

Aditya Patel

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Education

Toronto Metropolitan University (Prev. Ryerson University)

Toronto, ON | **Sep 2021 – May 2026**

Bachelor of Science (Honours), Computer Science (Co-op)

- **Dean's Honours List** - awarded in every academic term
- **Relevant Courses:** Data Structures & Algorithms, C & C++, Software Engineering, Operating Systems, Statistics, Networks
- **Certifications:** Supervised Machine Learning, by Stanford Online & DeepLearning.AI (bit.ly/4agMpMY)

Professional Experience

Wealthsimple | Software Engineer Intern

Toronto, ON | **May 2024 – Aug 2024**

- Engineered trading algorithm optimization by migrating data source infrastructure from AWS Redshift to S3, utilizing Airflow DAG ETLs; orchestrated 200+ containers using K8s for batch processing of chunked data, achieving a significant 70% reduction in latency
- Developed full-stack web tool for simulation platform using Ruby on Rails backend, React Native & TypeScript frontend, & Python GraphQL APIs micro-services, integrated with Datadog & Preset dashboards for performance monitoring and report analysis
- Led as primary technical owner (DRI) for order generation simulation platform, enabling trading algorithm experimentation runs, with configurable feature flags, external data overrides, helping traders fine-tune & customize algo behaviour in <10 minutes runtime
- Collaborated to maintain and optimize order generation data platform, that manages movement of \$12 billion per year, delivering high-quality software solutions & addressing dynamic challenges programmatically for the financial markets and engineering teams

Royal Bank of Canada | Software Engineer Intern (12 months)

Toronto, ON | **May 2023 – Apr 2024**

- Architected log parsing distributed systems infrastructure for enterprise GitHub Actions CI/CD pipeline using Python, Apache Spark, Kafka, AWS S3 and PostgreSQL optimizing 78% faster log analysis and streaming actionable real-time application deployment data
- Led development of RBC's Helios AI autopilot extension, with fine-tuned Mistral Instruct-7B & GPT-4 LLMs on-prem AWS, with RAG architecture, LangChain FastAPI backend, TypeScript GUI, and vector database embeddings, providing AI-driven coding assistance
- Developed full-stack dashboards for DevOps DORA & SPACE metric insights, leveraging micro-frontend architecture in React, utilizing Django backend alongside a remodeled recommendations engine, improving developer productivity leadtime by 32%
- Built and managed robust Python ETL pipelines for scheduled DevOps & SaaS distributed systems data collection, streamlining Elasticsearch integration via. Apache Airflow, populating data warehouses for training ML models with 82% lower latency workflow

Scotiabank Capital Markets | Trading Floor Software Developer Intern

Toronto, ON | **May 2022 – Aug 2022**

- Engineered a high-performance JSON to Excel conversion web application to automate secure trade logging, achieving 40% reduced latency versus MSFT API, and featuring batch multi-processing, configurable depth parsing, real-time data validation dashboard
- Built scalable full-stack email communication tool using ASP.NET, C# and React.js to store and manage Scotiabank's internal trader communication emails, accommodating over 60,000 monthly site traffic and deployed internally
- Collaborated on a backend C# REST API SSH-File-Transfer, following SDLC, leveraging SCP and SFTP protocols, facilitating encrypted file transfer between remote UNIX servers, achieving a significant 38% accelerated processing rate and 100% test coverage
- Constructed a data validation and correction internal tool using ASP.NET, C# and jQuery, enabling efficient validation of Excel and CSV files with customizable configurations, enabling analysts and traders to trace and resolve bulk data issues swiftly

TOThrive Startup | Lead Software Developer

Toronto, ON | **Oct 2021 – Feb 2022**

- Conceptualized and architected scalable web applications, for TOThrive e-commerce start-up incubated under Enactus-TMU, utilized Java Spring Boot, React.js and leveraged SQLite3 database, collaborating with an agile development approach
- Articulated technical challenges using programmatic problem-solving to facilitate understanding among engineers & stakeholders

Relevant Projects

DeskGenius (deskgenius.vercel.app) | *React.js, Three.js, Vector Geometry, Tailwind CSS*

June 2023

- Frontend 3D rendering engine, using Next.js and Three-Fiber, for visualizing desktop setups in virtual 3D space before purchasing
- Utilizes graphic ray tracing, texture mapping and advanced algorithms with React hooks to optimize rendering performance and reducing computational overhead, resulting in a highly responsive UI vectorspace and an immersive user interface

Petroforecast ([GitHub](https://github.com)) | *Tensorflow, React.js, FastAPI, Docker Compose, SQLite3*

May 2023

- Full-stack machine learning app to predict and analyze US heating oil futures, alongside time-series regression over 20+ years of data
- Utilizes Prophet library for time-series regression and managed containers using docker-compose for deployment and testing

ContinueSage Endpoint ([GitHub](https://github.com)) | *LangChain, Python, Transformers*

Nov 2023

- Python API backend server using LangChain for [Continue.dev](https://github.com/Continue-Dev/continue) vs-code extension to support LLMs hosted via AWS SageMaker

Programming Skills

Programming Languages: Python, C++, TypeScript, C#, Java, Ruby, SQL, NoSQL, KQL, HTML, CSS

Frameworks: React, Node.js, Next.js, Django, ASP.NET, Ruby on Rails, Flask, Vue.js, jQuery, Redux, LangChain

Tools: AWS, Docker, Git, GitHub Actions, Kubernetes, OpenShift, Airflow, Kafka, Spark, MongoDB, Elasticsearch, Pandas, NumPy