

Rahulpreet Singh Bal

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EDUCATION

Bachelor of Science - Specialization in Computing Science

2020-2025

University of Alberta, Edmonton, AB

GPA: 3.7

EXPERIENCE

Telematics Data Analyst Co-op

North American Construction Group

Sep 2023 – April 2025

Technologies: Python, Flask, Numpy, Pandas, Javascript, React, HTML, CSS, Azure (Function Apps, App Services, SQL Databases), Esri ArcGIS Enterprise, Esri GeoEvent Server, ArcGIS Pro

- Developed and maintained ETL pipelines for 10 million+ time-series data points from 500+ construction assets; produced weekly KPI reports that improved resource-deployment accuracy by 15%.
- Built interactive dashboards (ArcGIS Dashboards, Power BI), integrating spatial and operational data to identify chronic offender zones and perform heat-mapping analyses.
- Automated real-time data integration across internal systems using Azure Event Hubs & Function Apps, cutting manual hand-offs by 80%.

PROJECTS

Cameron Library Headcount Forecasting ([Code](#))

Technologies: Python, Flask, Numpy, Pandas, sklearn, OpenGridCV, Seaborn, JS, HTML, CSS

- Built machine learning models to forecast hourly headcounts at the University library based on temporal inputs (date, time).
- Did exploratory data analysis, feature engineering, and hyperparameter tuning using Jupyter, NumPy, Scikit-learn, and OpenGridCV.
- Matplotlib and seaborn for visualization, HTML/CSS/JavaScript for front-end, and Python-Flask for backend

PDF-Based Information Retrieval Chatbot ([Code](#))

Technologies: Python, Streamlit, LangChain, Gemini (Google GenAI), FAISS, PyPDF2

- Built a document QA chatbot that processes PDF uploads and answers user questions with context using Google's Gemini LLM via LangChain.
- Handled real-time queries across 50+ pages of documents, supporting multi-turn conversations with retrieval-augmented generation.
- An average response time under 2 seconds for semantic search and answer generation was achieved.

SKILLS

Programming: Python, SQL, JavaScript, HTML/CSS, KQL, MATLAB

Data Analysis & Visualization: PySpark, Pandas, NumPy, Scikit-learn, Power BI, Tableau, Excel, Matplotlib

Machine Learning & AI: Scikit-learn, OpenCV, TensorFlow (basic), PyTorch (basic), NLTK, Transformers, RNNs, CNNs, Regression & Classification Models, Time Series Analysis, LangChain, Hugging Face, Retrieval-Augmented Generation

LLM & Embedding Models: Google Gemini (ChatGoogleGenerativeAI), GoogleGenerativeAIEmbeddings

Web & API Development: Flask, React, Django, REST APIs, AJAX, WebSockets, AsyncIO, Streamlit
Cloud & DevOps Tools: Azure Functions, App Services, SQL Databases, API Management, Key Vaults
Databases: PostgreSQL, MySQL, MongoDB
GIS & Spatial Tools: ESRI ArcGIS Enterprise, ArcGIS Pro, ArcGIS APIs, Aveva OSI PI
Development Practices: Agile Methodology, Git, Design Patterns, Asynchronous Request Handling
Business & Collaboration Tools: Microsoft Office 365, SharePoint
Soft Skills: Analytical Thinking, Clear Communication, Fast Learner, Collaborative, Detail-Oriented

CERTIFICATIONS

Data Visualization Virtual Experience Program - TATA [[Credential](#)]
Data Analysis and Technical Consulting Virtual Experience Program – SAP [[Credential](#)]
Data Analysis with Python – FreeCodeCamp [[Credential](#)]
Data Science and Machine Learning Bootcamp – Udemy [[Credential](#)]
Pandas – Kaggle [[Credential](#)]
Data Visualization - Kaggle [[Credential](#)]