Bhavya Chhabra

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Education

The University of Western Ontario — London, CA
Masters in Computer Science, Specialization in Artificial Intelligence (3.9/4.0) — *Sep 2021-Jan 2023*

S.R.M Institute of Science and Technology — Chennai, IN
B.Tech in Computer Science Engineering (89%) — *Jul 2017-Jun 2021*

Experience

Data Science and DevOps Engineer — May 2023- Present
London Hydro — *London, CA*

- **Machine Learning Model Development**: Utilized Python, Sklearn, and MySQL to refine the existing billing forecast system by implementing an XGBoost Decision Tree model. Decreased forecasting error by 60%, improving accuracy and customer satisfaction for over 100,000 users.
- **Electric Vehicle Customer Segmentation:** Developed a Deep Convolutional LSTM model using Python and TensorFlow to identify and segment over 30,000 electric vehicle customers based on hourly energy usage data. Enabled targeted marketing for the new Ultra Low Overnight price plan, increasing customer engagement and adoption rates.
- **Data Management and Analysis**: Leveraged Google Cloud SQL and BigQuery to extract and analyze large datasets. Set up scheduled queries and Dataflow jobs to aggregate data from SQL databases. Conducted comprehensive data analysis and reporting using Python and Looker Studio, extracting actionable insights to inform strategic decision-making and enhance business processes.
- **Dashboard Engineering**: Created intuitive dashboards using Looker Studio for the Customer Engagement Platform, simplifying data exploration for internal teams and enhancing cross-departmental collaboration.
- **Automated System Monitoring and Reporting**: Streamlined daily system monitoring, reporting, and invoice error detection by developing custom plugins, microservices and internal tools deployed on Google Cloud Platform (GCP). Employed Shell scripting, Python, Nagios XI, and Looker Studio to automate processes, resulting in a threefold increase in operational efficiency.
- **Web Development and API Integration** : Designed and implemented the Directory Services section for greenbuttonalliance.org by creating custom scripts hosted on AWS and embedding them via iframes. Built three distinct directories by fetching data through API calls, applying business logic for content segregation, and dynamically displaying searchable, filterable, and paginated content.

Machine Learning Engineer — Jan 2023- May 2023
CapmAI (Startup) — *Remote*

- Collaborated to develop a **Vision Transformer model** for **polyp anomaly detection** within the Gastrointestinal (GI) system, achieving 87% accuracy and 91% sensitivity in simulated environments and is poised to significantly reduce diagnostic times by 40
- Screened, interviewed, and hired machine learning interns, enhancing team capabilities and contributing to the project's success through strategic talent acquisition.

Data Science Intern — May 2020- Jul 2020
Intellipoint Consulting Inc. — *Ashburn, USA*

- Enhanced **Apriori** and **DBScan** Clustering models' predictive accuracy by **10%**, boosting client sales by **20%** through comprehensive data and **market-basket analysis**, impacting over **30+** retail outlets nationwide.
- Implemented a **customer clustering** strategy that improved client retention by 15% through targeted marketing and personalized shopping experiences.

Technical Skills

Languages: Python, Java, C++, JavaScript, SQL, NoSQL, BigQuery, MongoDB, HIVE, jQuery, React, PHP, HTML, CSS, Git, cURL
Frameworks: TensorFlow, Keras, PyTorch, Sklearn, LangChain, SQL, NoSQL, BigQuery, MongoDB, HIVE, FastAI, OpenCV, Flask, REST, PySpark, Statistical Modeling
Developer Tools: Git, Docker, Google Cloud Platform (GCP), Amazon Web Services (AWS), VS Code, Visual Studio, PyCharm, IntelliJ, Eclipse
Libraries: Pandas, NumPy, NLTK, Transformers, Huggingface, Matplotlib, Seaborn, Selenium, Scrapy
Data Visualization Tools: Tableau, Looker Enterprise, Looker Studio Pro, PowerBI, Matplotlib

Projects

Electric Vehicle Detection using Hourly Energy Usage Data- London Hydro | *Python, Tensorflow* Oct 2024

- Developed a **Deep Convolutional LSTM** model to accurately identify and segment over 30,000 Electric Vehicle customers based on hourly electricity usage data. This segmentation enabled targeted marketing for the new Ultra Low Overnight price plan, increasing customer engagement and adoption rates.

Billing Forecast System- London Hydro | *Python, Sklearn, MySQL* Jan 2024

- Utilized **XGBoost Decision Trees** (ML Model) to refine the existing Non-ML based billing forecast system, decreasing percentage error by **60%**. Improved forecast accuracy and customer satisfaction for over **100,000 users.**

Directory Services Web Development- London Hydro | *AWS, JavaScript, HTML, CSS* Jun 2023

- Designed and implemented the Directory Services section for greenbuttonalliance.org , overcoming Novi AMS limitations by creating custom scripts hosted on AWS and embedding them via iframes.
- Built three distinct directories—Utilities, Third Party App Providers, and Platform Providers—by fetching data through API calls, applying business logic for content segregation, and dynamically displaying searchable, filterable, and paginated cards.
- Implemented dynamic search tools and filters, enabling efficient partner discovery and seamless collaboration between data custodians, third parties, and service providers.

Autonomous Drone for Infrastructural Inspection- UWO | *Python, C++, PyTorch, Raspberry Pi* Nov 2022

- Programmed an **open-source drone** to autonomously navigate and inspect building infrastructures for faults using **YOLOv7**, achieving an 88.5% MAP score and 0.8 Seg Loss
- Implemented real-time crack detection and video streaming capabilities and prototyped using **Raspberry PI** on board.
- Projected to reduce inspection times by **60%** and increase human safety by **90%**

Multi-Class Text Classification using LSTM with Hierarchical Attention- UWO | *Python, PyTorch* Jan 2022

- Developed an **LSTM**-based model with **GloVe** embeddings and hierarchical attention for enhanced accuracy on the DBPedia dataset, which was adopted by a professor to enhance their research categorization processes.

Stellar Object Classification & Comparative analysis of ML Algorithms- UWO | *Python, Tensorflow*May 2022

- Conducted feature engineering, data manipulation, training, and evaluated six **ML** algorithms—Random Forest, XGBoost, AdaBoost, Decision Tree, Naïve Bayes, Deep CNN—on Kaggle's Stellar Dataset, as a research project.

Melanoma Skin Cancer Classification using a Custom Integrated Model- SRMIST | *Python, FastAI*Jun 2021

- Innovated a hybrid model combining **Convolutional Neural Network (CNN)** with a tabular model using PyTorch and FastAI for Melanoma classification, achieving **96%** accuracy and a **92%** ROC score, deployed using Streamlit.

Forecasting U.S Elections 2020- SRMIST| *Python, Sklearn, Tensorflow, Matplotlib, NLP* Jun 2021

- Predicted President Joe Biden's victory through **sentiment analysis** and Natural Language Processing (NLP) techniques using Twitter data before the elections.

Certifications

- GCP Associate Cloud Developer Certification (Pursuing) Present
- Certified Scrum Product Owner (Agile Methodologies) by Scrum Alliance Aug 2021
- DeepLearning AI TensorFlow Developer Specialization offered by deeplearning.ai on Coursera Oct 2020
- Machine Learning by Stanford Online on Coursera Jan 2020
- Big Data Analytics with Python, Hadoop, HIVE by Centre for Development of Advanced Computing Jul 2019