

# Hua Tang

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SJTU, 800 Dongchuan Road, Shanghai, China

## EDUCATION

Bachelor of Shanghai Jiao Tong University(SJTU)

Sept.2020 - Jun.2024(Expected)

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

- **Core Coursework:** Stochastic Process, Engineering Statistics, Quality Management(Control Charts, Statistics), Probability and Statistics Linear Algebra, 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 12th International Conference on Learning Representations(ICLR 2024).

Research on Skeleton-based Human Motion Quality Assessment

Mar.2023- Sept.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; Ninghao Liu; Mengnan Du. **A Theoretical Approach to Characterize the Accuracy-Fairness Trade-off Pareto Frontier**, Submitted to *12th International Conference on Learning Representations (ICLR)*, 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