

# Abhinav Chanana

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## Qualifications

- Masters and bachelor's in computer science with focus on Machine Learning and Artificial Intelligence
- 5 years of working experience as full stack Developer using Java, Python, Node.js, React.
- Worked on training , monitoring and validation of ML models using AWS Sagemaker and Cloudmetrics.
- Worked on Kafka, NumPy, Scala ,Hadoop, Spark, PredictionIO, Python, C/C++, JavaScript, Java (Spring)
- Able to communicate effectively with a wide range of people, by showing interest and carefully listening to their needs.

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## EXPERIENCE

### Software/Data Engineer 2 – Fidelity Investments – Toronto, Canada

Aug 2023 -Current

- Part of the **Data Mart/MLops Team** for Fidelity Investment Canada
- Handled data modeling for multiple business units ( FCC,FCIM,FIC) using snowflake and Oracle. Came up unit test cases for the data models and automated the same on the snowflake platform.
- As a part of DevOps , worked on the infrastructure setup for ML model monitoring ( Data Ingestion , Cost estimates for Models) on **AWS Sagemaker** using **GitHub Actions** or **Jenkins**.
- Came up with a solution for Next Best Action for the sales team to reach out to relevant advisors using Investment and Churn datasets using basic Sklearn.
- Quant Compliance report and other reports on Bloomberg and TMX data for Traders, deployed on AWS Batch jobs and snowflake as a database.
- Worked on Cortex LLM on snowflake to create a RAG model based of IFIC Data
- POC on multiple AWS tools like Sagemaker , Aurora , Databricks
- Worked on a report generation using JIRA API to track each teams performance at different levels for VP's.

### Software Developer Engineer – Amazon (AWS Aurora MySQL) – Toronto, Canada

May 2021- July 2023

- Working as a software engineer developing the Relational Databases ( **Aurora** ) for AWS.
- Contributed to the **Binlog Replication algorithms** and next gen optimizations for faster logical replications.
- Add MTR Testcases (Unit Testcases for MySQL Engine) for community and Aurora to increase the test coverage. Also contributed to the automated framework for testing and running tests in different environments and hardware configurations.
- Worked on an Amazon specific **binlog parser** which was an extension to the community version but with a wider support of functions used for Amazon Aurora.
- Contributed to solving customer issues by being a **part of Customer Investigation Team** as well as the **L-3 on call support**.
- Majorly worked on **C/C++** for the engine and **Java, Python** for developing other frameworks supporting easy development and deployment work.

### Software Product Prototype Intern – Deloitte Dspace – Ontario, Canada

May 2020 – Aug 2020

- Worked on technologies like Kubernetes, Node.JS , Express ,React, HTML, Azure Tables, Vanilla Javascript and CSS using Agile Methodology. (MERN stack)
- Built language translation chromium-based web browser extension for Edge and Chrome. The website was crawled and translated from English to French and Spanish. Feedback was also implemented which used BLEU score for validation of the feedback and later was used. The whole application was hosted on the Azure Platform. For translation services Azure Cognitive services were used and Azure App services.
- Was able to integrate Single Sign On for my extension using Azure Directory.

### Graduate Teacher Assistant , University of Waterloo – Waterloo , Canada

Aug 2019- May 2020

- As a part of my masters Program , I was assigned big data and Management Information Sciences where my duty was to make and grade assignments.
- Doubt clearing sessions for Undergrads in the CS/Math program.
- My subjects were Data Distributed technologies like Spark,Hadoop using Python and Java.
- Also worked on Terraform and Ansible to create and maintain infrastructure for assignment submission and automated checking.

### Software Developer , Royal Dutch Shell – Bangalore, India

June 2017- July 2019

- Developed an expense management system for Shell Finance division. This was responsible for managing the expenses undertaken by the employees and claims for the same as well. The application was deployed in 2018 and features were added on continuously. This tool had basic AI capabilities for suggestions and visualizations.
- Worked on **Python, Redis, Django, RESTful API, Spring and SQL as database**.
- Build a pipeline for automating the data collection for Wells from Petrobras-Brazil and managing the trade of oil among the companies based on some rules. Reports generated for the day were reported to VP.
- Used predictionIO to build document recommender as POC for Shell search.
- Worked on Sharepoint API and Microsoft Azure to create Automation Anywhere environment for the POC environment.

- Received Blueprism, Automation Anywhere, UI Path and NICE certification, which are tools which are used for automating processes

**Full Stack Developer Intern / Data Scientist, Amazon – Bangalore, India**

**December 2016 -June 2017**

Tapzo was an app aggregator for the India markets. It was acquired by Amazon Pay when it entered Indian Market. As it was a startup I got to work in multiple teams like Cabs, Payment, Deals and the data science team.

- I worked on technologies like Python, Java, Node.js for backend technologies using Redis, RabbitMQ, Hbase, Spark, ELK stack for visualizations and Jenkins for deployment.
- As a part of custom spam detector, I lead a team of 4 which were responsible for data cleaning and we developed a pipeline for same.
- Worked on GPS tracking for cabs, auto bucketing tools for customer queries and deal categorization and recommender system for the food services using predictionIO. This recommender increased our average transaction size by 10%.

**Full Stack Developer Intern, Aircel – Chandigarh, India**

**July 2016- December 2016**

Developed the main landing page for the Punjab Region, being the first internship got to learn a lot from the industry. Used HTML and Javascript to create a resembling website.

Website was static in nature.

Understood the agile methodology and SCRUM ways of working.

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## EDUCATION

**University of Waterloo - Waterloo, Canada** CGPA: 86.5/100

**Sept 2019 – April 2021**

***Master's in Computer Science (Specialization in data science)***

Relevant Courses: Data Intensive distributed computing, Optimization for data science, Statistics

**Bachelor of Science, Computer Science**

Relevant Courses: Object Oriented Programming Principles, Intro to AI, Algorithm and Design Systems, Data Structures and Algorithm, Internet Web Programming

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**RECENT PROJECTS**

(GitHub for Projects: <https://github.com/abhinavchanana> )

**Developed a new Data Augmentation Technique: Aug-CutMix**

- (Prof. Pascal Poupart)

Combined both the CutMix (ICML 2016) and AugMix(ICML 2020) algorithms which are state of the art for data augmentation technique developed by **DeepMind at Google and UC-Berkeley**. The aim of the project was to compare the performance of the new algorithm which is a mixture of AugMix and CutMix vs Augmix vs CutMix. We had used the augmentation network from the AugMix and mixing of images from CutMix. **This led to an algorithm which made the models more robust and tolerant to noise.**

**AutoArticle: Automated Article Generation**

- (Prof. Ali Ghodsi)

Developed a tool which used AI techniques like Transforms for generating images and GAN's for text captioning or headline generation. The aim of the project was to develop a **novel transformer model** for text summarization for text abstraction and implementation of the **CP-GAN's** for generating an image for the article. This tool generated images for paragraphs using CP-GAN, looks up on google images and suggests Headlines using Transformers.

**BasicQueue: A Simple Message Broker Queue**

Developed a basic queue which was implemented using Node.js on the concepts of Producer-consumer problem. It the items could be inserted and retrieved from the queue using RESTAPI's. I had used this queue for many projects as interfacing using REST API for any language is relatively easy when compared to packages. The queue had basic functionalities like timeout, heartbeat.

**SeizureBuddy : Prediction of Seizure Attacks for Epilepsy Patients -(Microsoft Internship Program, India)** Created a real-time application which used to take input from the IEEG device and predict if the patient will seize based on the data. **We were able to predict the seizure in the range of 2 – 5 min with AUC score of 0.88.** The application was a .Net application and the algorithm was developed in python using **random tree classifier** and deployed on the **azure environment**.

**Dyslexia Detection – Android Application for Parents**

(*IEEE Hackathon, Vellore, India*)

Developed an android application which has set of exercises like tracking the ball, basic play with the numbers and other basic tests which were used to detect initial signs of dyslexia in a child. Based on the response of the child on the application, parents could contact the doctors via the application using video call feature. This application was made in **Android Studio and backend in python**

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**REWARDS AND RECONITION**

- Won the VP-CIO award in the Upstream Division for implementing CEP process with high optimization.
- Came 2<sup>nd</sup> in GFIT Shell Hackathon which was held in 4 different locations i.e. London, India, Netherlands, Manila
- Part of the Graduate Student Association responsible for organizing events for Graduates.
- Part of UW-Math Society as a treasurer.