Yiyan HUANG

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ACADEMIC POSITION

Hong Kong Polytechnic University (PolyU) **Hong Kong SAR, China**
Postdoctoral Researcher, Department of Applied Mathematics *Dec. 2023-Now*

Brown University **Providence, Rhode Island, USA**
Visiting Research Fellow, Department of Economics *Jan. 2023-Jul. 2023*

EDUCATION

City University of Hong Kong (CityU) **Hong Kong SAR, China**
Ph.D., Data Science, School of Data Science *Sep. 2019-Nov. 2023*

University of Science and Technology of China (USTC) **Hefei, China**
B.Econ., Financial Engineering, Department of Statistics and Finance *Sep. 2015-Jun. 2019*

OTHER EXPERIENCE

City University of Hong Kong (CityU) **Hong Kong SAR, China**
Teaching Assistant *Sep. 2019-Oct. 2023*

- SDSC1001/GE1356 Introduction to Data Science
- SDSC6013 Topics in Financial Engineering and Technology
- SDSC4107 Financial Engineering and Analytics

JD Digit (JDD) **Beijing, China**
Risk Management Center-Intelligent Model Researcher *Dec. 2019-Feb. 2020*

- Developed credit models to remove selection bias caused by discriminative credit assignment and designed new credit strategies for JD online shopping platform.

RESEARCH INTERESTS

My research interests lie at the intersections of several disciplines, including causal inference, econometrics, machine learning, domain adaptation, and financial data science.

- My research topic mainly focuses on estimating treatment effects in several fields (e.g., Economics, Finance, and Healthcare) using **causal machine learning** methods (representation learning, orthogonal machine learning, adversarial learning, etc.)
- Currently, I am working on bridging the gap between the disciplines of **causal inference, economics, representation learning, and domain adaptation**.
- I am also interested in utilizing machine learning, especially deep learning models, to solve **Economic and Financial data science** problems, e.g., policy evaluation, policy optimization, time-series

modeling, limit order book modeling, market microstructure, and option pricing.

PUBLICATIONS

Published Papers

- Shumin Ma, Zhiri Yuan, Qi Wu, **Yiyan Huang**, Xixu Hu, Cheuk Hang Leung, Dongdong Wang, Zhixiang Huang. Deep into The Domain Shift: Transfer Learning through Dependence Regularization. *IEEE Transactions on Neural Networks and Learning Systems* (TNNLS, 2023).
- **Yiyan Huang**, Cheuk Hang Leung, Shumin Ma, Zhiri Yuan, Qi Wu, Siyi Wang, Dongdong Wang, Zhixiang Huang. Towards Balanced Representation Learning for Credit Policy Evaluation. *The 26th International Conference on Artificial Intelligence and Statistics* (AISTATS-2023).
- Zhiri Yuan, Xixu Hu, Qi Wu, Shumin Ma, Cheuk Hang Leung, Xin Shen, **Yiyan Huang**. A Unified Domain Adaptation Framework with Distinctive Divergence Analysis, *Transactions on Machine Learning Research* (TMLR, 2022).
- **Yiyan Huang**, Cheuk Hang Leung, Shumin Ma, Qi Wu, Dongdong Wang, Zhixiang Huang. Moderately-Balanced Representation Learning for Treatment Effects with Orthogonality Information. *The 19th Pacific Rim International Conference on Artificial Intelligence* (PRICAI-2022).
- **Yiyan Huang**, Cheuk Hang Leung, Xing Yan, Qi Wu, Shumin Ma, Zhiri Yuan, Dongdong Wang, Zhixiang Huang. Robust Causal Learning for the Estimation of Average Treatment Effects. *The 2022 International Joint Conference on Neural Networks* (IJCNN-2022, oral).
- **Yiyan Huang**, Qi Wu, Dongdong Wang, Zhixiang Huang. Interpretable Causal Inference via Causal Graphs. *11th World Congress of the Bachelier Finance Society* (abstract oral presentation at BFS-2022).
- **Yiyan Huang**, Cheuk Hang Leung, Xing Yan, Qi Wu, Nanbo Peng, Dongdong Wang, Zhixiang Huang. The Causal Learning of Retail Delinquency. *The Thirty-Fifth AAAI Conference on Artificial Intelligence* (AAAI-2021).

Working Papers

- Cheuk Hang Leung, **Yiyan Huang**, Yijun Li, Qi Wu. Double Machine Learning for Time-Varying Continuous Treatment Effects *Journal of Business & Economic Statistics* (JBES, submitted).
- **Yiyan Huang**, Cheuk Hang Leung, Xing Yan, Qi Wu. Robust Causal Machine Learning of Treatment Effects. *IEEE Transactions on Pattern Analysis and Machine Intelligence* (TPAMI, submitted).
- **Yiyan Huang**, Siyi Wang, Cheuk Hang Leung, Qi Wu, Dongdong Wang, Zhixiang Huang. Representation Balancing with Decomposed Patterns for Treatment Effect Estimation. *Transactions on Machine Learning Research* (TMLR, submitted).
- Siyi Wang, **Yiyan Huang (co-first author)**, Cheuk Hang Leung, Qi Wu, Dongdong Wang, Zhixiang Huang. DBR-CFR: A Two-stage Disentangled and Balanced Representation Learning for Counterfactual Regression (AAAI-2024, submitted).
- Yijun Li, Cheuk Hang Leung, Xiangqian Sun, Chaoqun Wang, **Yiyan Huang**, Xing Yan, Qi Wu, Dongdong Wang, Zhixiang Huang. Learning Multivariate Asynchronous Time Series for High-Frequency Option Price Forecasting (AAAI-2024, submitted).
- Yijun Li, Cheuk Hang Leung, Xiangqian Sun, Chaoqun Wang, **Yiyan Huang**, Xing Yan, Qi Wu,

Dongdong Wang, Zhixiang Huang. The Causal Impact of Credit Lines on Spending Distributions. *Thirty-seventh Conference on Neural Information Processing Systems* (AAAI-2024, submitted).

OTHERS

- Reviewers for IJCAI2021, AISTATS2022, ICML2022, Neurips2022, ICML2023, Neurips2023, etc.
- Research Tuition Scholarship (CityU, 2022-2023)
- Outstanding Academic Performance Award (CityU, 2022-2023)
- Research Tuition Scholarship (CityU, 2021-2022)
- Outstanding Academic Performance Award (CityU, 2021-2022)
- Outstanding Student Scholarship (USTC, 2017)