

Yuxiao Wen

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EDUCATION

NEW YORK UNIVERSITY

Ph.D. in Computer Science

Co-advised by Yanjun Han and Zhengyuan Zhou

GPA: 3.95/4.0

recipient of MacCracken fellowship, Dean's Conference Fund

B.A.s in Honors Mathematics, Computer Science

GPA: 3.88/4.0

department's outstanding award (2 per year), magna cum laude (top 15%), Dean's List

New York, NY

Expected 2026

May 2021

RESEARCH INTERESTS

Online learning, contextual bandits, operations research, online decision-making.

SELECTED PUBLICATIONS

- [4] Y. Wen, Y. Han, Z. Zhou. **Optimal Arm Elimination Algorithms for Combinatorial Bandits**. *Submitted*, 2025.
- [3] Y. Wen, J. Huang, W. Zhou, Z. Zhou. **Perishable Online Inventory Control with Context-Aware Demand Distributions**. *Submitted*, 2025.
- [2] Y. Wen. **Adversarial Combinatorial Semi-bandits with Graph Feedback**. *International Conference on Machine Learning (ICML)*, 2025.
- [1] Y. Wen, Y. Han, Z. Zhou. **Joint Value Estimation and Bidding in Repeated First-price Auctions**. *Submitted*, 2025.

RESEARCH EXPERIENCE

Courant Institute of Mathematical Sciences, New York University

New York, NY

Researcher in Statistical Learning Theory

May 2023 - Present

- Developed computationally efficient and optimal algorithms for various operations research applications.
- Developed the worst-case performance guarantees (regret bounds) for variants of bandits.
- Incorporated treatment effects in contextual bandit algorithms with near-optimal upper bounds.
- Proved and empirically tested generalization bounds and learned structures of deep neural nets.

Researcher in Scientific Machine Learning

May 2021 - May 2023

- Fitted neural networks to approximate PDE solutions in Python and JAX; tested $>5,000$ hyper-parameters.
- Proposed a novel adaptive sampling method to approximate 8-dimensional PDE systems to $<0.1\%$ error, saving $>1,000$ times of samples computationally.
- Developed theoretical analysis for inferring operators of dynamic systems from noisy observations.

WORK EXPERIENCE

Amazon Web Services, Inc.

Seattle, WA

Applied Scientist Intern

May 2025 - Aug 2025

- Proposed learning algorithms for setting floor prices in online advertising with $>1M$ request per minute.
- Adapted bandit algorithms for dynamic floor pricing that achieve $>3\%$ increase in publisher's revenue.

Spotify USA, Inc.

New York, NY

Machine Learning Engineer Intern

June 2024 - Aug 2024

- Implemented a sophisticated exploration improving data quality and user experience for $\sim 5M$ users daily.

- Adopted a contextual bandit algorithm giving ~25% relative increase from baseline in user click rate.

SKILLS

Languages: Python, Java, LaTex, SQL, Matlab, Markdown

Libraries: NumPy, JAX, PyTorch, Scikit-Learn, SciPy, Matplotlib, TensorFlow

TALKS

- [1] SIAM Conference on Computational Science and Engineering, *Adaptive Sampling for Efficiently Training Models of Nonlinear Latent Dynamics*, Amsterdam, the Netherlands, 2023.

OTHER PUBLICATIONS

- [5] A. Jacot, S.H. Choi, Y. Wen. **How DNNs break the Curse of Dimensionality: Compositionality and Symmetry Learning.** *International Conference on Learning Representations (ICLR)*, 2025.
- [4] Y. Wen, Y. Han, Z. Zhou. **Stochastic contextual bandits with graph feedback: from independence number to MAS number.** *Neural Information Processing Systems (NeurIPS)*, 2024.
- [3] Y. Wen, A. Jacot. **Which Frequencies do CNNs Need? Emergent Bottleneck Structure in Feature Learning.** *International Conference on Machine Learning (ICML)*, 2024.
- [2] Y. Wen, E. Vanden-Eijnden, B. Peherstorfer. **Coupling parameter and particle dynamics for adaptive sampling in Neural Galerkin schemes.** *Physica D*, 2024.
- [1] W.I.T. Uy, Y. Wang, Y. Wen, and B. Peherstorfer. **Active operator inference for learning low-dimensional dynamical-system models from noisy data.** *SIAM Journal on Scientific Computing*, 2023.

TEACHING

- [3] DS-GA 3001: Applied Statistics, Fall 2024
- [2] MATH-UA 133: Math for Econ III, Spring 2024
- [1] DS-GA 3001: Applied Statistics, Fall 2023