PABBATHI DILEEP

Master's Student in Data Science

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Dileep Pabbathi Dileeppabbathi

Education

Arizona State University Aug 2024 – Present
Master's in Data Science *Tempe, AZ*

SRM Institute of Science and Technology Aug 2020 – May 2024
Bachelor of Technology in Computer Science and Engineering *Chennai, India*
GPA: 3.66/4.00
Relevant Coursework: Machine Learning, Deep Learning, Data Structures, Algorithms, Database Management, Artificial Intelligence, Statistical Methods, Data Mining

Research Experience

Undergraduate Researcher – Precision Agriculture Project Jan 2023 – May 2024
SRM Institute of Science and Technology *Chennai, India*

- Led the development of a machine learning pipeline for crop type classification using hyperspectral data imagery.
- Designed and adopted a Wa-CNN technique for feature extraction from DESIS sensor data.
- Employed LSTM networks for temporal analysis of crop damage patterns over several seasons.
- Conducted extensive exploratory data analysis and feature engineering on large-scale agricultural datasets.
- Assessed Random Forest, KNN, SVM, Gaussian Naive Bayes, and AdaBoost for best performance with KNN (83.03% accuracy).

Publications

Pabbathi Dileep, Precision Agriculture: Crop Type Classification using Advanced ML Algorithms. *IEEE Conference Proceedings*–2024. [IEEE Xplore]
Key Contributions: Developed machine learning models (CNN, LSTM, Random Forest, KNN, SVM) for crop damage prediction using DESIS hyperspectral imagery; achieved 83.03% accuracy with KNN classifier; conducted extensive feature engineering and exploratory data analysis.

Technical Skills

Programming Languages: Python, R, SQL, MATLAB
ML/DL Frameworks: TensorFlow, PyTorch, Keras, Scikit-learn, XGBoost
Data Analysis & Visualization: Pandas, NumPy, SciPy, Matplotlib, Seaborn, Plotly
Natural Language Processing: NLTK, spaCy, Transformers, Gensim, BERT
Big Data Technologies: Apache Spark, Hadoop

Selected Projects

Crop Damage Prediction System 2023
Machine Learning Research Project

- Created an end-to-end ML pipeline that predicts crop damage by fusing multi-modal data sources.
- Combined hyperspectral images with environmental variables and past damage history.
- Implemented multiple classifiers with hyperparameter tuning and cross-validation.
- Achieved robust performance with comprehensive evaluation including accuracy, precision, recall, and F1-score.

Deep Learning for Image Classification 2023
Computer Vision Project

- Designed CNN architectures for multi-class image classification tasks.
- Applied transfer learning using ResNet, VGG, and EfficientNet.
- Optimized performance with the use of data augmentation and regularization techniques.

Sentiment Analysis Pipeline 2022
Natural Language Processing Project

- Built a sentiment analysis system with both traditional ML and deep learning.
- Preprocessed large text corpora using TF-IDF and word embeddings.
- Compared Naive Bayes, LSTM, and BERT-based models.

Skills Aligned with Computational Social Science

- **Data Analysis:** Process large-scale datasets comprising complex multi-modal information.
- **Classification & Prediction:** Strong background in binary and multi-class classification problems.
- **Feature Engineering:** Ability to extract meaningful features from high-dimensional data.
- **Model Evaluation:** Thorough understanding of evaluation metrics and model validation techniques.
- **Collaboration:** Co-authored publication; research experience within team environments.
- **Communication:** Published research paper; presented findings to academic audiences.
- **Learning Objectives:** To develop skills in the areas of social network analysis, graph theory, and NLP for social media text analysis.

Academic Achievements

- Published paper in IEEE conference proceedings (2024).
- Strong academic performance: 3.66/4.00 GPA in undergraduate studies.