

Hengxu Lin

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EDUCATION

Columbia Business School		New York, NY
MS, Financial Economics	GPA: 9.6/10	2021 - 2023

- **Coursework (PhD):** Economic Theory, Econometrics, NLP, Mathematical Models and Empirical Models in Marketing, Optimization, Continuous Time Models and Methods, Probabilistic ML, Topics in RL, Fair and Robust Algorithms

Sun Yat-sen University		Guangzhou, China
BS, Mathematics and Applied Mathematics; BA, Accounting	GPA: 3.9/4	2015 - 2020

- **Coursework:** Calculus, Linear Algebra, Probabilistic Theory, Mathematical Statistics, Real Analysis, Differential Equations, Evolutionary Game Theory, Operations Research, Economics, Organizational Behavior
- Graduated with highest distinction

WORK IN PROGRESS

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- **“Reinforcement Learning from Online Consumer Interaction”**, Penny C., Hengyu K., **Hengxu L.**, Xinyu W. and Rajeev K.
 - This research formulates Expedia’s hotel interactive recommendation with consumer as a reinforcement learning problem.
 - Simulated consumer learning with Bayesian updating, adopted actor-critic model to obtain optimal policy and value function.
 - Completed data collection, currently in data analysis stage, shared authorships.
 - **“Toward Fair Dynamic Pricing with Consumer Learning”**, Jerry A., **Hengxu L.**, Tianyu W., Wenxin Z.
 - This research conducts an extensive evaluation of different fairness metrics of dynamic pricing as a contextual bandit problem, and tends to understand how fairness-aware algorithms influence the practical behaviors.
 - Analyzed fairness constraints to evaluate temporal (group / individual) fairness on the contextual bandit problem.
 - Shared authorships, version prepared for NeurIPS 2023 (Neural Information Processing Systems).
 - **“Evolution of Marketing Thoughts: A Graph Neural Network Approach”**, Kamel J., **Hengxu L.**, Malek B.S.
 - This research studies how marketing thoughts emerge and spread between academia and industry over time.
 - Applied embedding topic modeling on academic and practitioner articles and plan to use a graph neural network to build a genealogical graph that temporally links academic and practitioners’ articles.
 - Completed data collection, currently in data analysis stage, shared authorships.

PUBLICATIONS

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- **Lin H**, Zhou D, Liu W, Bian J. Learning Multiple Stock Trading Patterns with Temporal Routing Adaptor and Optimal Transport. *In Proceedings of the 27th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 21)*.
 - Conference presentation, SIGKDD 2021, August, Singapore (dl.acm.org/doi/10.1145/3447548.3467358)
 - **Lin H**, Zhou D, Liu W, Bian J. Deep Risk Model: A Deep Learning Solution for Mining Latent Risk Factors to Improve Covariance Matrix Estimation. *In 2nd ACM International Conference on AI in Finance (ICAIF 21)*.
 - Conference presentation, ICAIF 2021, November, USA (dl.acm.org/doi/10.1145/3490354.3494377)

RESEARCH EXPERIENCE

Harvard Business School	Boston, MA
Research Assistant, Marketing (Prof. Shunyuan Zhang)	Mar 2022 - Present

- **Image Uniqueness:** Proposed a generalizable measurement for sample uniqueness, modeled the uniqueness of Airbnb images;
- **Contrastive Learning:** Trained a momentum contrastive CNN model on 300k Airbnb photographs to learn the image uniqueness;
- **Scene Classification:** Utilized the Places365 dataset for transfer learning, identified unique images in each scene;
- **Model Interpretation:** Contrasted masked image augmentations to visualize important objects in the image.
- **Visual Emotion:** Trained deep neural networks with curriculum training to for image emotion classification.

Columbia Business School

Research Assistant, (Prof. Kamel Jedidi)

New York, NY

Research Assistant, (Prof. Asim Ansari, Khaled Boughanmi & Kamel Jedidi)

May 2022 - Present

Sept 2021 - Dec 2021

- Implemented embedding topic modeling to generate 40 topics for academic marketing papers.
- Analyzed similarity of music as nodes and distribution shift to understand music genealogy and impact.

WORK EXPERIENCE

Microsoft Research

Beijing, China

Research Assistant (full-time), Machine Learning Group

2020 - 2021

- **Learning Multiple Trading Patterns** [\[link\]](#)
 - Proposed a lightweight extensive module, temporal routing adaptor (TRA), to automatically dispatch samples into multiple domains and select a best predictor, applied optimal transport restrict balance assignments while keeping lowest overall loss.
- **Deep Risk Model**
 - Framed risk mining as a supervised learning task and overcame fundamental and statistical risk models' deficiency;
 - Put forward a deep learning solution (GAT-GRU) for mining risk latent factors to improve covariance matrix estimation.
- **Representation Learning of Stock Data**
 - Plugged reconstruction loss in auto-encoder with deep clustering based pseudo labels (analogue to manifold clustering);
 - Applied a contrastive method with optimal transport on online clustering, achieved oracle accuracy on synthetic data (99%).
- **News Sentiment Analysis**
 - **Hierarchical Attention Network:** Forecasted stock movements with hierarchical embeddings from BERT model.

TEACHING EXPERIENCE

Teaching Assistant, Columbia Business School

2021 - 2022

- EMBA: Operation Management, Managerial Statistics
- MBA & MS: Marketing Research

Prof. Cyrus Mohebbi

Prof. Kamel Jedidi

AWARDS & HONORS

- **J.P. Morgan Research Fellowship** for the International Conference of AI in Finance 2021
- **Microsoft Research Stars of Tomorrow** for outstanding research interns 2021
- **Sun Yat-sen University Outstanding Undergraduate** (highest distinct, Top 0.5%) 2019
- **Undergraduate Thesis Best Paper (*Readability, Opaqueness and Crash Risk*)** 2019

MEMBERSHIP & SERVICES

- **Reviewer:** AISTATs 2023
- **Member:** IEEE, ACM, CCF, Association of Information System, American Marketing Association

REFERENCES

Kamel Jedidi

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