Yuxuan (Wayne) Wang

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Education Summary:

New York University, Tandon School of Engineering, Brooklyn, NY
Expected Graduation Date: May 2026
Bachelor of Science/Master of Science, **Computer Science**, **GPA: 3.935**

Technical Skills:

Search Engine Optimization (query processing, re-ranking) || **Machine Learning** (Latent Semantic Indexing, Deep Learning, Reinforcement Learning, Transformer-based Models) || **DevOps Tools** (Docker, Circle-CI, Clang) || **Database Management** (MySQL) || **Web Development** (Flask, SwiftUI)

Relevant Coursework:

Computer Science: Algorithmic Machine Learning and Data Science || Machine Learning || Network Security || Computer Networking || Object Oriented Programming || Algorithm and Data Structure || Algorithm || Computer Architecture and Organization || Database || Operating System
Math: Honors IV - Generative Modle || Discrete Math || Multivariate Calculus || Linear Algebra and Differential Equations || Data Analysis

Experiences:

Undergraduate Researcher – Latent and Direct Retrieval (LADR) Optimization Summer 2024 – Present
Supervised by Professor Torsten Suel @ New York University, Tandon School of Engineering
(Information Retrieval, Search Engine, HPC, Query Processing, Database, Python)

- Analyzed the impact of various seed sets (DeepImpact, SPLADE, docT5query, TILDE) and their corresponding early termination (in terms of the inverted indexes) counterpart on retrieval performance with LADR.
- Optimize reranking using the Deberta model, boosting DeepImpact seeds to achieve state-of-the-art re-ranking quality, with RR@10 on the MSMARCO dev dataset reaching 0.40.

Internship - Industrial Investment Data Analytics June 2023 - August 2023
Sinosure (Tianjin) Equity Investment Fund Management Co., Ltd., Guangzhou, China
(Deep Learning, Web Crawler, Database, Python, MySQL)

- Spearheaded data integration efforts to enhance forecasting models for prospective investments, enabling data-driven decision-making and improved profitability assessments.
- Conducted in-depth market analysis and research on the Electronic Design Automation (EDA) software industry, uncovering key trends and growth opportunities to inform strategic investment decisions.

Projects:

DTCC Lab-The Future of Coding with AI (Vertically Integrated Project at Tandon) September 2023 - May 2024
(Prompt Engineering, Automated Code Generator, Python)

- Innovated and refined AI prompts to enhance the generation of specific code languages, notably Python, improving LLM efficiency.
- Led initiatives to optimize AI-driven developer workflows, focusing on automation and efficiency improvements in the Fintech sector's SDLC.

ContextWIN: Whittle Index Based Mixture-of-Experts Neural Model For Restless Bandits With Contextual Information Via Deep RL (https://arxiv.org/abs/2410.09781) September 2023 - December 2023
(Theoretical Computer Science, Probability, Recommendation system, Reinforcement Learning, Python)

- Developed ContextWIN, an advanced architecture enhancing Neural Whittle Index Network for Restless Multi-Armed Bandit problems. Utilized reinforcement learning and a mixture of experts to improve decision-making in dynamic environments, especially recommendation systems.
- Proved the theoretical robustness of both NeurWIN and ContextWIN models, laying the groundwork for future applications in complex decision-making with contextual data.

Rapid Assembly & Design (RAD) - Tripod Selfie Stick Spring 2022
(Computer Vision, 3D Modeling/Print, Linux, Python, Raspberry Pi)

- Built a self-tracking tripod selfie stick within a $100 budget using a Raspberry Pi and 3D-printed parts, featuring visual tracking with an infrared camera, remote monitoring, and frame-tracking controls on Ubuntu.