# Joseph Laurent Krueger

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## **EDUCATION**

#### University of Washington (Seattle campus)

B.S. Computer Science, Minor in Business

President and Co-founder of Clearvote, Algorithmic Trading Club, Salsa Club, UW Farm

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Clean Power Research, Software Engineering Intern &

June 2024 — October 2024 | Bellevue, WA

December 2024

GPA: 3.70/4.0

- Designed and implemented a scalable, fault-tolerant, .NET app that inserts charts into PDFs via dependency injected data
- Extended existing orchestration infrastructure with AWS Lambda to connect with a containerized Node.JS app
- Designed new charts generated for on-demand reports in under 5 seconds used by HVAC contractors across the country
- Wrote technical documentation and automated tests for debugging and monitoring to a production-ready coding standard

Clearvote, Co-founder &

August 2023 — Present | Seattle, WA

- Founded a student-run non-profit developing a cross-functional, open-source Next.js application deployed through AWS
- Deployed a throttled, high availability RESTful API supporting over over 3000 users during a critical usage period
- Engineered an NLP pipeline using **GPT-4** to analyze political statements, extracting policy positions and generating quantitative metrics across five dimensions with 100% automation
- Designed a geospatial data system for candidate metrics, statement analysis, and district boundaries in **DynamoDB** for localized election information across the state of Washington

MCG Health, Software Engineering Intern &

June 2023 — September 2023 | Seattle, WA

- Worked on the CareWebQI Team to overhaul an In-patient diagnostic and perscritption tool used by 2,800 hospitals
- Migrated from a deprecated version of Angular to work with a .NET Core backend
- Created a CI/CD pipeline in **Azure** for automated testing and deployment
- Added auto-completion and code lookup support for 70,000 medical care guideline codes
- · Applied agile project management principles in cross-team sprint planning sessions with Confluence and JIRA

## **PROJECTS**

ProtoQA Submission, NLP class research project under Prof. Yejin Choi &

January 2023 — March 2023

- Developed a multi-model pipeline using Zephyr-7b-beta that outperformed GPT-2 baselines on ProtoQA's commonsense reasoning benchmark through prompt engineering
- Optimized model performance with WordNet similarity matching and 30-token generation, without the need for fine-tuning

#### Financial Portfolio Rebalancer, Full Stack Application &

April 2024 — Present

- Auto Trader: Developed a C++ Technical Analysis app optimized for market-wide dividends. Backtests on historical market data for **sub-5-second stock speculations** and an EMA algorithm to compare against time series prediction models
- Time Series Forecast: Designing a **Kubernetes** cluster integrated with **Prometheus** and **Grafana** to ingest preprocessed stock data and train regression models (with **PyTorch**) for stock price time series forecasting

## **SKILLS**

**Model Development:** PyTorch, TensorFlow, Supervised Machine Learning, Hyperparameter optimization

Data Science: Web Scraping (Puppeteer, Selenium), NumPy, Pandas, Matplotlib, Desmos

**DevOps:** Kubernetes, Docker, CI/CD (Azure), Shell scripting (PowerShell, Bash), IaC (CloudFormation) **NLP:** Auto-regressive and Sequence-to-sequence transformers, Large Language Models (LLMs)

Languages: Java, C++, C#, TypeScript, Python, Dart, C, R

Cloud Infrastructure: AWS (CDK, Lambda, DynamoDB, EC2, S3, RDB, Amplify), Google Cloud Platform, Azure

Database Systems: ER Modeling, Relational Databases (SQLite, MySQL), NoSQL (DynamoDB)