

YU XIA

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EDUCATION

09/18 - 05/22	NEW YORK UNIVERSITY The Courant Institute of Mathematical Sciences B.S. in Mathematics and Data Science <ul style="list-style-type: none">• GPA: 3.854 / 4• Honor: magna cum laude, Dean's list for 4 years• Coursework: Honor Analysis, Probability & Statistics, Numerical Analysis, Partial Differential Equation, Stochastic Calculus, Causal Inference, Machine Learning, Reinforcement Learning	New York, NY
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PUBLICATIONS

- A. Mueller, Y. Xia, and T. Linzen. 2022. Causal Analysis of Syntactic Agreement Neurons in Multilingual Language Models. In Proceedings of the 26th Conference on Computational Natural Language Learning (CoNLL), pages 95–109. Association for Computational Linguistics.

PREPRINTS

- Y. Xia, C.H. Wang, J. Mabry, G. Cheng. 2024. Advancing Retail Data Science: Comprehensive Evaluation of Synthetic Data. arXiv. <https://arxiv.org/abs/2406.13130>. Accepted in KDD 2024 GenAI Evaluation Workshop.
- Y. Xia, S. Narayanamoorthy, Z. Zhou, J. Mabry. 2024. Simulation-Based Benchmarking of Reinforcement Learning Agents for Personalized Retail Promotions. arXiv. <https://arxiv.org/abs/2405.10469>
- Y. Xia, A. Arian, S. Narayanasmoorthy, J. Mabry. 2023. RetailSynth: Synthetic Data Generation for Retail AI Systems Evaluation. arXiv. <https://arxiv.org/abs/2312.14095>. Accepted in the poster session of INFORMS Business Analytics Conference 2024.

TALKS

06/23	Woman in Data Science Worldwide, Upskill Workshop – Probabilistic Programming 101 <ul style="list-style-type: none">• Introduced Numpyro framework with a simplified Bayesian hierarchical linear regression example in an interactive coding session.
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RESEARCH EXPERIENCE

05/24 - Present	UCLA Trustworthy AI Lab Research Assistant, Advisor: Prof. Guang Cheng, Dr. Chi-Hua Wang <ul style="list-style-type: none">• Proposed an evaluation framework for retail synthetic data generation from aspects of fidelity, utility, and privacy.• Implemented evaluation framework and report on AutoGAN, CTGAN, TabDDPM, LLM, etc.• First-authored paper accepted by KDD 2024 GenAI Evaluation Workshop.	Remote
05/21 - 05/22	NYU Stern School of Business Research Assistant, Advisor: Prof. Zhengyuan Zhou <ul style="list-style-type: none">• Led development team of 5 for recommendation app, and implemented bandit algorithm.• Extended Exp3 Algorithm to N-agents setting, proved the upper regret bound and ran statistical simulations in both the synthetic environment and recommendation platform.• Built proof of concept of retail marketing digital twin to evaluate personalized pricing strategies.	New York, NY
10/21 - 04/22	NYU Center of Data Science Research Assistant, Advisor: Prof. Tal Linzen, Dr. Aaron Mueller <ul style="list-style-type: none">• Compared causal performances of GPT3 and BERT on syntactic agreement mechanisms.• Wrote neuron-intervention experiment scripts, ran experiments for analysis, and graphed results.• Paper accepted by 26th Conference on Computational Natural Language Learning.	New York, NY

INDUSTRY EXPERIENCE

- 09/22 - Present **Bain & Company, Inc.** San Francisco, CA
Machine Learning Engineer Intern / Machine Learning Engineer
- Research IP
 - Built a personalized demand model using Bayesian Hierarchical Linear Regression and evaluated price elasticity per customer per product in a closed analytic form. First-authored paper accepted by INFORMS Business Analytics Conference 2024.
 - Developed retail digital twin to evaluate customized pricing strategies with bandit and reinforcement learning algorithms. Paper in preparation.
 - Retail & Supply Chain
 - Leveraged multimodal models to build an OCR pipeline to extract carrier and shipper information from delivery documents, which replaces the manual effort of scanning at the wholesale warehouse.
 - Built route optimization toolkit to schedule delivery jobs under time, cost, and distance constraints using linear programming.
 - Healthcare
 - Integrated LLM to understand transcripts from phone calls and online conversations to summarize patient needs quickly without the human effort involved; leveraged LLM embeddings to predict satisfaction to improve patient experiences.
- 06/22 - 08/22 **JPMorgan Chase & Co.** New York, NY
Quantitative Research Intern
- Evaluated Commodities portfolio P&L with full revaluation pricing and sensitivity pricing.
 - Conducted a pricing accuracy test and constructed a pipeline to flag weak approximates.
 - Analyzed pricing accuracy in supply, book, and instrument levels to generate reports.

TEACHING EXPERIENCE

- 09/22 - 12/23 **Teaching Assistant at NYU Stern** New York, NY
- Served as the teaching assistant and grader on the course, Decision Models and Analytics, for both undergraduate and MBA students in two fall semesters.
- 09/19 - 05/24 **Learning Assistant at NYU University Learning Center** New York, NY
- Provided 1:1 tutoring sessions on mathematics, statistics, and computer science undergraduate courses, including calculus, linear algebra, probability and statistics, data structure, etc.
 - Led group sessions of about 20 students to review and practice algebra and calculus.
- 09/18 - 12/18 **Volunteer Tutor at the City Tutors Program** New York, NY
- Assisted the teacher in a pre-calculus course with 10-15 students and helped them prepare for the High School Equivalency (HSE) exam.

SERVICE

Ad-hoc reviewers for Expert Systems With Applications, IEEE Control Systems Letters, IEEE Control Systems Society

TECHNICAL SKILLS

Python, R, SQL, Git, AWS, GCP, Docker, Latex