BALAJEE DEVESHA SRINIVASAN

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EDUCATION

Indiana University Bloomington,   August 2022 – May 2024
Masters in Data Science   GPA 4.0/4.0
Relevant Coursework: EDA, Computer Vision, Deep Learning Systems, Applied ML, Applied Algorithms

BMS Institute of Technology,   August 2015 – June 2019
Bachelors in Electrical and Electronics Engineering   GPA 8.06/10.0
Graduated with First class (Honors); Relevant Coursework: OOPS with Python, Programming in C and Data Structures

EXPERIENCE

Independent Researcher   January 2024 - May 2024
Computer Vision Dept, IUB   *Bloomington, IN*

- Implemented advanced models to predict and generate intermediate frames, significantly improving video clarity using **GANs** and **optical flow estimation** and managed training and validation using **Weights and Biases Dashboard**.
- Designed models to **enhance video quality by accurately predicting and synthesizing intermediate frames**, which were trained on SLURM-based HPC.
- **Enhanced model accuracy by 10%** through tuning of neural network architectures and parameters, improving PSNR values by 20%.

Software Engineer   August 2019 - May 2022
Bosch Global Software Technologies Private Limited   *Bengaluru, India*

- **Investigated trends, patterns, and associations** in IC-Engine knocking using Python and Scikit-learn, developing **machine learning model**, which led to a 25% reduction in knocking.
- Constructed interactive **data dashboards with Tableau** to convey insights and model performances to stakeholders.
- Collaborated with cross-functional teams to **integrate data analytics solutions using SQL** into existing systems, reducing overall time to deliver by 25%.
- Spearheaded **end-to-end analysis of requirements, conducting code reviews, and managed software integrations**, guaranteeing on-time deliveries and boosting operational excellence by 20%.

PROJECTS

Hurricane intensity prediction with Computer Vision | *TensorFlow, PIL* | Link
- Developed a Hurricane/Cyclone Intensity Prediction model using a **CNN with TensorFlow**, leveraging raw images from HURSAT and INSAT datasets for per-class classification, achieving a 92% accuracy rate.
- Devised an **ensemble of CNN classifiers** to enhance the model's performance, resulting in a 15% increase in accuracy compared to the single model approach.

Stellar Data Classification using PySpark | *Python, PySpark, JetStream 2* | Link
- Boosted data processing by 30% with **PySpark's distributed processing** and amplified **feature engineering** of SDSS observations dataset, uncovering correlations and patterns among celestial objects deployed on HPC instance.
- Created a **multi-algorithmic machine learning and deep learning classification ETL pipeline using PySpark on a Linux cloud**, achieving 95% accuracy in classifying celestial objects and reducing processing time by 30%.

Llama 70b based RAG interface with Streamlit | *Python, AWS S3, NLP, AWS Bedrock, FAISS, Streamlit* | Link
- Engineered an intelligent PDF chatbot utilizing **AWS S3, Bedrock, and FAISS** for efficient document querying, enhancing real-time data retrieval and interactive user experience with **server and client deployed using Docker**.
- Devised a **scalable end-to-end machine learning pipeline** on AWS, incorporating the **Llama 70B model for natural language processing** and dynamic content extraction from PDFs.

EDA and Time series modeling on Japanese Restaurant Visitation data | *R, ggplot2, forecast, tidyverse* | Link
- Analyzed visitor trends in Japanese restaurants utilizing the "Recruit Restaurant Visitor Forecasting" dataset from Kaggle, **discovering insights and modeling data from over 13,000 restaurants**.
- Investigated using **time series modeling in R** to identify the impact of seasonal variations and restaurant locations on visitor numbers, leading to a 20% improvement in forecasting accuracy using simpler models like loess, and GLM.

SKILLS

Languages: Python, R, C, SQL, MATLAB
Libraries: Numpy, Pandas, Scikit-Learn, TensorFlow, OpenCV, PySpark, Tidyverse, ggplot2, Langchain, boto3, Streamlit
Data Science: ANN, NLP, LLM, Transformers RAG, FAISS, Airflow, Kafka
Cloud and Streaming Technologies: AWS (S3, EC2, Lambda, SageMaker, Bedrock, RDS)
Dev & BI tools: Git, Docker, Tableau, Power BI