Zixuan Yuan

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RESEARCH INTERESTS

Artificial Intelligence, Data Mining, Business Intelligence, FinTech (Corporate Profiling, Quantitative Trading, Startup Investment)

EDUCATION

Ph.D., Information Technology — Sep. 2018 - Jun. 2023
Rutgers Business School, Rutgers University
Advisor: Professor Hui Xiong (AAAS Fellow and IEEE Fellow)

M.S., Information Technology — Sep. 2015 - Jan. 2017
Rutgers Business School, Rutgers University

B.S., Economics — Sep. 2011 - Jun. 2015
School of Economics & Management, Tongji University

SELECTED PUBLICATIONS[1]

Referred Journal Publications

1. Denghui Zhang, Yanchi Liu, **Zixuan Yuan**, Yanjie Fu, Haifeng Chen, and Hui Xiong. Multi-Faceted Knowledge-Driven Pre-Training for Product Representation Learning. IEEE Transactions on Knowledge and Data Engineering (**TKDE**), 2022.
2. Zekai Chen, Dingshuo Chen, Xiao Zhang, **Zixuan Yuan**, and Xiuzhen Cheng. Learning Graph Structures with Transformer for Multivariate Time Series Anomaly Detection in IOT. IEEE Internet of Things Journal (**IOTJ**), 2021.

Peer-Reviewed Conference Papers (* Equal Contribution)

1. Denghui Zhang*, **Zixuan Yuan***, Hao Liu, and Hui Xiong. Learning to Walk with Dual Agents for Knowledge Graph Reasoning. In Proceedings of the 36th AAAI Conference on Artificial Intelligence (**AAAI 2022**) [15% accepted].
2. **Zixuan Yuan**, Hao Liu, Junming Liu, Yanchi Liu, Yang Yang, Renjun Hu, and Hui Xiong. Incremental Spatio-Temporal Graph Learning for Online Query-POI Matching. In Proceedings of the 28th World Wide Web Conference (**WWW 2021**) [20% accepted].
3. **Zixuan Yuan**, Hao Liu, Renjun Hu, Denghui Zhang, and Hui Xiong. Self-Supervised Prototype Representation Learning for Event-Based Corporate Profiling. In Proceedings of the 35th AAAI Conference on Artificial Intelligence (**AAAI 2021**) [21% accepted].
4. **Zixuan Yuan***, Hao Liu*, Yanchi Liu, Denghui Zhang, Fei Yi, Nengjun Zhu, and Hui Xiong. Spatio-Temporal Dual Graph Attention Network for Query-POI Matching. The 43rd International ACM SIGIR Conference on Research and Development in Information Retrieval (**SIGIR 2020**) [26% accepted].
5. Shengming Zhang, Hao Zhong, **Zixuan Yuan**, and Hui Xiong. Scalable Heterogeneous Graph Neural Networks for Predicting High-potential Early-stage Startups. The 27th ACM

[1] A more up-to-date list of publications is available at my homepage https://yuanzx33033.github.io/zixuan

SIGKDD International Conference on Knowledge Discovery and Data Mining (**KDD 2021**, Research Track) [15% accepted].

6. Denghui Zhang, **Zixuan Yuan**, Yanchi Liu, Hao Liu, Zuohui Fu, Fuzhen Zhuang, Hui Xiong, and Haifeng Chen. Domain-Oriented Language Modeling with Adaptive Hybrid Masking and Optimal Transport Alignment. The 27th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (**KDD 2021**, Research Track) [15% accepted].

Working Papers

1. **Zixuan Yuan***, Denghui Zhang*, Hao Zhong, Shengming Zhang, and Hui Xiong. AlphaVC: A Reinforcement Learning-Based Venture Capital Investment Strategy.
   - Accepted by Workshop on Information Technologies and Systems (**WITS 2022**) and INFORMS Workshop on Data Science (**DS 2022**).
   - Targeting on the Review of Financial Studies (**RFS**).
2. **Zixuan Yuan**, Junming Liu, Hui Xiong. Knowledge Graph Enhanced Representation Learning for Event-Based Corporate Profiling.
   - Targeting on Journal of Financial and Quantitative Analysis (**JFQA**).
3. **Zixuan Yuan**, Peter Hafez, and Hui Xiong. Interpretable Event-Driven Financial Forecasting with Online Knowledge Distillation.
   - Targeting on INFORMS Journal on Computing (**IJOC**).
4. **Zixuan Yuan**, Junming Liu, Haoyi Zhou, Denghui Zhang, Hao Liu, Nengjun Zhu, and Hui Xiong. LEVER: Online Adaptive Sequence Learning Framework for High-Frequency Trading.
   - Under major revision in IEEE Transactions on Knowledge and Data Engineering (**TKDE**).
5. **Zixuan Yuan**, Yada Zhu, Wei Zhang, Ziming Huang, Guangnan Ye, and Hui Xiong. Multi-Domain Transformer-Based Counterfactual Augmentation for Earnings Call Analysis.
   - Under review in Proceedings of the 30th World Wide Web Conference (**WWW 2023**).
6. **Zixuan Yuan**, Hao Liu, and Hui Xiong. Self-Paced Unified Representation Learning for Hierarchical Multi-Label Classification.
   - Targeting on the 32nd International Joint Conference on Artificial Intelligence (**IJCAI 2023**).

Proposal Writing

1. EAGER: Collaborative Research: Substructure-Aware Spatiotemporal Representation Learning
   PI: Dr. Hui Xiong
   - Role: Designed and wrote the methodology part that develops novel techniques to equip machines with automated and precision characterization with spatiotemporal networks.
   - Result: Submitted to National Science Foundation and was funded in 2020.
2. IIS: Collaborative Research: Harnessing Big Data for Improving Career Mobility
   PI: Dr. Hui Xiong
   - Role: Designed and wrote the machine-learning pipeline that collects and analyzes academic curriculum and student career data, discovers useful patterns about college curriculum and students career development, studies students career choices, and develops sophisticated solutions to improve their career mobility.
   - Result: Submitted to National Science Foundation and was funded in 2020.

AWARDS & HONORS

- Dean′s Scholarship, Rutgers University — Summer 2020
- Research Fellowship, Rutgers University — 2018 - Present

INVITED TALKS

- Deep Learning Enhanced Corporate Valuation. *Hong Kong University of Science and Technology*, Online, November 2022.
- Self-Supervised Prototype Representation Learning for Event-Based Corporate Profiling. *The session "High-dimensional Data Analytics for Modeling, Monitoring, and Control" at 2022 INFORMS annual conference*, Indianapolis, IN, US, October 2022.
- Exploiting the Power of Language Modeling for Improving the Earnings Call Analysis. *IBM Research*, Online, August 2021.
- Equity Investment Enhanced with News & Corporate Events. *RavenPack Research*, Online, October 2020.

RESEARCH EXPERIENCE

IBM Research, NY, US — June 2021 - August 2021

Data Science Researcher (Internship)

- Developed an interpretable transformer-based language model to precisely evaluate the future performance and market volatility of publicly-traded companies based on their textual information (e.g., earning calls).

RavenPack, NY, US — November 2020 - February 2021

Data Science Researcher (Internship)

- Designed an explainable deep learning approach to perform the day-frequent trading in US and European stock markets by using NLP techniques to exploit market sentiments from corporate news events.

XQuant Company Ltd., Hangzhou, China — February 2020 - May 2020

Data Science Researcher (Internship)

- *Project I: Corporate Profiling:* Assessed the evolving operational status of corporates from its event sequence, and constructed event-based corporate profile via self-supervised prototype learning paradigm.
- *Project II: T+0 Algorithmic Trading:* Developed an online adaptive sequential modeling algorithm for tick-level intra-day trading in Chinese stock market.

Baidu Research, Beijing, China — May 2019 - August 2019

Data Science Researcher (Internship)

- Incorporated the incremental learning paradigm to shorten the application latency and adaptively study the evolving trip preference of Baidu Maps users.

Baidu Research, Beijing, China — May 2018 - August 2018

Data Science Researcher (Internship)

- Implemented the spatiotemporal graph learning methods to provide dynamic and personalized query-POI matching criterions for Baidu Maps users.

TEACHING EXPERIENCE

Sole Instructor, Rutgers Business School, Rutgers University

- Undergraduate course: 29:623:311, Production and Operations Management, Summer 2022 — Organized and taught a lecture as well as quiz review sessions. Prepared and graded

homework and exams. Mentored and evaluated teams of students throughout the class project and helped individual students with modeling and coding problems.

- Undergraduate course: 29:623:335, Data Warehousing & Data Mining, Spring 2023 — Scheduled to teach.

PROFESSIONAL ACTIVITIES

Session Chair

- The session AI-driven Business Analytics: New Advances and Applications at 2022 INFORMS annual meeting

Program Committee Member

- The AAAI Conference on Artificial Intelligence (AAAI), 2023
- The IEEE ICDM NeuRec-Workshop, 2023

Journal Reviewer

- Transactions on Knowledge Discovery from Data (TKDD), 2022
- Frontiers of Computer Science, 2022
- Computer Communications, 2022

REFERENCES

- Hui Xiong (advisor), Distinguished Professor
  Department of Management Science and Information Systems, Rutgers University
  Email: hxiong@rutgers.edu
- Yada Zhu, Principal Research Staff Member
  MIT-IBM Watson AI Lab, IBM Research
  Email: yzhu@us.ibm.com
- Peter Hafez, Chief Data Scientist
  RavenPack Research
  Email: phafez@ravenpack.com