Yuxiao Wen

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RESEARCH PROFILE

- Ph.D. candidate in Computer Science at NYU working on RL, contextual bandits, causal inference, and adaptive A/B testing: how learning systems explore and decide when feedback is partial, costly, or causal.
- 7 NeurIPS/ICML/ICLR/AISTATS papers (5 first-author, 1 solo); POMS-HK Best Student Paper Finalist.
- Applied research at Spotify (deployed; +3.93% overall and +36.6% podcast impression-to-stream rates on Spotify Home with >5M users/day) and AWS (RL floor pricing for >1M requests/min; estimated >3% publisher revenue uplift in offline replay).

EDUCATION

NEW YORK UNIVERSITY — **New York, NY**

Ph.D., Computer Science · GPA: 3.95/4.0 · Advisors: Yanjun Han and Zhengyuan Zhou — Expected May 2027

M.Phil., Computer Science — Jan 2026

B.A., Honors Mathematics; B.A., Computer Science · GPA: 3.88/4.0 · Magna cum laude — May 2021

PROFESSIONAL EXPERIENCE

Isara Lab (AI startup) — Research Scientist Intern (Part-time) — Nov 2026 – Dec 2026 | New York, NY

- Building commodity-price forecasting models; post-training LLMs with GRPO and benchmarking them against statistical baselines and deep sequence models.

Amazon Web Services — Applied Scientist Intern — May 2025 – Aug 2025 | Seattle, WA

- Built an RL-based dynamic floor pricing policy end-to-end for an ad platform serving **>1M** requests/min.
- Showed an estimated **>3%** publisher revenue uplift in offline replay while maintaining fill rate.
- Analyzed bidder cohorts to identify behavior patterns, informing per-cohort floor prices and policy features.

Spotify — Machine Learning Engineer Intern — Jun 2024 – Aug 2024 | New York, NY

- Designed a calibrated exploration strategy for contextual-bandit recommendations on Spotify Home (**>5M** daily users), reducing the user engagement cost of exploration while preserving data quality for training.
- Implemented the homepage calibration system, later deployed, achieving **+3.93%** overall and **+36.6%** podcast impression-to-stream rates in online A/B tests; co-authored a RecSys 2025 workshop paper.

SELECTED RESEARCH CONTRIBUTIONS

▪ **Bidding on incremental value.** An ad is worth only the conversions it causes, but this lift is never directly observed and holdout tests cost revenue. Designed bidding algorithms that learn the lift while bidding, using auction wins and losses as natural experiments, with provably near-optimal regret and minimal holdouts. *The (Marginal) Value of a Search Ad* (ICML 2026); first-price auctions (under review, Management Science). Related: budget-constrained bidding (preprint); contextual pricing (ICLR 2026).

▪ **Cheaper online experimentation (solo).** Fast A/B/n testing compares adaptive policies (e.g., rankers, bidders, LLM agents) by maximally reusing user outcomes across policies, while preserving the exact standalone trajectory law of each policy as in its own A/B test. Needed **~55%** fewer user interactions than independent A/B/n at lower error (6 bandit policies, search ranking). Under review, ICLR 2027.

▪ **Exploration for multi-item decisions.** Efficient exploration when a system fills several slots at once (ads, carousels) or also sees feedback on items it did not pick (NeurIPS 2024, ICML 2025 solo, AISTATS 2026).

HONORS & AWARDS

POMS-HK 2026 Best Student Paper Finalist; POMS-China 2026 Best Student Paper, Third Prize
NYU AI Safety Fellowship, 2026
NYU CS Outstanding Performance Award (2 recipients/year), 2021

SKILLS

Programming & Tools: Python, SQL, NumPy, PyTorch, JAX, AWS Athena, AWS Lambda
Machine Learning: Reinforcement Learning, Contextual Bandits, Online Learning, Causal Inference
Statistics & Analytics: A/B Testing, Cohort Analysis, Forecasting, Experimental Design

SELECTED PUBLICATIONS (* equal contribution; αβ alphabetical order)

Auctions, pricing & incrementality

Y. Wen, Z. Hu, Y. Han, Y. Yao, Z. Zhou. **The (Marginal) Value of a Search Ad: An Online Causal Framework for Repeated Second-price Auctions**. *ICML 2026*.

Y. Han*, X. Xu*, Y. Wen, Y. Han, I. Lobel, Z. Zhou. **Semi-Parametric Contextual Pricing with General Smoothness**. *ICLR 2026*.

Y. Wen, Y. Han, Z. Zhou. **Joint Value Estimation and Bidding in Repeated First-price Auctions**. *Under review, Management Science*. *POMS-HK 2026 Best Student Paper Finalist; POMS-China 2026 Third Prize*.

(αβ)Z. Hu, Y. Wen, Y. Yao, J. Zhang, Z. Zhou. **Learning to Bid with Unknown Private Values in Budget-Constrained First-Price Auctions**. *Preprint, 2026*.

Experimentation & recommendation

D. Feijer, H. Abdollahpouri, S. Gupta, A. Clare, Y. Wen, et al. **Calibrated Recommendations with Contextual Bandits**. *RecSys 2025 CONSEQUENCES Workshop*.

Y. Wen. **Fast A/B/n Testing: Exact Multi-Policy Comparison via Tree-Coupled Feedback Sharing**. *Under review, ICLR 2027*.

Bandits, online learning & RL

Y. Wen, Y. Han, Z. Zhou. **Optimal Arm Elimination Algorithms for Combinatorial Bandits**. *AISTATS 2026*.

Y. Wen. **Adversarial Combinatorial Semi-bandits with Graph Feedback**. *ICML 2025*.

Y. Wen, Y. Han, Z. Zhou. **Stochastic Contextual Bandits with Graph Feedback: From Independence Number to MAS Number**. *NeurIPS 2024*.

Q. Bai*, Y. Han*, Y. Wen*, W. Xu, Z. Zhou. **Functional Critics for Off-Policy Actor-Critic: From Stability to Exploration**. *Under review, ICLR 2027*.

Also: deep learning theory (ICML 2024, first author; ICLR 2025) and scientific ML (Physica D 2024, first author; SIAM J. Sci. Comput. 2023). Full list: Google Scholar.

ADDITIONAL EXPERIENCE & PROJECT

Amazon Web Services — Software Development Engineer Intern Summers 2021, 2020 | Seattle, WA

- Built 5 full-stack search interfaces and a Java query parser (20+ search features) translating structured inputs into SQL; automated cleaning and migration of ~10K data files with AWS Athena and Lambda.

PaperTalk — Open-source Codex Skill for Research Paper Analysis 2026

- Built an open-source Codex-based research agent assistant with specialized Author and Reviewer roles for evidence-grounded analysis, iterative critique, and research exploration.

TALKS, SERVICES & TEACHING

Talks: *Joint Value Estimation and Bidding in Repeated First-price Auctions* — NUS DAO Seminar (invited, 2025); POMS-HK and POMS-China (2026)

Reviewer: ICML 2024–26 (Silver Reviewer Award, 2026), NeurIPS 2024–25, ICLR 2025–27, AISTATS 2026; JMLR, Management Science, Mathematics of Operations Research

Teaching Assistant: Applied Statistics (DS-GA 3001; Fall 2023, Fall 2024); Mathematics for Economics III (MATH-UA 133; Spring 2024)