Joseph Agarwal

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SKILLS

Languages: Python, C#, Java, C++, Go, JavaScript, TypeScript, SQL
Tools/Frameworks: Git, .NET, AWS, React, Angular, Flask, Node, Kafka, Kubernetes, Jenkins

EXPERIENCE

Tesla   Jan 2025 – Present
Software Engineer Intern   Service Center Application | *Fremont, CA*

- Engineered a **ML model** to predict and automatically order car parts based on customer repair needs, using **FastAPI**, **AWS S3** and **LightGBM** to reduce monthly triage costs by $500,000 per location
- Led development of an automated email and phone notification system with **ASP.NET** and **Cron** to proactively alert managers of upcoming deadlines, boosting response rates across 300 sites and improving customer satisfaction scores by 25%
- Added multilingual speech recognition to note-taking application used by 10,000+ users, utilizing **TypeScript** and **Angular** to configure auto-fill user mapping, dynamic reformatting, and **Redis** tracking to store user session data
- Spearheaded redesign of legacy microservices to integrate Optimus robotics; achieved a 67% decrease in code redundancy with **dotnet containerization** and factory dependency injection, automating CI/CD pipelines with **Jenkins**

Powerex Corporation   May 2023 – Aug 2023
Software Engineering Intern   Enterprise Solutions | *Vancouver, BC*

- Leveraging client feedback, constructed **C++** reconciliation app to appraise employee time-sheet data and generate irregularity reports, reducing weekly manual resourcing time from 2 hours to 2 seconds, monitored via **Kubernetes**
- Modernized trading application at the core of business operations by leading frontend transition from **AngularJS** to **ReactJS**, equipping **OAuth** authentication and **Redux** session management to increase platform speed by 30%
- Crafted end-to-end **SOAP** downloader and **API** with certificate credentials and audit logging, saving data to **Snowflake DB** in order to generate 20 customizable reports used by 15+ analysts daily

Cascade Aerospace   Sept 2022 – Apr 2023
Full Stack Developer Intern   Infrastructure & Applications | *Abbotsford, BC*

- Engineered a full-stack aeronautical scheduler with **C#** and **JavaScript** by architecting **.NET Core** server and client **REST APIs**, automating allocation workflows and saving 20+ hours weekly for the department
- Reverse-engineered web-scraping transfer process to standardize data intake, extracting and saving user metadata to **ERP** and **Microsoft SQL Server** databases with **Entity Framework**, tracking and sending 10,000,000 data-points weekly

PROJECTS

Stock Backtest Engine | *Python, Node, Flask, AWS, React, JavaScript*

- Built intuitive React dashboard with modular hooks and BootStrap to display Black-Litterman stock projections
- Implemented **multi-regression** analysis using **pandas** and **numpy** to compute 5 financial performance metrics; backtested against S&P benchmarks with a 15% improved forecast accuracy
- Deployed **Flask** API with **AWS RDS** backend for seamless cloud integration, processing 500+ calls per second

Distributed Warehouse Store | *Java, Bash, netcat, Python*

- Architected and deployed a distributed **PostgreSQL** solution with **Citus**, using advanced sharding across a 5-node cluster to manage high-volume warehouse and shipping data, utilizing **SLURM scripting** for job scheduling
- Reduced SQL query latency by 30% by implementing collocated and repartition join strategies, applying **distributed concurrency control** (2PL) to maintain serializability

EDUCATION

University of British Columbia   GPA: 3.8
Combined Degree in Computer Science and Business - Dean's Honor List   *Expected Graduation: May 2026*

- **Awards**: Commerce Undergraduate Society Award in Business, Alexander Rutherford Scholarship
- **Leadership**: UBC Trading Group Quant Lead, IMUNA Undersecretary General, VP - UBC Social Enterprise
- **Coursework**: Distributed Databases, Operating Systems, Data Structures & Algorithms, Computer Networking