

# Krish Nalam

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## EDUCATION

### University of Toronto

Toronto, ON

*Honors Bachelor of Computer Science (Co-op)*

*Expected Graduation: April 2029*

- Relevant Coursework: Data Structures & Algorithms, Systems Programming, Linear Algebra, Statistics

## EXPERIENCE

### Machine Learning Engineer Intern

September 2026 – Present

*RBC Borealis*

*Toronto, ON*

- Developing **Knowledge AI**, an internal **retrieval-augmented generation** platform: parsing heterogeneous formats, chunking, and embedding into a vector index for retrieval
- Extending the generation stage so answers are grounded in retrieved context and traceable to source passages, evaluated on retrieval quality, not fluency

### Software Engineer Intern

May 2026 – August 2026

*RBC (Royal Bank of Canada)*

*Toronto, ON*

- Built an end-to-end **CI/CD** pipeline on **Red Hat Ansible** deploying an auth service to **Windows Server** across 4 environments, cutting deploy time **85%** and eliminating **30+** manual steps
- Automated the **TLS** certificate lifecycle against an **OAuth2** PKI CA, cutting provisioning from **2 days** to **5 minutes** using in-memory **PKCS12** bundles and **HashiCorp Vault** so no key touches disk

### Software Developer Intern

May 2025 – August 2025

*RBC (Royal Bank of Canada)*

*Toronto, ON*

- Engineered a **Java/Spring Boot** ETL service consolidating HSBC data post-merger, reformatting **30GB+** of weekly data for **12+** mainframe jobs and migrating **SOAP** endpoints to **REST**
- Wrote **PostgreSQL** stored procedures archiving transaction history (database size down **15%**) and modernized legacy **RBC Express** code to **ES6+**, contributing **\$100K** in annual savings

### Full-Stack Developer Intern (Contract)

March 2025 – June 2025

*Unicomm (Fintech Startup)*

*Toronto, ON*

- Shipped **Dockerized Node.js** microservices on **AWS EC2** behind **API Gateway** and moved the client from **React** to **React Native**, cutting re-renders **60%** with **Redux** and client-side caching

## PROJECTS

### FITRIS | *Python, OpenCV, MediaPipe, Flask, React*

JamHacks 8 Winner

- Mapped **5** exercises to Tetris controls in real time, classifying a **33-point MediaPipe** skeleton with a state machine over **12+** joint angles that counts only full reps
- Architected a **3-process** pipeline (**OpenCV, Flask, React**) replacing file polling with **Server-Sent Events** and a monotonic sequence counter for exactly-once delivery

### Lens | *LangGraph, FastAPI, Next.js, Chroma, DeBERTa-v3, RAGAS*

- Built a **LangGraph** agent that plans multi-step research, retrieves from uploaded documents and web search via **Chroma**, and drafts a cited report
- Fine-tuned **DeBERTa-v3** on **FEVER** to flag unsupported claims, serving per-claim confidence via **FastAPI** and a streaming **Next.js** UI, with retrieval scored by **RAGAS**

### UofT Webring | *Next.js, TypeScript, Supabase, AWS S3/CloudFront*

- Locked member data behind **Postgres row-level security** with a column allowlist keeping emails out of public payloads; verified site ownership via an **HMAC-SHA256 DNS TXT** check
- Moved avatar processing into the browser (crop, 512px, **AVIF**) and uploaded direct to **S3** via presigned URLs with immutable **CloudFront** caching, cutting image payload **80%**

## TECHNICAL SKILLS

**Machine Learning & AI:** PyTorch, TensorFlow, Hugging Face, LangGraph, Scikit-learn, OpenCV, NumPy, Pandas

**Languages:** Python, C/C++, Rust, Java, JavaScript/TypeScript, SQL, Bash

**Systems & Infra:** Linux, Docker, GitHub Actions, Jenkins, Ansible, AWS (S3, EC2, CloudFront), PostgreSQL

**Concepts:** RAG, Time-Series Modeling, Real-Time Systems, Concurrency, System Design, CI/CD, OOP