Sangam Man Buddhacharya

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WORK EXPERIENCE

Ramsey Lab - Graduate Research Assistant; Corvallis, USA   September 2023 - Present
Drug Concentration Prediction in Saliva
- Reduced percent error from 35% to 16% by fine-tuning ML models, extracting 13 key features, and feature engineering using scikit-learn in Python, led to securing funding for 3 years from the National Institutes of Health (NIH).
- Eliminated batch effects by performing Z-score and ComBat normalization in medical data, enabling reuse of datasets prepared across different time points, lessening data preparation costs by 8%.

Artlabs - Machine Learning Engineer; New York, USA   April 2022 - January 2023
Vehicle Transport Price Forecasting System
- Refined dataset using SQL, engineered critical features and leveraged AutoML to fine-tune an XGBoost model for predicting vehicle transportation costs across U.S. states, improving MAPE from 25% to 22.5% by incorporating population density of source and destination locations, led to model's approval for deployment on AWS.

Music Recommendation
- Created a music recommendation system for TrakTrain by integrating an end-to-end pipeline with Recombee, including data collection, preprocessing, feature engineering, and time series analysis with TSFEL, Pandas, and Scikit-Learn; improved top-10 similarity accuracy from 40% to 63%, boosting membership by 5% within 3 months.
- Applied an autoencoder to compress audio features by 50%, lowering cloud storage costs by $2,500 per month.

Stock Market Twitter Feeds Mining
- Led an entire project, including deploying, clearing, preprocessing, and designing a text classifier for NER to build a Twitter feed mining system to provide customized news on selected stocks implementing Pandas, SQL, and SpaCy.
- Boosted F1-score from 0.75 to 0.83 by replacing the SpaCy NER model with a BERT model fine-tuned on Twitter feeds, increasing user engagement from 1,500 to 2,300 within the first month of launch.

Selcouth Technology - AI Engineer; Chitwan, Nepal   September 2021 - April 2022
Video to Online Shopping
- Built a deep learning pipeline in TensorFlow to recommend online clothing (Flipkart) ads by matching similar clothes from short reels, boosting sales of t-shirts by 9% and jeans pants by 6%.
- Led a 7-member team, optimized image retrieval accuracy by 7 percent, maximized approval rate for the Sharechat (MoJ) client from 51% to 83%, and aided support in raising funding of $100,000 within 6 months.
- Streamlined video processing by enforcing an automatic frame selection and main character tracking algorithm with OpenCV and PyTorch, decreasing processing time by 40% and GPU operating costs by 15%.

Deerwalk - Associate Data Engineer; Kathmandu, Nepal   May 2021 - August 2021
Analysis of Medical Data from U.S. Hospitals
- Automated data loading from the MySQL server and data transformation process by creating a Python script using Pandas and Regex, simplifying manual effort and enhancing data cleaning efficiency by 20%.
- Collaborated with a team of 8 to analyze healthcare data employing SQL and Power BI, performed KNN clustering in Python, and visualized data leveraging Tableau and Matplotlib.

TECHNICAL SKILLS

Knowledge:	Statistics, Probability, Machine Learning, Deep Learning, Big data, Visualization
Programming Languages:	SQL, Python, C, C++
Tools & Database:	Tableau, Power BI, SQL, NoSQL, Jupyter Notebooks, AWS, GCP, Azure, Docker, GitHub
Libraries:	Pandas, Numpy, Scikit-learn, Matplotlib, Seaborn, OpenCV, SciPy, NLTK, spaCy
Frameworks:	TensorFlow, PyTorch, Langchain, Django, Flask, FastApi, Streamlit

EDUCATION

Oregon State University, Corvallis, Oregon, USA   September 2023 - June 2025
Dual Major in MS in Computer Science and Artificial Intelligence   *GPA: 3.96 / 4.0*

Tribhuvan University, Institute of Engineering, Pulchowk Campus, , Lalitpur, Nepal   November 2016 - April 2021
Bachelor in Electronics and Communication Engineering   *GPA: 3.97 / 4.0*

PUBLICATIONS

Buddhacharya et al., "Fashion Image Retrieval based on Parallel Branched Attention Network," IJACSA, 2022.

Buddhacharya et al., "Monocular Depth Estimation using a Multi-grid Attention-based Model," JIIP, 2022.