

Patrick Deng

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Professional Experience

Data Engineering & Analytics *Walmart Canada* | Mississauga, ON 2024 - Present

- Collaborated within an **agile data engineering team**, delivering **high-quality work** in a **fast-paced, project-oriented environment**
- Leveraged **GCP BigQuery** as the primary tool for **analyzing database structures** and **processing large-scale data**, handling up to **70 million records daily**. Optimized query performance, reducing execution time and achieving a 10% reduction in computing costs
- Developed **complex SQL and Python functions** to efficiently **process and transform** data, implementing them for **routine operations** through **Airflow**. Created a library of reusable functions, increasing team efficiency by 35% and **standardizing data transformation processes across multiple projects**
- Supported **Cookies Ad tracking** and **customer targeting personas**, supporting the marketing team to increase the ads return on investment ratio by 30%
- Executed **ETL processes** to deliver **diverse data tables** to **non-technical teams** in merchandising, marketing, and customer relations, enabling the creation of **BI dashboards** for **daily tracking** by stakeholders and leadership
- Implemented and maintained **data quality checks and monitoring systems**, improving overall data reliability
- Led the optimization of **data pipeline performance**, resulting in a 90% reduction in processing time and cost for critical daily reports
- Developed **predictive analytics models** using **machine learning** techniques, contributing to a 5% improvement in revenue
- Collaborated with the **business strategy team** to develop data-driven KPIs, aligning analytics initiatives with overall company objectives and supporting M&A decision-making processes

Engineer & Analyst, Data, Strategy and M&A *Dane Creek Capital Corp.* | Toronto, ON 2021 - 2024

- Designed and deployed an **open-source dashboard** using **Metabase**, modernizing **data visualization** and improving accessibility across the company. This initiative reduced software licensing costs by 40% and increased data-driven decision-making
- Architected a centralized **data pipeline** on **Airflow**, hosted by **GCP**, integrating diverse sources (**CRM, ERP, analytics**). Reduced report generation time by 30% and improved data accuracy by 15%, enabling real-time insights for strategic decision-making
- Developed **predictive models** using **machine learning** and data analysis tools (**Python, SQL, BigQuery**), increasing customer retention. Implemented **churn prediction** and **product recommendation** systems, leading to a 10% boost in cross-selling opportunities
- Created **interactive dashboards** using **Tableau, Looker Studio, and Metabase** for effective communication of insights to stakeholders. These visualizations improved data literacy across departments and facilitated a 20% faster response to market trends
- Designed **database systems** and **user-friendly applications**, reducing manual data entry time by 20% and improving data access satisfaction. Implemented data validation rules and automated quality checks, resulting in a 30% decrease in data-related errors
- Collaborated** with **cross-functional teams**, translating business questions into analytical tasks. Contributed to a 5% reduction in manufacturing costs through **data-driven optimization of production processes** and **inventory management**
- Utilized **GCP and Azure** for large-scale data management and processing, implementing best practices in **cloud security** and **cost optimization**. Developed complex **Excel** models for financial analysis and forecasting, improving budget accuracy by 15%

Education

3.9 / 4.0 **M.Sc. in Computer Science**, *Georgia Institute of Technology* | Atlanta, GA (Remote) 2022 - 2025

3.9 / 4.0 **M.Eng. in Chemical Engineering**, *University of Calgary* | Calgary, AB 2018 - 2020

3.8 / 4.0 **B.Eng. in Chemical Engineering**, *University of Calgary / Southwest Petroleum University (Cohort)* | Calgary, AB 2014 - 2018

Courses: Knowledge Based AI | AI | ML | ML for Trading | Software Development Process | Information Security

Professional Skills

Programming	Python (Adv.), SQL (Adv.), Java (Int.). Data manipulation, analysis, scripting, and application development
Cloud	AWS, Azure, GCP (3+ yrs experience). Cloud storage, computing solutions, ETL pipeline design & implementation
APIs	Design and integration for seamless data exchange and ingestion
Data	Management, lineage, quality assurance, and handling large datasets with complex structures
Collaboration	Proven ability to collaborate with cross-functional teams and business units to optimize data models and processes
Analysis	Strong analytical skills for performance analysis, troubleshooting, and data-driven decision-making
Automation	Experienced in automating repetitive tasks to improve efficiency and accuracy

Recent Projects

American Sign Language Recognition with Hidden Markov Models Jan 2024 - May 2024
Georgia Institute of Technology
CS6601 Artificial Intelligence, Independent Project

- Designed and implemented an **AI agent** leveraging **Hidden Markov Models (HMMs)** to recognize American Sign Language (ASL) gestures from video input
- Trained HMMs on a dataset of ASL signs, achieving accurate recognition of gestures with high confidence levels

Job Application Timeline Tracker (Android App) September 2023 - December 2023
Georgia Institute of Technology
CS6300 Software Development Process, Group Project

- Developed a **full-featured Android app** to track job application timelines, from initial application to final decision
- Designed and implemented a **user-friendly interface** with features for adding, editing, and organizing job applications
- Utilized **IntelliJ IDEA** for development and **Android SQLite** as the database for storing application data
- Followed a **comprehensive development process**, including design, project planning, test planning, and documentation
- Achieved full marks upon submission, demonstrating a **high level of proficiency** in Android development and project management