Ziqi Xu

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Education

Washington University in St.Louis   **St.Louis, MO**
- Ph.D. Candidate in Computer Science and Engineering   GPA 4.00/4.00   Aug 2022-2027(expected)

Washington University in St.Louis   **St.Louis, MO**
- BS, Double Major in Computer Science & Math   GPA 3.99/4.00   Sep 2019-May 2022
- Honors/Awards: Dean's List (2020,2021,2022), Dean's Selected Fellowship(2022)

Research Experience

Multi-task Recovery Prediction After Lumbar Spine Surgery   **Saint Louis, MO**
Multitask prediction, EHR, mobile technology, wearable devices   Aug 2022-May 2024
- Predicted three clinical outcomes with pre-operation data collected by medical records, EMA questionnaires, wearable devices, and DSEM features for patients underwent lumbar spine surgery
- Proposed an end-to-end framework which performed multitask multimodal selection, learnable adaptive weighting to mitigate negative transfer, and model interpretation to assist clinical decision making.

Predict treatment effects of ECMO and mortality in COVID-19 patients   **Saint Louis, MO**
Treatment effects, Deep Learning   Apr 2021-May 2022
- Extracted features of interest, performed slicing and dicing and developed reports to clean the raw data
- Applied XGBoost and LR models to predict the outcome of ECMO support that achieves 79% on AUC in external validation and helped applying and comparing existing algorithms to the dataset
- Built baseline models to help with predict treatment effects in real-word and synthetic datasets

Unsupervised clustering for Heterogeneous Endophenotypes for Chiari patients   **Saint Louis, MO**
Unsupervised Clustering, Dimension Reduction, Representative Learning   May 2022-Present
- Combined data-driven methods with clinical knowledge of pre-selected groups for feature selection
- Demonstrated the stability and reproducibility of the results with Ajusted Rand Score over 0.6

Work and Project Experience

Technical Intern, ORKA Health Technology Co., Ltd   **Shanghai, China**
Skills: Flutter, Swift, SQL, Firebase, User-data Analytics   May 2021-Jul 2021
- Implemented the main functionality of APP with Flutter that allows registration, switching mode, adjusting volumes and built customized widgets to standardize typography and style
- Performed AB test and event tracking and contributed to the design of APP based on data analytics

Publication

Xu, Z., Zhang, J. S., Greenberg, J., Frumklin, M., ... & Lu, C. (2024). Predicting Multi-dimensional Surgical Outcomes with Multi-modal Mobile Sensing: A Case Study with Patients Undergoing Lumbar Spine Surgery. Proc. ACM Interact. Mob. Wearable Ubiquitous Technol. 8, 2, Article 81.

Greenberg, J. K.*, Frumkin, M.*, Xu, Z.*, Zhang, J., … & Ray, W. Z. (2024). Preoperative Mobile Health Data Improve Predictions of Recovery From Lumbar Spine Surgery. Neurosurgery, 10-1227.

Xue, B., Said, A. S., Xu, Z., Liu, H., Shah, N., Yang, H., ... & Lu, C. (2023, August). Assisting clinical decisions for scarcely available treatment via disentangled latent representation. In *Proceedings of the 29th ACM SIGKDD Conference on Knowledge Discovery and Data Mining* (pp. 5360-5371).

Shah, N., Xue, B., Xu, Z., Yang, H., Marwali, E., Dalton, H., ... & Deacon, J. (2023). Validation of extracorporeal membrane oxygenation mortality prediction and severity of illness scores in an international COVID‑19 cohort. Artificial Organs, 47(9), 1490-1502.

Technical Skills

- Computer Skills: Microsoft Office, Photoshop, Premier, Mathematic, Postman
- Coding Skills: C++, Java, Python, Javascript, SQL, HTML, CSS, React, R, Swift, Flutter