AMAL M K

M.Tech in Data Science, Amrita Vishwa Vidyapeetham
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Education

Amrita Vishwa Vidyapeetham, Coimabtore, India **2025**
M.Tech in Data Science (CGPA: 6.88)

Toch Institute of Science and Technology, India **2022**
B.Tech in Computer Science (CGPA: 6.32)

KPMHSS, Kerala, India **2016**
12th Grade (Percentage: 83%)

Hail Mary EMRHSS, Kerala, India **2014**
10th Grade (Percentage: 99%)

Experience

Soften Technologies **2022 - 2023**
Data Science Intern — On-Site

- Assisted in developing machine learning models, working with Python for Data Science, Machine Learning, Artificial Intelligence, and Deep Learning.
- Gained hands-on experience with Neural Networks, Natural Language Processing (NLP), and Predictive Analytics.
- Designed and developed interactive dashboards and data visualizations using Tableau.
- Conducted data collection, extraction, cleaning, exploration, transformation, and integration for various business applications.
- Applied data mining, regression modeling, and hypothesis testing to analyze real-world datasets.
- Built predictive models and performed statistical analysis for trend forecasting and anomaly detection.
- Implemented deep learning frameworks and machine learning algorithms to optimize AI-driven solutions.

Technical Skills and Interests

Languages: Python, C
Data Science Tools: TensorFlow, Keras, Scikit-learn, OpenCV, NumPy, Pandas, Matplotlib, Seaborn, PyTorch
Data Visualization: Tableau
Coursework: Machine Learning, Deep Learning, Text Mining, Statistical Modeling, Data Analytics
Soft Skills: Critical Thinking, Collaboration, Problem-Solving, Time Management
Areas of Interest: Algorithmic Problem Solving, Machine Learning Research

Projects

Bilingual Image Captioning in English and Malayalam (Submitted)

- Designed and implemented a bilingual image captioning framework using a ResNet-18 encoder for visual feature extraction and a Transformer decoder for sequence generation.
- Utilized the Malayalam Visual Genome 1.0 dataset, containing 29,000+ images annotated with English and Malayalam captions.
- Preprocessed input images through resizing and normalization; captions were tokenized using separate vocabulary models per language.
- Adopted greedy decoding for caption generation, using an autoregressive Transformer decoder trained on tokenized sequences.
- Employed CrossEntropy loss (excluding padding tokens) and optimized using the Adam optimizer (learning rate: 1×10^{-4}, batch size: 16).
- Model performance evaluated using BLEU, METEOR, and ROUGE-L to assess lexical precision, fluency, and semantic structure in both languages.
- **Technical Skills:** PyTorch, ResNet-18, Transformer Decoder, Tokenization, Multilingual NLP, BLEU/METEOR/ROUGE evaluation.

EV Energy Consumption Prediction(Submitted to IEEE Q1 JOURNAL)

- Developed deep learning models (TabTransformer, TabNet) to enhance EV energy consumption predictions.
- Applied BERT embeddings for text feature extraction, optimizing MAE to 0.38.
- Leveraged Bayesian optimization for hyperparameter tuning, improving performance.
- Achieved a 20% improvement in accuracy using LightGBM and clustering techniques.
- **Technical Skills:** Python, TabNet, TabTransformer, LightGBM, Optuna, Bayesian Optimization.

Certifications

- 100 Days of Code – Python Pro Bootcamp (Udemy)

Linguistic Proficiency

Languages Known: Malayalam, English, Hindi, Tamil, German