VISHAL SINGH

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Professional Summary

A driven and dedicated professional with a strong foundation in machine learning, neural networks, and data analytics. Published researcher with expertise in building and deploying advanced AI solutions to solve real-world problems, seeking a challenging role to apply technical and problem-solving skills for impactful contributions.

Technical Skills

Languages : Python, C/C++, MySQL

Libraries & Frameworks : Pandas, NumPy, Matplotlib, Tensorflow, PyTorch, LLM, Git/Github

Cloud and Security Tools : AWS Academy Cloud Foundations

Coursework : Machine Learning, Deep Learning, Neural Networks, Natural Language Processing, Data Structures

Others : Data Modeling(ML), Data Analysis, Debugging

Projects

Project 1 | ***Differentiation of Music Genre from an Audio File Using Neural Networks***

- Developed a classification system leveraging Convolutional Neural Networks (CNN) and K-Nearest Neighbor (KNN) to differentiate music genres from audio files with a focus on computational efficiency.
- Achieved 98% accuracy on the training set using CNN and **73% test accuracy** with KNN after hyperparameter tuning(K=5).
- Published findings at the ISMS 2023 Conference, highlighting advancements in deep learning for music classification.

Project 2 | ***Customer Sentiment Analysis for Product Review***

- Developed a sentiment analysis system to evaluate restaurant reviews, providing detailed insights on food quality, service, ambiance, and pricing.
- Achieved an accuracy of 89% for sentiment classification, enabling informed decision-making through intuitive dashboards and restaurant recommendations.
- Built a machine learning pipeline using Random Forest for rating predictions and interactive visualizations with Matplotlib and Seaborn. Designed a web interface using Flask, HTML, and CSS.

Project 3 | ***Lung Cancer Detection Using CNN***

- Developed a CNN-based system to classify lung X-ray images into normal, benign, and malignant, achieving high diagnostic accuracy and supporting early cancer detection.
- Enhanced model performance through advanced preprocessing, image augmentation, and hyperparameter tuning, ensuring reliable predictions.

Experience

Assistant Machine Learning Engineer - Capsitech | *Capsitech* *January 2025 - Present*

- Project: PhishGuard AI - Email Phishing Detection and Summarization System
- Engineered an AI-powered phishing detection system leveraging a BiLSTM classifier and BERT-based email summarizer, achieving 97.22% training accuracy on a dataset of 149K+ emails.
- Integrated threat intelligence and security checks (SPF/DKIM/DMARC) to strengthen email authenticity validation and phishing resistance.
- Developed explainable AI and urgency analysis modules to deliver phishing reasoning and concise summaries, improving analyst review efficiency and accelerating threat response.

IBM Phemesoft - Intern | *IBM* *June 2024 – July 2024*

- Project: Customer Sentiment Analysis for Product Review
- Designed and implemented a sentiment analysis model to process user reviews and provide actionable insights on food quality, service, ambiance, and pricing.
- Built a robust machine learning pipeline using Random Forest for rating predictions and achieved an accuracy of 89% in sentiment classification.
- Developed an interactive web application with Flask, HTML, and CSS, integrating data visualizations using Matplotlib and Seaborn for enhanced user experience.

Summer Research Intern - Dr. Tanupriya Choudhury | *UPES* *May 2023 – August 2023*

- Project: Differentiating music genre from an audio file using machine learning
- Developed a model by leveraging Convolutional Neural Network and K-Nearest Neighbor for the classification of music genres from an audio file by analyzing various features like spectrogram, voice sample etc.
- Authored a research paper under Dr. Tanupriya Choudhury titled "Differentiation of Music Genre from an Audio File Using Neural Networks" and presented research findings at the ISMS 2023 Conference.

Publications

Differentiation of Music Genre from an Audio File Using Neural Networks *ISMS 2023 Conference, 2024*
DOI: 10.1007/978-3-031-70789-6_40

Education

Jaswant Modern School, Dehradun **10th** | Percentage : 86 *2018*
Jaswant Modern School, Dehradun **12th** | Percentage : 92 *2020*
University of Petroleum and Energy Studies **B.Tech in Computer Science and Engineering** | CGPA : 7.56 *2021 - 2025*

Awards and Certifications

AWS Academy Cloud Foundations | *AWS* *2024*
IBM Machine Learning Professional | *IBM* *2023*