Ashish Thomas Mathew

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Education

University of Massachusetts Dartmouth Expected May 2025
Master of Science Data Science | GPA: 3.9 *Dartmouth, MA*

Coursework: High-Performance Computing, Machine Learning, Database Systems, Data Mining, Mathematical Statistics, Numerical Methods, Numerical Linear Algebra, Digital Forensics, Deep Learning

Specialized Skills

Technical Skills:
Programming Languages: Python, R, SQL, Bash
Data Science Libraries: NumPy, TensorFlow, PyTorch, Scikit-learn, SciPy
Tools/Frameworks: AWS, Docker, Angular, Django
AI Concepts: Supervised Learning, Computer Vision, NLP, ETL pipelines
Other: Agile Methodology

Experience

Systems Engineer - Developer July 2019 – July 2022
TATA Consultancy Services *Kochi, India*

- Collaborated with data scientists to develop AI-powered applications and evaluate deep learning model performance, providing actionable insights through visualizations.
- Designed and maintained data-driven web applications, improving client workflows by developing and OCR module with real-time model interaction.
- Improved cloud architecture by enhancing build and deployment speeds for model training and integration processes.
- Prepared comprehensive reports and real-time visualizations to communicate findings to stakeholders.
- Developed custom web modules and microservices for object detection and NLP models, enhancing the clients' workflow.

Projects

Independent Research Study | Python, ANNs, CNNs, LSTMs, RNNs May 2024 - present

- Conducted in-depth studies on deep learning architectures focusing on topics ranging from optimizing artificial neural networks and computer vision, to generative AI.
- Implemented neural network architectures and optimization algorithms from scratch with demonstrations to explain their inner working effectively.
- Collaborated with faculty advisors to explore advanced deep learning architectures and methodologies.

Water Sample Potability Prediction | R, Data Analysis, Supervised Learning March 2024

- Cleaned and analyzed data by creating box plots, correlation plots, Q-Q plots and histograms to aid in removing outliers, impute missing data, and preprocess it for further study.
- Demonstrated capability in implementing and fine-tuning regression and classification models to give accurate predictions on structured data.
- Accurately identified acceptable values of hardness, pH, and Sulphate levels in drinking water using partial plots, confirming that the model results aligned with the WHO's guidelines.

End-to-End Analysis of IMDb movies | NLP, Supervised Learning, Python, Data Analytics November 2023

- Cleaned, preprocessed, and analyzed 12 million rows of movie and actor data from 6 different datasets by effectively implementing data streaming, compression, chunking and parallel processing.
- Used classification algorithms and sentiment analysis to determine the potential of success of movies in 2025 based on historical data and reviews from 1970 to 2024.

Multithreaded Floyd-Steinberg Dithering | Multithreading, C++, OpenCV, Python, Bash November 2023

- Developed and optimized an image processing algorithm to dither gigapixel images, reducing its size by 50% without significant loss in image quality.
- Implemented a non-trivial parallel computing solution for the algorithm, improving its performance by 100%.

Other Involvements

Big Data Club September 2023 – Present
University of Massachusetts Dartmouth