# Aayush Gambhir

+13657731929 ◇ aayushgambhir2021@gmail.com ◇ Milton, Ontario, Canada ◇ LinkedIn ◇ GitHub

## SKILLS

**Languages:** Python, MATLAB, VBA, R, Java, SQL

**Tools:** NumPy, Pandas, Matplotlib, Scikit-learn, Simulink, Image Processing Toolbox, MATLAB Compiler, PostgreSQL, NoSQL, MongoDB, Microsoft Word, Excel, Excel VBA, Word VBA, Jupyter Notebook, VS Code, Tableau, Github, Git

**Skills:** Data Visualization, Database Management, Statistical Analysis, Data Cleaning, Predictive Modeling, Version Control, Collaborative Development

## PROJECTS

Data Visualization Link

- Summary: This project aims to analyze comprehensive budgeting data for Toronto's programs, employing EDA, categorization, trend analysis, predictive modeling, and correlation exploration to provide insights for informed financial planning over a 10-year period.
  - Tools: Panada, NumPy, Matplotlib, Scikit-learn, Python, Jupyter Notebook

Image Classification Link Present

- Summary: The Handwritten Digit Recognition project aims to develop a Python application to classify handwritten digits from the MNIST dataset. The project involves training the model, evaluating its performance, and deploying it as an application.
  - Tools: TensorFlow, Python, Postgre SQL, VS Code

## EXPERIENCE

**Research Assistant** Nov '23 — Present
York University Toronto, Canada

- Conducted comprehensive data analysis for a research project focusing on habit formation and neuroplasticity in 5+ young adults.
- Created and executed a data processing technique using the Pandas Python library, streamlining the analysis of eye-tracking data, resulting in a 30% decrease in processing time while improving the precision of fixation and pupil size measurements.
- Specialized in formatting and cleaning raw data to optimize it for growth curve analysis, thereby enabling a deeper understanding of habit formation patterns and facilitating data-driven insights.
- Engineered and deployed Python scripts for blink identification and interpolation, fortifying data integrity and bolstering reliability in analytical outcomes.
- Created a clear and repeatable process for preparing data, making sure to follow standardized steps for accuracy and analysis readiness.
- Co-authored a research paper/manuscript to be submitted to the Journal of Neuroscience regarding the findings of the study and future implications.

**Scientific Data Analyst** Apr '22 — Jan '23
R.A.Y Toronto, Canada

- Engineered Python scripts to perform comprehensive calculations on cloud layer reflectance in various atmospheric conditions, resulting in improved accuracy and reliability of remote sensing data for climate research and environmental monitoring initiatives.
- Applied Matplotlib and NumPy Python libraries to generate and visualize the random trajectory of 10,000 photons scattering, enabling accurate assessment of distribution under different scattering conditions.
- Enhanced data analysis techniques optimized scattering conditions for Isotropic and Rayleigh scattering, and improved top-of-the-cloud photon exits for forward scattering, ensuring a 30% increase in data accuracy and adherence to specified requirements.
- Collaborated closely with a distinguished atmospheric physics professor, rapidly acquiring essential knowledge and skills with minimal training. Delivered daily progress reports, showcasing effective verbal and written communication abilities.
- Presented research findings on 'Monte Carlo Calculation of Cloud Layer Reflectance for Isotropic, Rayleigh & Forward Scattering" at the 2022 Canadian Undergraduate Physics Conference, showcasing exceptional presentation skills and captivating a diverse audience of industry experts and peers.
- Employed Microsoft Excel to meticulously analyze 10,000 photon samples across diverse angles, generating pivot charts that underscored pivotal discoveries amidst varied scattering conditions, facilitating insightful outcomes and actionable insights.
- Implemented memory optimization techniques to efficiently manage large datasets during reflectance calculations, resulting in a notable 50% decrease in processing time.

## EDUCATION

**Certificate in Data Analytics,** University of Toronto
Oct '23 — Apr '24

A 24-week intensive program focused on gaining technical programming skills in Excel, VBA, Python, R, JavaScript, SQL Databases, Tableau, Big Data, and Machine Learning.

Toronto, Canada

**Physics in Bachelor of Science,** York University

Sep '18 — Jun '23
Toronto, Canada