

# ASHMITA MITTAL

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## Education

University of Waterloo, ON, Canada  
Bachelor of Computer Science (Honours), Co-op

Sep 2020 - Present  
May 2025

## Skills

**Languages:** Java, C++, C, Python, TypeScript, Kotlin, HTML/CSS, Racket, JavaScript, Cypher

**Frameworks:** Cloud Development Kit, React, Preact, Flask, Django, MERN, Bootstrap

**Tools:** Neo4j, Android SDK, SQL, Selenium, Beautiful Soup, Linux, Git, Jinja, NumPy

## Work Experience

### Amazon Web Services (AWS)

May – Nov 2024

Software Development Engineer Co-Op — Vancouver, BC

- Optimized broker instance performance by developing an **API** and **metric collector infrastructure**, reducing CPU load by offloading metrics to an EC2 instance using CDK, Docker, and VPC **networking**
- Developed a financial metrics dashboard to identify cost-saving opportunities and detect anomalies in **AmazonMQ** infrastructure
- Enhanced budgeting accuracy by implementing an automated cost-tracking system using AWS CDK and Lambda for precise project cost evaluations

### Data² (USA Inc.)

Sep – Dec 2023

Software Engineering Co-Op

- Co-invented a **patent-pending** for advancements in large language models, AI agents, and knowledge graph technology
- Engineered a dynamic entity and evidence loader for knowledge graphs by integrating **Generative AI** technologies (LLMs, llamaIndex, LangChain, AWS Bedrock, OpenAI), enhancing knowledge graph (Neo4j) creation efficiency
- Utilized front-end graph visualization tools, rapidly prototyping user interfaces for enhanced data representation

### Royal Bank of Canada

Jan – Apr 2023

DevOps Developer Co-Op — Toronto, ON

- Contributed to an updated Renovate repo to RBC's **open-source community**, achieving **100%** adoption across tech teams
- Streamlined Renovate deployments using OCP templates, integrating GitHub Apps, and secret and config management
- Optimized **CI/CD** pipeline stage data collection for the DORA dashboard and integrated it with Elasticsearch

### Migrations.ml Inc.

May – Aug 2022

Software Developer Co-Op — Toronto, ON

- Designed microservice for real-time credit risk inference (**950** issuers) with **JAX**, **NumPy**, and **pandas**
- Developed compact chart.js visuals for **9000** corporate bonds, showcasing credit analytics
- Built a responsive **gRPC/protobuf** API for React frontend, optimizing data models with Alembic for **Google Cloud SQL**

### Microsoft - Azure & Artificial Intelligence Fundamentals

May – Aug 2021

Project Team Member — Waterloo Experience (WE) Accelerate Program - Waterloo, ON

- Employed **Azure** and **AI** fundamental skills to propose enhanced accessibility solutions addressing important **global issues**
- Suggested an **80%** more efficient AI-powered solution, outperforming competitor alternatives in real-time response
- Collaborated on a solution leveraging AI and **ML** for architect assistance in designing inclusive aesthetics for new projects

### Nodwin Gaming

May – Aug 2021

Software Developer Co-Op — India

- Elevated user satisfaction with the DreamHack 2021 **website prototype** optimizing event management and admin features
- Contributed to a robust **Django** backend and integrated data collection API for an anti-cheat league mobile app
- Architected a data-querying dashboard interface for league admins to access player details seamlessly

## Projects

### • CritiCove (Android SDK - Kotlin)

Collaborated on app development for writing and sharing media critiques and reflections

### • Sudoku Puzzle Image Solver (Python)

Transformed Sudoku puzzle images into solved boards with **OpenCV** and **AI search techniques**

### • Battle Snake Tournament | Python

Applied **A\* search** algorithm for food search and opponent detection, ensuring optimal decision-making in a team

### • Dreamhack project | React & Flask

Developed a prototype for an esports tournament player's ticket booking

### • Research Assistant (University of Waterloo - Political Science) — Mis/Disinformation Research Project