


# MOHIT AMARNANI

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## SKILLS

**Languages:** Python, SQL (Postgres), Excel VBA, R, C, JavaScript, PHP, HTML/CSS, LaTeX  
**Developer Tools:** Microsoft Excel, Power BI, Azure Databricks, SAP, IBM SPSS, Maplesoft Maple  
**Libraries:** NumPy, Pandas, Matplotlib, Seaborn

## WORK EXPERIENCE

### Business Intelligence Developer Intern

January 2024 – April 2024

Ministry of Infrastructure

Toronto, ON

- Designed and implemented a data model in **Power BI**, defining primary keys and implementing foreign key relationships across 5 interconnected tables to ensure data integrity and a smooth-flowing analysis.
- Developed and delivered executive-level KPIs for **2** large-scale infrastructure projects, leveraging **Power BI's** advanced visualization capabilities (e.g., slicers, matrices, maps, scatter plots, and stacked charts) to build an interactive, self-service BI environment.
- Automated **Power BI** dashboards, implementing dynamic and real-time data refreshes to create a self-sustaining, scalable business intelligence model, future-proofing KPIs for executives and analysts.

### Data Analyst Intern

May 2023 – August 2023

Ministry of Colleges and Universities

Toronto, ON

- Engineered an automated, **Excel-based database** incorporating advanced formulas, conditional formatting, and data validation to track and manage metrics for **over 6,000 students**, enhancing data extraction and visualization for analysts.
- Reconciled financial data for **70** colleges, applying **Excel's** pivot tables, VLOOKUP and IF functions to identify discrepancies, recording approximately **4 million CAD** in funding owed to the government.
- Designed and deployed **70** interactive **Power BI** dashboards, integrating data from Excel to provide detailed visualizations of student and funding metrics, improving audit readiness by **95%** and ensuring transparency.

### Data Scientist Intern

September 2022 – December 2022

Home Trust Company

Toronto, ON

- Managed quality testing for over **100** mortgages utilizing SAP products ensuring robust performance and adherence to industry standards.
- Developed a survival analysis of bank savings accounts using **SQL** queries in **Databricks**, constructing a survival curve to inform executives on loan operation strategies, resulting in a **70%** increase in processing times.
- Extracted, transformed, and loaded data into **Power BI** to create a comprehensive relational data model.
- Produced statistical visualizations, including histograms, line graphs, and bar charts, to explore the relationship between savings account lifespan and **3** key variables (initial deposit, age, and region) identifying them as significant factors impacting fund longevity.

## PROJECTS

### Instagram Relational Database and Analytics | SQL (Postgres)

September 2024

- Architected and normalized a relational data model for Instagram using **PostgreSQL**, implementing tables for users, posts, comments and likes, with well-defined primary keys to uniquely identify rows and foreign keys to establish relationships between tables.
- Utilized advanced **SQL** operations including JOINS, GROUP BY, HAVING and ORDER BY to drive insights from complex relationships between user interactions, posts and engagement metrics. Applied UPDATE, INSERT and SELECT operations to stimulate dynamic data updates and efficiently retrieve data on user-generated content.
- Implemented subqueries, common table expressions (CTEs), window functions and CASE statements to perform analytical queries, such as ranking posts by likes, aggregating user activity, and categorizing content based on engagement levels.
- Developed a scalable data model and analytical framework in **PostgreSQL**. Demonstrated proficiency in **SQL** to retrieve insights on engagement patterns, content performance and user behavior.

### Econometric Analysis of the Washington Wizards | Excel

June 2022

- Collected extensive statistical data on the Washington Wizards, applying advanced **Excel** techniques including data validation, conditional formatting, and pivot table manipulation to ensure data accuracy and integrity.
- Conducted multivariate regression analysis in **Excel** to assess the impact of independent variables (e.g., team payroll, attendance rate) on team performance, leveraging statistical tools like R-squared and p-values for hypothesis testing.
- Analyzed trends and outliers through detailed visualizations such as scatter plots and line graphs, facilitating an in-depth understanding of team performance factors.
- Identified recruitment inefficiencies as the primary source of team failure, based on a weak correlation between payroll and win percentage. Synthesized findings into a comprehensive report using **Microsoft Word**, integrating statistical charts, trends analysis, and actionable conclusions to inform strategic decision-making.

## EDUCATION

### University of Waterloo

Waterloo, ON

Bachelor of Mathematics in Computational Mathematics, Minor in Computing and Economics

Sep 2021 – April 2026

- Relevant Courses:** Introduction to Python, Introduction to Computational Mathematics (NumPy), Functional Programming (Racket), Algorithmic Problem Solving, Computer Systems and Assembly Language (MIPS), Management Information Systems, Statistics, Probability, Sports Analytics, Linear Algebra, Calculus