PABBATHI DILEEP

Master's Student in Data Science

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 lDileep Pabbathi   PabbathiDileep

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 Interests

Machine Learning • Deep Learning • Computer Vision • Natural Language Processing • Computational Social Science • Social Network Analysis • Misinformation Detection • AI for Social Impact

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.

Research Experience

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

- Led development of machine learning pipeline for crop type classification using hyperspectral imagery
- Designed and implemented Wavelet Convolutional Neural Networks (Wa-CNN) for feature extraction from DESIS sensor data
- Applied LSTM networks for temporal analysis of crop damage patterns across multiple seasons
- Performed comprehensive exploratory data analysis and feature engineering on large-scale agricultural datasets
- Evaluated multiple ML algorithms (Random Forest, KNN, SVM, Gaussian Naive Bayes, AdaBoost) achieving best performance with KNN (83.03% accuracy)

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

- Developed end-to-end ML pipeline for predicting crop damage using multi-modal data sources
- Integrated hyperspectral imagery, environmental variables, and historical damage records
- Implemented multiple classification algorithms with hyperparameter tuning and cross-validation
- Achieved robust performance with comprehensive model evaluation (accuracy, precision, recall, F1-score)

Deep Learning for Image Classification   2023
Computer Vision Project

- Designed CNN architectures for multi-class image classification tasks
- Applied transfer learning techniques using pre-trained models (ResNet, VGG, EfficientNet)
- Optimized model performance through data augmentation and regularization techniques

Sentiment Analysis Pipeline   2022
Natural Language Processing Project

- Built text classification system for sentiment analysis using traditional ML and deep learning approaches
- Processed and analyzed large text corpora with feature extraction techniques (TF-IDF, word embeddings)
- Compared performance of various models (Naive Bayes, LSTM, BERT-based models)

Skills Aligned with Computational Social Science

- **Data Analysis:** Experience processing large-scale datasets with complex, multi-modal information
- **Classification & Prediction:** Strong background in binary and multi-class classification problems
- **Feature Engineering:** Expertise in extracting meaningful features from high-dimensional data
- **Model Evaluation:** Comprehensive understanding of evaluation metrics and model validation techniques
- **Collaboration:** Co-authored publication with research team; experience in collaborative research environments
- **Communication:** Published research paper; presented findings to academic audiences
- **Learning Goals:** Actively developing skills in 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