

# Yiyan HUANG

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(Last updated: 26 Sep 2024)

## ACADEMIC POSITION

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**Hong Kong Polytechnic University (PolyU)**

**Hong Kong SAR, China**

*Postdoctoral Fellow (supervisor: Min Dai), Department of Applied Mathematics*

*Jan. 2024-Now*

**Brown University**

**Providence, Rhode Island, USA**

*Visiting Research Fellow (supervisor: Toru Kitagawa), Department of Economics*

*Jan. 2023-Jul. 2023*

## EDUCATION

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**City University of Hong Kong (CityU)**

**Hong Kong SAR, China**

*Ph.D., Data Science (Supervisor: Qi Wu), 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

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**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

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My research interests lie at the intersections of several disciplines, including Data Science, Causal Inference, Machine Learning, and Data-Driven Decision Making. Particularly, most of my work uses machine learning tools to estimate treatment effects in various fields (such as E-commerce, Economics, and Healthcare) and assist policy-makers in personalized decision makings.

# PUBLICATIONS

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## Published Papers

- **Yiyan Huang**, Cheuk Hang Leung, Siyi Wang, Yijun Li, Qi Wu. Unveiling the Potential of Robustness in Selecting Conditional Average Treatment Effect Estimators. *The 38th Annual Conference on Neural Information Processing Systems (NeurIPS-2024)*.
- **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, 2024)*.
- 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. *The 38th Annual AAAI Conference on Artificial Intelligence (AAAI-2024)*.
- 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)*.

## In Progress

- **Yiyan Huang**, Cheuk Hang Leung, Xing Yan, Qi Wu. Robust Causal Machine Learning of Treatment Effects. *Data Mining and Knowledge Discovery (DMKD, Under review)*.
- Cheuk Hang Leung, **Yiyan Huang (co-first author)**, Yijun Li, Qi Wu. Distributionally Robust Off-Policy Evaluation and Learning with Continuous Treatments (Under review at AAAI-2025 and preparing journal version for Management Science).
- Siyi Wang, **Yiyan Huang (co-first author)**, Cheuk Hang Leung, Chaoqun Wang, Qi Wu. A Two-stage Disentangled and Balanced Representation Learning Method for Counterfactual Regression. *Information Sciences (IS, Under review)*.

- Siyi Wang, **Yiyan Huang (co-first author)**, Cheuk Hang Leung, Zhonghao Xian, Chaoqun Wang, Qi Wu. Doubly Robust Heterogeneous Treatment Effect Estimation by Identifiable VAE (Under review at AAAI-2025).
- Cheuk Hang Leung, **Yiyan Huang (co-first author)**, Yijun Li, Qi Wu. Double Machine Learning for Time-Varying Continuous Treatment Effects. *Journal of Business & Economic Statistics* (JBES, Under review).
- 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 (working paper).
- **Yiyan Huang**, Cheuk Hang Leung, Qi Wu. Causal Model Selection for Personalized Decision-Making (working paper and preparing journal version for Management Science).

## OTHERS

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- Reviewers for IJCAI2021, AISTATS2022, ICML2022, Neurips2022, ICML2023, Neurips2023, ICML2024, Neurips2024, AAAI2025, AISTATS2025, Transactions on Machine Learning Research, etc.
- Research Tuition Scholarship, City University of Hong Kong, 2022-2023, HK \$42,096.
- Outstanding Academic Performance Award, City University of Hong Kong, 2022-2023, HK \$1,000.
- Research Tuition Scholarship, City University of Hong Kong, 2021-2022, HK \$42,096.
- Outstanding Academic Performance Award, City University of Hong Kong, 2021-2022, HK \$1,000.
- Outstanding Student Scholarship (USTC, 2017)