang Chi**. US 11,461,658 B2.

[2] 階層図ニューラルネットワークに基づく疾患診療 過程異常識別システム. Jinsong Li, Minghong Xu, **Shengqiang Chi**, Yu Tian, Tianshu Zhou. 2023-095902.
(A System for Abnormality Detection in Disease Diagnosis and Treatment Processes Based on Hierarchical Graph Neural Networks)
[3] 自己監督グラフクラスタリングに基づく慢性腎症亜型マイニングシステム. Jinsong Li, **Shengqiang Chi**, Minghong Xu, Xueyao Li, Yu Tian, Tianshu Zhou. 2023-092731.
(A System for Phenotyping in Chronic Kidney Disease Based on Self-Supervised Graph Clustering)
[4] System for predicting end-stage renal disease complication risk based on contrastive learning. Jinsong Li, Feng Wang, **Shengqiang Chi**, Yu Tian, Tianshu Zhou. 18/352,216.
[5] 多中心医学診断知識グラフ表示学習方法及びシステム. Jinsong Li, **Shengqiang Chi**, Yu Tian, Tianshu Zhou. 2023-535611.
(A Method and System for Representation Learning of Multicenter Medical Diagnosis Knowledge Graphs)
[6] グラフニューラルネットワークに基づく疾患診断予測システム. Jinsong Li, **Shengqiang Chi**, Yuqing Wang, Yu Tian, Tianshu Zhou. 2023-536567.
(A Disease Diagnosis Prediction System Based on Graph Neural Networks)

Standards
[1] ISO/TS 9321:2024 Health informatics — General requirements of multi-centre medical data collaborative analysis
[2] YD/T 4043-2022. Reference Architecture for Multi-center Medical Data Collaborative Analysis Platform Based on Artificial Intelligence. Chinese Industry Standard, 2022.

Academic Works
[1] Member of the Digital Health and Medical Information Subcommittee of the Chinese Society of Biomedical Engineering.
[2] Adjunct Lecturer at Zhejiang University.
[3] Industry Mentor for Professional Degree Graduate Students at Zhejiang University.
[4] Journal Review: JBHI, JBI, JMS, CIBM, IEEE TNNLS, Information Science, Biomedical Signal Processing and Control, Expert Systems With Applications, BMC Bioinformatics, Scientific Reports, BMC Cancer, BMC Medical Informatics and Decision Making.