**Yuxuan (Wayne) Wang**

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**EDUCATION SUMMARY**:
**New York University**, Tandon School of Engineering, Brooklyn, NY
Expected Graduation Date: May 2025
Bachelor of Science, Computer Science, **GPA: 3.935**
**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*
**TECHNICAL SKILLS:**
**Skills***: Linux (Ubuntu, HPC systems), GitHub Open Source Collaboration*
**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)

- Optimized the LADR algorithm by integrating latent semantic indexing and direct term matching to enhance retrieval efficiency.
- Analyzed the impact of various seed sets (DeepImpact, SPLADE, docT5query, TILDE) on retrieval performance, achieving faster convergence and improved robustness.
- Implemented reranking using the Deberta model, boosting DeepImpact seeds to achieve state-of-the-art quality, with RR@10 on the MSMARCO dev dataset reaching 0.40, comparable to the newest Splade model.
- Developed and tested early termination techniques, balancing efficiency and accuracy, resulting in reduced query time.
- Awarded a scholarship for this research aimed at advancing hybrid retrieval systems with broader applications in search engine technologies.

**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.
- Collaborated on cutting-edge AI research aimed at streamlining developer productivity, contributing to the advancement of intelligent coding tools.

**Industrial Investment (Internship)**

June 2023 - August 2023 Ju
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.
- Collaborated with cross-functional teams to streamline data analysis processes, contributing to the development of comprehensive investment strategies.

**PROJECTS:**
**ContextWIN: Whittle Index Based Mixture-of-Experts Neural Model For Restless Bandits With Contextual Information Via Deep RL**
(Theoretical Computer Science, Probability, Recommendation system, Reinforcement Learning, Python)
September 2023 - December 2023

- 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.

- Focused on assigning context-specific weights to boost efficiency and accuracy in Whittle index computations.
- Conducted extensive research on RMABs, emphasizing the importance of context integration.
- 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
(Python, Raspberry Pi)

- Designed and built a self-tracking tripod selfie stick from scratch within a $100 budget, utilizing 3D-printed parts and a Raspberry Pi to create an efficient and functional prototype.
- Implemented a motion control system by adapting a visual tracking algorithm for a low-cost infrared camera, integrating it seamlessly into the design to achieve precise and responsive tracking.
- Configured the device on Ubuntu, incorporating remote monitoring via SSN and developing both manual and automatic frame-tracking controls to enhance usability and functionality.