Jeffrey Lu

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Education

University of Illinois Urbana-Champaign Expected: May 2027

Bachelor of Science in Computer Science, Minor in Statistics *GPA: 4.00*

Relevant Coursework: Data Structures, Computer Architecture, Probability & Statistics for Computer Science, Discrete Structures, Multivariable Calculus, Computational Linear Algebra

Experience

Quant@Illinois Sep. 2024 – Present

Quantitative Analyst *Champaign, IL*

- Researched historical market data and trading strategies to identify emerging opportunities
- Developed and backtested pairs trading and momentum-based strategies using C++ and Python, achieving an 11% simulated portfolio return over 6 months
- Organized networking events to connect students with professionals in quantitative finance

Northwestern University May 2023 – Oct. 2023

Research Assistant *Evanston, IL*

- Assessed the effects of drilling holes with varying shapes and orientations on the performance of type-II superconductors
- Developed and executed bash scripts in Unix to automate CUDA simulations that determine the conductivity of superconductors with different hole configurations
- Visualized and analyzed the results using Python Matplotlib and NumPy
- Wrote a report and presented findings at a research symposium

Projects

Discord Bot | *Python* Apr. 2021 – Present

- Developed and maintained a bot serving over 200 users across 4 global servers, ensuring 97% uptime
- Integrated Discord API, YouTube API, and web scraping to automate real-time content retrieval and processing
- Implemented persistent key-value storage that reduced data retrieval latency by 40%, allowing for optimized in-bot economy management and enabling seamless mini-game experiences
- Processed over 2,500 monthly user interactions, maintaining stability under high concurrency
- Developed an analytics pipeline to track engagement trends and adjust bot behavior for increased user engagement

Modeling the Future Challenge | *Python, MATLAB* Aug. 2022 – May 2024

- Employed a Random Forest model along with Sensitivity Analysis to decipher the top factors behind obesity, cleaning and analyzing multiple datasets
- Developed transition matrices as part of a Markov chain to model future obesity trends
- Formulated actionable model-based recommendations to mitigate the effects of obesity by 10% over 50 years
- Reached Finalist stage: *top 15 out of 152*

Mathworks Math Modeling Challenge | *Python, MATLAB* Feb. 2023 – Mar. 2024

- Created an agent-based model to simulate the future housing market in major US cities
- Utilized Fourier transform and linear regression to forecast trends in homelessness
- Integrated a Random Forest model to put forth recommendations and decrease homelessness by 16% over 50 years
- Awarded Honorable Mention in Technical Computing: *top 5 out of 655*

Awards & Honors

Dean's List: Fall 2024 *Top 20%* *2024 – Present*
Chancellor's Scholar: Campus Honors Program: *150 students selected per cohort* *2024 – Present*
AIME Qualifier 2x: American Invitational Mathematics Examination, Math Olympiad: *Top 5000 in US* *2023-2024*
NAC Qualifier: National Astronomy Competition, Astronomy Olympiad: *Top 100 in US* *2023*
ISSDC Runner Up: International Space Settlement Design Challenge: *15+ countries* *2022*

Technical Skills

Languages: C++, Java, Python, SQL, JavaScript, HTML/CSS, R, PHP
Frameworks and Libraries: React, Tailwind, Pandas, Scikit-learn, NumPy, MatPlotLib, TensorFlow
Developer Tools: Git, Docker, VS Code, Visual Studio, PyCharm, Anaconda, Unix/Linux, Jupyter Notebook, Excel