

# Justin Du

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## Education

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University of Toronto, St. George

2023 - 2027

HBSc. Computer Science, Co-Op Program (ASIP) — GPA: 3.94 / 4.00 (Dean's List Scholar)

Toronto, ON

## Technical Skills

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**Languages:** Python, JavaScript/TypeScript, JSX/TSX, MySQL, Java, HTML/CSS, MIPS Assembly, Bash, R, C/C++

**Frameworks & Platforms:** React.js, React Native, Angular, Flask, Expo, FastAPI, PyTest, JUnit, SageMaker

**Development Tools:** JIRA, Confluence, Azure, Firebase, Hugging Face, GitHub, OpenShift, Docker, PostgreSQL

**Libraries:** matplotlib, sklearn, pandas, transformers, opencv, pytorch, openai, requests, numpy

## Experience

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Royal Bank of Canada (RBC)

May 2025 - present

Data Scientist — Co-Op

Toronto, ON

- Built and deployed **real-time** parallel dictation service with **Whisper**, supporting **80,000+** employees globally.
- Created search autocomplete service with custom **Qwen3** finetuning pipeline ingesting **225,000+** documents.
- Scaled **RAG-based** model risk analysis agent to support concurrency with **async FastAPI** response streaming.
- Standardized data storage by replacing caches with **vector stores**; implemented **chain-of-thought** for reasoning.
- Automated **ETL** pipelines for employee data in **17 countries**, increasing cost analysis efficiency for Finance team.
- Assisted in algorithm improvements in models for business handling **~80,000,000** transactions month-to-month.
- Leveraged **CI/CD** pipelines to deploy via Github Actions, **OpenShift**, and VMs with **Stonebranch** automation.

U of T Machine Intelligence Student Team — 🌐 *Website*

Sep 2024 – present

Director, Industry Collaborations

Jun 2025 – present

- Project management with **Lawbrokr Inc.** to develop real-time marketing analysis & recommendation agents.
- Project management with **BuildingAssets Inc.** to develop automations improving energy auditing efficiency.
- Organized & conducted recruitment to fill **75+** development roles, receiving **300+** applicants in under 2 weeks.
- Directed weekly work sessions with project teams and client touchpoints to ensure timely MVP deliveries.
- Coordinating with clients (e.g. **Tenstorrent**) to identify product challenges suitable for student teams.

Machine Learning Developer, Knockri Inc. — 🌐 *Website*

Jun 2025 – present

- Improved train dataset labeling efficiency by **over 500%** with LLM-as-a-Judge and **prompt engineering** flow.
- **Eliminated data collection costs** by synthesizing training data with finetuned LLM for transcript generation.

## Projects

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Stack: Course Multimedia Indexer — 🌐 *Github*

May 2024 - Mar 2025

- Outperformed SOTA models by **24%** in mIOU on *SPaSe* benchmark with custom finetuned Mask R-CNN model.
- Designed **React Native** app with Expo for search and automatic compilation and indexing of course multimedia.

TapIt: NFC-Enabled Social Media Sharing ([Hack the North 2024](#)) — 🌐 *Github*

Sep 2024

- Designed tooling for social media networking & sharing with Ndef-enabled NFC tags via react-native-nfc-manager.
- Produced **Expo + React Native** mobile app in under 1 day, enabling quick profile transfer from phones to tags.

Interrsect: LLM Notes Summarizer — 🌐 *Website* — 🌐 *Github*

Sep 2022 - May 2023

- Developed finetuned BART model for study note summarization sourced from aggregated work taken by students.
- Achieved a top **ROUGE-2** score of **15.13**, expressing strong bullet point generation (prior to ChatGPT release).
- Completed user testing with high school client via **React.js** web app with Firebase and Hugging Face backbone.

## Awards

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Youth Science Canada

2021, 2023

2-time bronze medalist at the **Canada-Wide Science Fair** and top **0.1%** of projects in the country.