Jacob Young

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Education

University of Washington - Seattle Sept. 2021 - Jun. 2025
Bachelor of Science in Computer Science, Computational Finance and Risk Management *Current GPA: 3.84/4.0*

Courses: Data Structures and Parallelism, Software Engineering, Introduction to Algorithms, Distributed Systems, Systems Programming, Machine Learning, Deep Learning, Scientific Computing, Operating Systems, Natural Language Processing, Computational Methods for Data Analysis.
Awards: Dean's List (at the University of Washington for all attended quarters), Eagle Scout.

Skills

Languages: C/C++, Java, Python, JavaScript/TypeScript, HTML/CSS, Matlab, Bash, R
Tools & Technologies: Git/GitHub, Unix Shell, Docker, GraphQL, Firebase, tmux, gdb
Frameworks & Libraries: Node.js, React.js, Llama Index, Flask, Django, Plotly-Dash, Pytorch, Chroma

Work Experience

Ambarella Corporation | *Software Architecture Intern* Jun. 2024 - Dec. 2024
- Independently engineered an approximately 90% accurate Retrieval Augmented Generation (RAG) search system to privately query proprietary documents, designed to run on the company's proprietary N1 SoC architecture.
- Optimized the performance and accuracy of the system through retrieval reranking algorithms, scaling to a multi-agent system, prompt engineering, experimenting with varying quantization levels, and fine-tuning the underlying LLM on over 100,000 generated question-answer pairs.
- Researched increasing semantic retrieval accuracy by experimenting with custom indexing strategies.

TechNext Inc | *Front End Developer Intern* Aug. 2023 - Mar. 2024
- Improved and optimized data analysis tools that each processed millions of documents and provided government organizations with quick real-time insights for informed decision-making.
- Engineered seamless front-end React features as well as implementing MIT research-based logic in a Django framework backend, for tools used by high-profile clients such as the Department of Defense
- Individually rebuilt a key product to use GraphQL and React as part of a six-person, start-up team, while leveraging customer input and research-team-developed methods when implementing features.

Project Experience

Fantasy Football Draft Agent | *Python* Dec. 2024
- Assembled a dataset of over 10 years of historical data and used a neural network to predict each player's risk metrics, such as age, games played, etc., with 94% accuracy, allowing precise risk-scoring for drafting decisions.
- Designed and implemented a custom drafting environment and DQN-based reinforcement learning agent to learn effective draft strategies based on player/team risk.
- Achieved similar performance to using common approaches such as maximizing projections or player popularity.

Spotify Ranking Game | *React, TypeScript, HTML/CSS, Node.js, Spotify API, Express, Chart.js, Firebase* Jul. 2023
- Created a daily game deployed using Google Cloud to challenge users to rank five random songs from the Spotify API by popularity, assess their accuracy, and display global trends among players.
- Leveraged Firebase Cloud FireStore to add user authentication, store user data and scale the project to handle large user traffic.

Extracurricular Activities

University of Washington Remotely Operated Vehicles (ROV) | *Software Team* Oct. 2022 - Jun. 2023
- Built control core code for the team's ROV which then achieved a ninth-place finish at the MATE ROV World Championships.

Hackathons
- Competed in DubHacks '21, '22 (T-Mobile Hardware Track - Second Most Marketable Hack) & '23 and UC Berkeley AI/LLM Hackathon (2023, 2024).