BHAVISHYA VUDATHA

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SUMMARY

Software Engineer with 3+ years of industry experience in building and modernizing web applications using React, Python, and SQL. Currently pursuing a Master's in Computer Science with a focus on AI. Skilled at developing reliable, scalable solutions and passionate about combining software development with AI to solve real-world problems.

TECHNICAL SKILLS

- **Languages:** Python, sql, HTML, CSS, JavaScript.
- **Machine Learning:** Supervised/Unsupervised Learning, Deep Learning, NLP, Predictive Modeling, Statistical Modeling.
- **Framework:** Tensorflow, Pytorch, Scikit-learn, React, Flask, Django.
- **Data Analysis:** Data Wrangling, Data Visualization, Statistical Analysis, Exploratory Data Analysis(EDA).
- **Tools:** Jupyter NoteBook, Tableau, Excel, Matplotlib, Seaborn, GitHub, Visual Studio, Android Studio.
- **Cloud & AI:** Microsoft Azure, Docker.

PROFESSIONAL EXPERIENCE

Software Development Engineer- *Accenture/AT&T, chennai, India* ***Dec 2019 - Mar 2023***

- Developed and maintained 20+ internal billing applications using React.js, Python (Flask/Django), JavaScript, and RESTful APIs, leading to a 15% reduction in user-reported issues.
- Increased development efficiency by saving 50+ man-hours per quarter through code optimization, critical bug resolution, and the implementation of 10+ new features using a modern React and Python tech stack.
- Refactored monolithic legacy applications into modular React frontends and Python microservices, improving application maintainability, scalability, and performance.
- Modernized a ColdFusion-based legacy system by redesigning it into a full-stack web application using React.js and Flask, significantly reducing maintenance efforts.
- Designed and automated reporting pipelines using Python and SQL, resulting in a 25% improvement in reporting accuracy and reducing manual operational overhead.

PROJECTS

SpaceX Falcon 9 First Stage Landing Prediction

- Designed a Machine learning algorithm to predict landing success of the Falcon 9 first stage based on various historical data.
- Collected and processed data using SpaceX's API, performing data wrangling with Pandas and managing data with SQLite.
- Conducted EDA with Matplotlib and Seaborn to uncover trends.
- Fine-tuned the model using GridSearchCV, achieving 88.9% accuracy and F1-score of 0.882 with Decision Tree, outperforming Logistic Regression, SVM, and KNN.

Colorado Road Risk Analysis & Hotspot Prediction

- Developed a machine learning pipeline using Random Forest to predict crash severity (slight, serious, fatal) with 91% accuracy, leveraging 4 years of Colorado Department of Transportation (CDOT) crash data.
- Engineered data preprocessing, feature engineering (weather, road type, rush hour, Severity based degree of Injury), and implemented DBSCAN clustering to identify accident hotspots based on environmental factors.
- Designed and deployed a Flask-based web application that predicts crash severity by sampling three random route points and detects accident hotspots by sampling every three miles, integrating geospatial analysis for real-time transportation risk assessment.

Shakespearean English to Modern English Translator

- Developed a Shakespearean-to-Modern English translator using the Hugging Face T5 transformer model.
- Performed data preprocessing, back translation using MarianMTModel and evaluated using BERTScore and chrF metrics.
- Deployed a user-friendly web application with HTML, CSS, and Flask.

Ordinal Regression Loss Function Research (*In Progress*)

- Conducting an analysis of traditional and novel loss functions for ordinal regression tasks such as student engagement prediction, diabetic retinopathy severity classification, and product review sentiment analysis.
- Conducting comparative studies between non-ordinal loss functions (e.g., Sparse Cross-Entropy, KL Divergence) and ordinal loss functions (e.g., Weighted Kappa, Ordinal Cross-Entropy) across multiple real-world datasets to benchmark performance and improve ordinal classification accuracy.
- Designing and evaluating a new loss function aimed at minimizing ordinal misclassification errors while improving model accuracy across decision trees, CNNs, and transformer-based architectures.

EDUCATION

Masters in Computer Science, University of Colorado Denver ***Jan 2024 - Dec 2025***
Coursework - Deep Learning, NLP & Generative AI, Machine Learning, Data Science, Mobile Computing.
Bachelor of Technology in Computer Science and Engineering, JNTUK University, India ***July 2015 - May 2019***
Coursework - C, C++, OOPS, Java, Data Structures, SQL, BigData.