Ziyang Zhang

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Education

Emory University — Atlanta, USA
Doctor of Philosophy in Computer Science and Informatics expected — *Aug. 2023 – May. 2028*
- advised by Prof. Carl Yang
- pursued a MS since 2023 and transferred to PhD in 2024

Shenzhen University — Shenzhen, China
Bachelor of Engineering in Computer Science and Technology — *Sept. 2019 – Jun. 2023*
- Certificate in Tencent's Artificial Intelligence Program (pass rate: 11.8%)

Research Experience

Graph Data Mining in Healthcare — Atlanta, USA
Emory Graph Mining Lab, Emory University — *Sept. 2023 - Present*
Advisor: Prof. Carl Yang
- Conducted research on graph data mining in healthcare and delved into the largest biomedical database – The National Institutes of Health (NIH)'s AllofUs Research Program.
- Proposed a novel framework to jointly cluster clinical concepts and patient visits in electronic health record (EHR) data (i.e., task-guided co-clustering), which demonstrates a superior performance of 5.26% higher than the backbone model in predicting clinical outcomes and is capable of discerning insightful disease subtypes related to specific diseases at different levels, enabling more targeted clinical interventions.

Multimodal Learning for 3D Scene Graph Generation — Shenzhen, China
Immersive Media Lab, Shenzhen University — *Dec. 2022 - Sept. 2023*
Advisor: Prof. Xu Wang
- Conducted research on the application of graph neural networks (GNNs) for scene graph generation. Improved a state-of-the-art model using attention mechanism and reached a comprehensive performance increase of 19.68%.
- Committed to the development of a unified framework to perform downstream tasks (e.g., Visual Question Answering) for both 2D and 3D scene graph generation models.

Gaussian Processes for Engineering Applications — Remote
Intelligent Computational Engineering Lab X, The University of Sheffield — *Jun. 2022 - Apr. 2023*
Advisor: Prof. Wei W. Xing
- Proposed an enhanced Gaussian Process Dynamical Model for accurately predicting lithium battery capacity degradation, which has been successfully extended to high-dimensional data and knowledge transfer tasks.
- Assisted the group in using Gaussian Process for Bayesian feature enhancement in the Stochastic Collocation model, achieving notable results in the multi-fidelity optimization.

Publication

Ziyang Zhang, Hejie Cui, Ran Xu, Yuzhang Xie, Joyce C. Ho, Carl Yang: *TACCO: Task-guided Co-clustering of Clinical Concepts and Patient Visits for Disease Subtyping based on EHR Data*, preprint, 2024.

Wei W. Xing*, **Ziyang Zhang***, Akeel Shah: *Enhanced Gaussian Process Dynamical Models with Knowledge Transfer for Long-term Battery Degradation Forecasting*, arXiv, 2023. (* Equal Contribution) [PDF]

Wei Xing, Akeel Shah, Guohao Dai, **Ziyang Zhang**, Ting Guo, Hong Qiu, Puiki Leung, Qian Xu, Xun Zhu, Qiang Liao: *Multi-fidelity Design Optimization of Solid Oxide Fuel Cells Using a Bayesian Feature Enhanced Stochastic Collocation*, International Journal of Hydrogen Energy, 2023. [PDF]

Internship

BlueWhaleX Co., Ltd. Shenzhen, China
Front-end Development Intern *Feb. 2022 - Aug. 2022*
Descriptions: designed a Multi-Target Multi-Camera Vehicle Tracking System for Futian Customs, Shenzhen; used Vue.js and AntDesign for page creation and styling; collaborated with back-end developers to optimize APIs and data structures
Outcome: the developed platform now in use at Futian Customs, Shenzhen

Honors

- Ph.D. Scholarship at Emory University (2024)
- Master's 50% Scholarship at Emory University (2023)
- Second Prize (Individual) Scholarship for Innovation and Entrepreneurship at Shenzhen University (2022)
- Second Prize (Team) Scholarship for Innovation and Entrepreneurship at Shenzhen University (2022)
- Second Prize in Guandong Province, Lanqiao Cup Software Individual Competition (2022)
- First Place among the Outstanding Winner, ShuWei Cup IMCM (2021)
- Third Prize (Individual) Scholarship for Excellent Student Cadre at Shenzhen University (2021)
- Third Prize (Team) Scholarship for Cultural and Sports Activities at Shenzhen University (2021)
- Third Prize, RPA and AI Innovative Case Competition (2020)
- First Prize, The 4th TipDM Cup Data Analysis Competition (2020)

Skills

Programming and Tools: Python, PyTorch, Generative AI, Git, Linux, LaTeX
Languages: English (professional working), Chinese Mandarin (native)

Service & Activity

Researcher, NIH's All of Us Research Program *since 2024*
Reviewer, The IEEE Transactions on Neural Networks and Learning Systems (TNNLS) *since 2024*
Vice-Director, AutoLeaders Innovation Practice Club at Shenzhen University *2020 - 2022*
Leader, College Soccer Team at Shenzhen University *2019 - 2022*
Vice-Director, Department of Publicity in College Student Union at Shenzhen University *2019 - 2021*