Sankalp Narula

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Education

University of Waterloo - 3.8 GPA **2021-2026**
Candidate for Bachelor of Computer Science and Finance - Dean's Honours List *Waterloo, CA*

Experience

Voltra Energy - Stealth Startup May 2025 - Sep 2025
Incoming Backend Engineer Intern - Elixir, Go, gRPC, Kubernetes

John Hancock / Manulife Financial May 2024 - Dec 2024
Software Developer Intern - Data *Toronto, CA*

- Led the migration of **Google Apigee** proxy reporting from **NodeJS** to **Python (PySpark)**, streamlining complexity with a modular architecture and boosting **chargeback coverage by 30%**.
- Built a data-integrity monitoring framework for pipelines and APIs, with automated **email alerts** for immediate notification of downtime/data corruption, enabling faster error detection and reducing issue response time by **40%**.
- Optimized Grafana dashboard queries, cutting load time from 15 minutes to 30 seconds **(96% improvement)** by implementing **Redis Cache, Indexing, Partitioning and Query Refactoring** in **PostgreSQL**.

John Hancock / Manulife Financial Jan 2024 - May 2024
Software Developer Intern - Cloud/Data *Toronto, CA*

- Achieved a **12%** improvement in budget projection accuracy by applying **Facebook Prophet** with **ARIMA** error correction to remove autocorrelation.
- Contributed to the development of scalable **ETL** data pipelines in **Databricks** using **PySpark**, supporting robust data analysis and chargeback reporting.

Whitehorse Liquidity Partners - Private Equity Startup Jan 2023 - Apr 2023
Software Developer Intern - Data *Toronto, CA*

- Developed a flexible entity matching algorithm utilizing the **Fellegi-Sunter Model**, streamlining data integration by effectively reconciling inconsistent entity name variations and achieving **87%** accuracy.
- Achieved monthly savings of **$3500** by migrating microservices from app engine to serverless functions on **GCP**.

Smart Waterloo Region - Innovation Lab May 2022 - Oct 2022
Software/Blockchain Engineer Intern *Waterloo, CA*

- Spearheaded the design of the software architecture for the **peer-to-peer** data exchange framework using the **C4 model**, enabling users to maintain ownership and authority over their data while ensuring secure and anonymous sharing through a decentralized system.
- 🔗 Link to Whitepaper

EXTRACURRICULAR

⬡ **Windows Debugger**

- Created a debugger using **ctypes** and **win-api** capable of attaching to any running process, setting breakpoints, stepping through code, and inspecting memory to aid in identifying software bugs and vulnerabilities.

⬡ **E2E Encrypted Texting System**

- Developed an end-to-end encrypted channel using PKI **(RSA)** and **Web Sockets** for the P2P communications with each other, with connection establishment managed through a central Zoo-Keeping Server.

Technical Skills

Languages: Python, C++, Rust, Elixir, Typescript, Go
Framework: Cuda, Kubernetes, Docker, Redis, Apache Spark, Pandas, Numpy, React, Flask, NodeJS, gRPC
Others: AWS, Databricks, Postgres, Kafka, , Google Cloud Platform