Aditya Goel

BS Computer Science Honours – 3rd Year

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Education

University of British Columbia, Vancouver **GPA: 4.33/4.33**

BS Computer Science Honours Sep 2021 – May 2026

- **Courses**: Algorithms and Data Structures - 97%, Relational Databases - 93%, Software Construction - 93%, Models of Computation - 94%, Calculus I-III - 91%, Data Science - 96%, Cloud Computing, Machine Learning - In Progress
- **Awards**: Science Scholar + Dean's Honour List (Cumulative **GPA: 91.2%, 4.33/4.33**)
- **Scholarships**: Academic Excellence **$80,000** (2021-26) & **$4,000** (2022); Community Engagement **$10,000** (2024)
- Teaching Assistant: **Algorithms and Data Structures** (CPSC 221), Models of Computation (CPSC 121)

Work Experience

Electronic Arts (EA) May 2024 – Aug 2024

Software Engineering Intern – **Java, SpringBoot, Kubernetes, Redis, Terraform, AWS** Vancouver, BC, Canada

- Designed and implemented a **distributed tracing** backend service in **SpringBoot** to trace **millions of requests per second** in a **distributed system** architecture, while ensuring extensive **scalability and robustness**.
- Utilized **Terraform** to configure and maintain **Kubernetes** infrastructure used by several micro-services, ensuring efficient **autoscaling policies** and increasing service uptime to **99.999%**.
- **Exceeded my intern responsibilities** by assisting on-call engineers in diagnosing issues and proposing solutions to critical service outages during game launch season.

Rivian Automotive Sep 2023 – Apr 2024

Software Engineering Intern – **Python, OpenCV, GraphQL, Kubernetes, AWS, Docker** Vancouver, BC, Canada

- Developed a **feature-based image recognition** script using the ORB algorithm, to detect UI features in Rivian's mobile app and compare them to their expected state – helping **automatically catch bugs** during development.
- Deployed several API automation scripts to Rivian's daily build pipeline, **saving 5,000+ dev hours per year**.
- Created and maintained GitLab **CI/CD pipelines** for scheduled application builds and API & UI automation tests.

UBC Computer Science Department Jan 2023 – May 2024

Algorithms and Data Structures Teaching Assistant – **C++** Vancouver, BC, Canada

- Instructed **300+ students** about topics like: space/time complexity, sorting, search, graphs, recursion, hashing.
- Developed **programming assessments** for complicated topics like graphs and deques along with their tests in **C++**.

Projects

quantaTrader (C++) *github.com/agoel25/quantaTrader* Jul 2024 – Sep 2024

- Developed a **low-latency, high-throughput** order matching system in C++ **optimized for HFT** applications, capable of handling **1 million orders per second** with an average tested latency of **1.5 microseconds**.
- Architected **CPU optimizations** like memory alignment and asynchronous I/O, and **advanced data structures** like robinhood hash maps and intrusive linked lists to optimize data access speed and improve cache efficiency.

myGPT (Python, PyTorch) *github.com/agoel25/myGPT* May 2024 – Jul 2024

- Implemented a **GPT model** with a cross entropy **loss of 2.9** (same as ChatGPT-2) by using MLPs, self-attention, and layer normalization, that **runs 100% locally** and can be **trained or fine-tuned on any dataset**.
- Implemented several **GPU/CUDA optimization** techniques like kernel fusion, mixed precision, and distributed batched processing to **reduce training time by 9.5 times** compared to a baseline implementation in PyTorch.

Aakstra Cloud Services (Java, SpringBoot, Oracle DB) *github.com/agoel25/Aakstra* Jul 2024 – Aug 2024

- Engineered a robust backend for a cloud service provider using **SpringBoot**, ensuring minimal redundancy by normalizing database tables to **BCNF**, and preventing injection attacks by incorporating **SQL sanitization**.
- Developed **responsive APIs** for complicated **SQL queries** like division, nested aggregations, and CRUD operations.

Technical Skills

Languages: **C++, C, Java, Python,** TypeScript, Ruby, Go, GraphQL, SQL, Assembly, Bash

Development Tools: **SpringBoot, PyTorch, Kubernetes, Docker**, AWS, Terraform, NoSQL, gRPC, CUDA

Certificates: **Stanford:** Machine Learning (By Andrew Ng.) – Machine and Deep Learning, Neural Networks
University of Pennsylvania: Software Development, Data Structures, Algorithmic Design