Yuxiao Wen

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RESEARCH PROFILE

- Ph.D. candidate in Computer Science at NYU specializing in RL, contextual bandits, causal inference, and sample-efficient policy evaluation: how learning systems explore and decide when feedback is partial, costly, or the estimation is causal.
- 7 NeurIPS/ICML/ICLR/AISTATS papers (5 first-author, 1 solo); Best Student Paper Finalist: POMS-HK, POMS-China.
- Applied research at Spotify Homepage (>5M daily users; deployed; +3.93% overall and +36.6% podcast impression-to-stream rates) and AWS (>1M requests/min; >3% publisher revenue uplift in offline replay).

Technical Skills: Python, SQL, NumPy, PyTorch, JAX, AWS Athena, AWS Lambda, LLM APIs, Agent Development

Machine Learning: Reinforcement Learning, Contextual Bandits, Causal Inference, Off-policy Actor-critic, Policy Evaluation

Statistics & Analytics: A/B Testing, Experimental Design, Statistical Inference, Variance Reduction, Cohort Analysis, Forecasting

PROFESSIONAL EXPERIENCE

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

- Post-training LLMs with GRPO and benchmarking them against statistical and deep sequence baselines for price forecasting.

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

- Developed an end-to-end RL-based policy for dynamic auction floor pricing on a 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 | [Blog]*

- 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.** Developed bidding algorithms that learn the incremental value of ad exposure while adapting decisions from sequential causal feedback, with provable regret guarantees and limited holdouts. Second-price auctions in search (*ICML 2026*); first-price auctions in ads (*under review, Management Science*); contextual pricing (*ICLR 2026*).
- **Sample-efficient evaluation of adaptive policies (solo).** Designed a fast A/B/n test that compares adaptive policies (e.g. rankers, LLM agents) by maximally reusing feedback, while preserving each policy's exact standalone trajectory law. In search ranking, it used **~55%** fewer user interactions than independent A/B/n with lower error across 6 bandit policies (*under review, ICLR 2027*).
- **Exploration for multi-item decisions.** Developed provably efficient exploration when a system fills several slots at once (ads, carousels) or also sees feedback on the unchosen items (*NeurIPS 2024; ICML 2025 [solo]; AISTATS 2026*).

HONORS & AWARDS

Best Student Paper Finalist, POMS-HK 2026

Best Student Paper Third Prize, POMS-China 2026

NYU AI Safety Fellowship, 2026

NYU CS Outstanding Performance Award (2 recipients/year), 2021

EDUCATION

New York University *New York, NY*

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

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

SELECTED PUBLICATIONS (* equal contribution; αβ alphabetical order)

Advertising, pricing & causal learning

[10] 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*.

[9] Y. Han*, X. Xu*, Y. Wen, et al. Semi-Parametric Contextual Pricing with General Smoothness. *ICLR 2026*.

[8] 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*.

[7] Z. Hu, Y. Wen, Y. Yao, J. Zhang, Z. Zhou.$^{(\alpha\beta)}$ Learning to Bid with Unknown Private Values in Budget-Constrained First-Price Auctions. *Preprint, 2026*.

Adaptive experimentation & evaluation

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

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

***Bandits, r*einforcement learning & online learning**

[4] 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*.

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

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

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

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.

AGENT SYSTEMS

PaperTalk — Open-source Codex Skill for Research Paper Analysis *2026 | [GitHub]*

- Built an open-source Codex-based research agent assistant for evidence-grounded analysis, iterative critique, and research exploration; inferred research motivation and methodology by synthesizing the authors' research records.

LLM-Emerald — Long-Horizon Multimodal Agent *2026 | [GitHub]*

- Built a multimodal agent with hierarchical planning, exploration, and reusable skills across runs, with verifier-gated skill release.

ADDITIONAL EXPERIENCE

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.

SERVICE

Talks at NUS DAO Seminar (invited, 2025); Best Student Paper talk at POMS-HK (2026), POMS-China (2026).

Reviewer for ICML (Silver Reviewer Award), NeurIPS, ICLR, AISTATS, JMLR, MOR, Management Science.