

Kanistan Kanesalingam

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in Kanistan Kanesalingam 🔄 Kanistan

Profile Summary

Computer Engineering student with a foundation in machine learning and AI. Experienced in data preprocessing, feature engineering, model training, hyperparameter tuning and model evaluation. Familiar with deep learning (CNNs, RNNs), natural language processing, computer vision, clustering, regression and classification. Strong analytical thinker with a drive to solve real-world problems through data-driven solutions.

Skills

- Python
- Data Structures & Algorithms
- TensorFlow, PyTorch, scikit-learn
- Computer Vision
- Clustering, Regression & Classification
- Deep Learning (CNN, RNN)
- Data Preprocessing & Feature Engineering
- Model Training & Hyperparameter Tuning
- n8n, Git, GitHub, Docker

Education

Computer Engineering, University of Jaffna

April 2022 – Present

- GPA: 3.63/4.0
- **Coursework:** Data Structure and Algorithms, Artificial Intelligent, Deep Learning, Machine Learning, Data Mining, Digital Image Processing, Computer Vision

Projects

Cross Cultural Facial Emotion Recognition (Research)

Facial Emotion Recognition

Technologies: Python, TensorFlow, OpenCV, NumPy, Pandas, ResNet-18, VGG-16

- Engineered end-to-end pipeline for cross-cultural emotion recognition by applying domain adaptation between Japanese and Indian facial emotion datasets
- Fine-tuned ResNet-18 and VGG-16 backbones via transfer learning, achieving 85% cross-domain accuracy and reducing performance drop by 12% compared to baseline
- Conducted hyperparameter optimization using grid search, improving validation F1-score by 9%

Big Mart Sales Prediction

Big Mart Sales Prediction

Technologies: Python, Pandas, Scikit-learn, XGBoost, SHAP

- Built regression models to forecast weekly sales for 1,000+ retail outlets, reducing forecast MAPE to 7.2%
- Engineered 20+ features to capture seasonality and promotional effects and applied cross-validation and hyperparameter tuning to select optimal tree depth and learning rate, boosting R^2 by 0.11
- Interpreted model decisions using SHAP values, enabling data-driven recommendations for inventory and promotion planning

White Blood Cell Prediction

White Blood Cell Prediction [↗](#)

Technologies: Python, TensorFlow, PyTorch, ResNet-18, OpenCV, Scikit-learn

- Built an end-to-end deep learning pipeline using ResNet-18 to classify five types of white blood cells from microscopic images, achieving 91% test accuracy
- Performed data augmentation (rotation, flipping, color jitter) on 6,000+ images to address class imbalance and boost model generalization
- Implemented preprocessing (segmentation, normalization) with OpenCV and optimized hyperparameters (learning rate, batch size) via grid search, improving F1-score by 14%
- Visualized training/validation curves and confusion matrix to diagnose class-specific performance and guide dataset enrichment

Image Caption Generator

Image Caption Generator [↗](#)

Technologies: Python, TensorFlow, VGG-16, CNN, LSTM, NumPy, Pandas

- Designed image captioning model using VGG-16 encoder and LSTM decoder on the flickr8k dataset of 8090 image caption pairs, achieving BLEU-4 score of 0.31
- Processed and tokenized dataset, implemented GloVe embeddings and sequence padding for efficient batch training
- Tuned hyperparameters via manual search, reducing perplexity by 15%
- Automated inference pipeline to handle image preprocessing, feature extraction, and caption generation in under 150ms per image

Certificates

Large Language Models Level 1 - Udemy

AI Automation - Udemy

Generative AI Studio - Simplilearn

Encoder-Decoder Architecture - Simplilearn

Machine Learning - Great Learning

Python Programming - HackerRank

References

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