

# Yuxiao Wen

New York, NY, 10036 • (347) 833-8643 • yw3210@nyu.edu • yw99.github.io

## EDUCATION

---

### NEW YORK UNIVERSITY

New York, NY

*Ph.D. in Computer Science*

Expected 2026

Co-advised by Yanjun Han and Zhengyuan Zhou

GPA: 3.89/4.0; recipient of MacCracken fellowship

*B.A.s in Honors Mathematics, Computer Science*

May 2021

GPA: 3.88/4.0; magna cum laude, outstanding performance award (2 per year), Dean's List

## RESEARCH EXPERIENCE

---

### Courant Institute of Mathematical Sciences, New York University

New York, NY

*Research Assistant in Statistical Learning Theory*

May 2023 - Present

- Developed the first regret lower bound for contextual bandits that evolve with the number of contexts.
- Developed tight upper bounds for some classes of contextual bandits, e.g. transitively closed feedback graphs that are widely applied in auctions and inventory control.
- Proved a bottleneck structure in the learned representations for deep CNNs.

*Research Assistant in Scientific Machine Learning*

May 2020 - May 2023

- Fitted neural networks to approximate PDE solutions in Python and JAX; tested >5,000 hyper-parameters.
- Proposed a novel active learning method to approximate 8-dimensional dynamic systems to <0.1% error, which is otherwise computationally impossible and will give >100% error, in Python and JAX.
- Developed theoretical analysis for inferring operators of dynamic systems from noisy observations.

## WORK EXPERIENCE

---

### Amazon Web Services, Inc.

Seattle, WA

*Software Development Engineer Intern*

June 2021 - Aug 2021

- Integrated back-end search in AWS S3 and results delivery to front-end with Java and AWS coral service.
- Implemented CSS, HTML, JavaScript for 5 website pages that call, retrieve, and display search results.
- Developed a Java parser for 20+ features to build SQL queries from users' inputs in the search prompt.

### Amazon Web Services, Inc.

Seattle, WA

*Software Development Engineer Intern*

June 2020 - Aug 2020

- Designed a Search feature workflow for the AWS data warehouse website (for internal use) and created a comprehensive software design document for the Search workflow in AWS internal Wiki.
- Automated data cleaning process and data migration in Java for ~10,000 data files into JSON format.
- Enabled searching the ~10,000 files by sending SQL queries to AWS Athena in an AWS Lambda function.

## SKILLS

---

**Languages:** Python, Java, LaTeX, SQL, Matlab, JavaScript, HTML, Markdown

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

**Tools:** Apache Subversion (SVN), Git, AWS tools, Visual Studio Code, Mac OS X tools

## COURSE PROJECTS

---

### Distributed Hash Table Protocols under Churn in P2P Networks

2023

- Evaluated the performance of Kademia protocol under various churn rates with a Java-based simulator.
- Comprehensively studied the impact of 20 churn rates on 4 network sizes and 10 protocol parameters.

### Survey on The Law of Robustness in Deep Learning

2022

- Reviewed and summarized 47 references on the law of robustness and 5 related topics in a 12-page paper.

### **Log-Regression Model of Weather Influence on Business Revenues** **2020**

- Modeled the influence of 5 weather metrics on the quarter sales of 7 industries via a log cubic regression.
- Fitted the model with 3 real-world datasets over 7 years and achieved 1.2% relative error on testing.
- Preprocessed 3 datasets (total ~60MB) into a unified format via MapReduce in Java and queried via SQL.

### **PUBLICATIONS**

---

- [1] [Y. Wen](#), Y. Han, Z. Zhou. **Stochastic contextual bandits with graph feedback: from independence number to MAS number.** *submitted*, 2024.
- [2] [Y. Wen](#), A. Jacot. **Which Frequencies do CNNs Need? Emergent Bottleneck Structure in Feature Learning.** *submitted*, 2024.
- [3] [Y. Wen](#), E. Vanden-Eijnden, B. Peherstorfer. **Coupling parameter and particle dynamics for adaptive sampling in Neural Galerkin schemes.** *submitted*, 2023.
- [4] 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.

### **TALKS**

---

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

### **TEACHING**

---

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