Hua Tang

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EDUCATION

Bachelor of Shanghai Jiao Tong University(SJTU) *Sep.2020 - Jun.2024(Expected)*

Senior Undergraduate (Major in Industrial Engineering and Minor in Mathematics and Applied Mathematics)

- **Core Coursework:** Linear Algebra, Quality Management(Control Charts, Statistics), Probability and Statistics, Engineering Statistics, Stochastic Process, Data Structure, Thinking and Methodology in Programming(C++), Operations Research
- **Research Interest:** Trustworthy AI(algorithmic fairness, robustness and privacy), machine learning and data mining.

SELECTIVE RESEARCH EXPERIENCE

Research on the Trade-off between Accuracy and Algorithmic Fairness *Jul. 2023 - Present*

Advisor: Mengnan Du, Assistant Professor, Department of Data Science, New Jersey Institute of Technology(NJIT)

- Decomposed unfairness into data-driven and classifier-dependent and illustrated the near-impossibility of absolute fairness.
- Highlighted a potential abrupt decline in accuracy within the fairness-accuracy trade-off curve(Pareto Frontier).
- Submitted a manuscript as the first author to the 38th Annual AAAI Conference on Artificial Intelligence (AAAI 2024).

Research on Skeleton-based Human Motion Quality Assessment *Mar.2023- Sep.2023*

Advisor: Yongxiang Li, Associate Professor, Department of Industrial Engineering and Management, Shanghai Jiao Tong University(SJTU)

- Investigated the unsupervised structure of Autoencoder(AE) for Skeleton-based Human motion quality assessment (HMQA).
- Implemented a data denoising filter and conducted dataset segmentation to align with distinct motion periods.
- Proposed a novel framework integrating the Attention module and hierarchical ST-GCN to extract the inherent features.

Research on high-frequency trading strategies for quantitative hedge funds *Jul. 2022 - May.2023*

Advisor: Tongxin Ren, Assistant Professor, Student Innovation Center, Shanghai Jiao Tong University(SJTU)

- Conducted in-depth research into deep learning methods within the high-frequency trading (HFT) domain.
- Preprocessed a large Bitcoin transaction dataset and extracted factors to serve as input features for subsequent modeling.
- Developed an LSTM-based regression model and achieved a sign prediction accuracy of 83.1%, surpassing ARIMA(81.5%).

PUBLICATION

Hua Tang; Lu Cheng; Mengnan Du. **Abrupt Decline of Accuracy in Over-Pursuit of Algorithmic Fairness: A Closer Look at the Accuracy-Fairness Trade-off Curve**, Submitted to *Thirty-Eighth AAAI Conference on Artificial Intelligence (AAAI),* 2024.

SELECTIVE AWARDS & HONORS

2nd price in 18th National Competition of Transport Science and Technology for Students(NACTranS)(Top 5%) *2023*

Meritorious Winner in the Mathematical Contest in Modeling(Top 20%) *2023*

1st Price in 17th "Dongfeng Nissan Cup" Tsinghua IE Sword National Industrial Engineering Case Study Competition(Top 8%) *2023*

SKILLS

Professional Tools: Python, C++, MATLAB, Latex and SQL with relevant project experience
Deep Learning Frameworks: Keras, TensorFlow, and PyTorch