Aditya Patel

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Education

Toronto Metropolitan University (Prev. Ryerson) *Toronto, ON* | **Sep 2021 – April 2026**
Bachelor of Science (Honours), Computer Science (Co-op)

- **Dean's Honours List** - awarded in every academic term
- **Relevant Courses**: Algorithms, C & C++, Software Engineering, Operating Systems, Probability, Statistics, Computer 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 100+ containers with K8 Kubernetes for batch processing of chunked data, achieving a massive 70% lower latency
- Led as primary technical owner DRI for order generation experimentation platform, enabling trading algorithm simulation runs, with configurable feature flags, external data overrides, helping traders to fine-tune & customize algo behaviour with <10 minutes runtime
- Developed a full-stack web application tool for simulation platform using Ruby on Rails backend, React Native & TypeScript frontend, & Python microservices, integrated with Datadog and Preset dashboards for performance monitoring and summarized report analysis
- Collaborated with managed investing and engineering teams to maintain and optimize the order generation platform that governs movement of 12 billions dollars per year, delivering high-quality software solutions for complex, dynamic problems programmatically

Royal Bank of Canada | Software Engineer Intern *Toronto, ON* | **May 2023 – Apr 2024**

- 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
- Architected log parsing system infrastructure for enterprise GitHub Actions CI/CD deployment pipeline using Python, Apache Spark, Kafka, AWS S3 and PostgreSQL optimizing 78% faster log analysis and streaming actionable real-time application deployment data
- Developed full-stack dashboards for DevOps DORA & SPACE metric insights, leveraging micro-frontend architecture in React and Typescript, utilizing Django backend alongside a remodeled recommendations engine, improving enterprise leadtime by 32%
- Built and managed multiple Python ETL pipelines for scheduled distributed systems data collection and calculations, streamlining Elasticsearch integration through Apache Airflow, populating data warehouses with 82% lower latency workflow process

Scotiabank Capital Markets | Software Developer Intern (Trading Floor) *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 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 and effective solutions programmatically to facilitate understanding among engineers & stakeholders

Selected 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 to optimize rendering performance and reducing computational overhead, resulting in a highly responsive UI vectorspace and immersive user experience, all open sourced

PetroForecast (GitHub) | *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 easy installation and testing

ContinueSage Endpoint (GitHub) | *LangChain, Python, Hugging Face* **Nov 2023**

- Python API backend server using LangChain for Continue.dev vs-code extension to support LLMs hosted via AWS SageMaker

Programming Skills

Programming Languages: Python, C++, C, C#, Java, TypeScript, JavaScript, SQL, NoSQL, KQL, GraphQL, HTML, CSS, Unix
Frameworks: React.js, Node.js, Django, ASP.NET, Next.js, LangChain, Redux, Flask, Vue.js, jQuery, Tailwind CSS, Bootstrap
Tools: Docker, Git, GitHub Actions, Kubernetes, AWS, OpenShift, Airflow, Kafka, Spark, MongoDB, Elasticsearch, Pandas, NumPy