Ruthvik Mannem

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PROFESSIONAL EXPERIENCE

Research Assistant | Saint Louis University, St. Louis **Jun 2023 – May 2024**

Project: BubbleScan-AI

- Developed an Open-Source AI application that uses deep learning and computer vision to accurately identify and analyse bubbled responses from scantron sheets that accelerates the grading process and reduced the manual effort by 95%.
- Defined AI modules in **Python**, utilizing OpenCV, TensorFlow, Scikit-Learn and PyTorch, achieving 100% accuracy in data processing and bubbled response detection.
- Optimized neural networks through advanced OpenCV-based image preprocessing and feature extraction, achieving a 20% increase in model performance and cutting processing time by 30%.
- Conducted thorough testing and validation of machine learning model; integrated into user-friendly web application for real-time access, reducing decision time by 40% and increasing user engagement by 25%

Project: Pi4Micronaut

- Led a team of four in developing an Open-Source **Java** library for Raspberry Pi hardware interactions using the **Micronaut** framework and PI4J library.
- Managed technical aspects including issue creation, pull request evaluations, and **GitHub** codebase maintenance, ensuring high software quality.
- Released versions 1.0 and 1.1 of the library, adding support for 16 components.
- Introduced **Agile** methodologies for efficient project management, ensuring timely completion of development sprints and alignment with client needs.
- Streamlined the **CI/CD** pipeline using GitHub Actions, releasing the library to the Maven Central Repository and automating documentation publication to GitHub Pages.
- Provided technical leadership and mentorship to team members, fostering a collaborative and innovative development environment.

Machine Learning Engineer | IBM INDIA Pvt Ltd, Bangalore **Mar 2020 – Aug 2022**

Project: Automated Warehouse Monitoring System Using Drones

- Spearheaded the development of machine learning models using **Python** to automatically identify labels and important information from drone-captured frames, enhancing operational efficiency over a 2.5-year period.
- Utilized Pandas, NumPy, OpenCV, TensorFlow, PyTorch, Scikit-Learn, and CNNs for data wrangling, model training, and management in multi-node environments, achieving a 30% reduction in model training time.
- Implemented models such as ResNet and YOLO for real-time object detection and classification, significantly boosting the performance of machine learning application by up to 35%.
- Engineered and optimized GPU kernel programming with **CUDA** to accelerate computational tasks by 40%.
- Authored **REST APIs** to enable integration and deployment in **Azure Machine Learning Service** environment, facilitating real-time data processing and analytics that reduced integration time by 25%.
- Identified and created relevant features from raw data to improve model accuracy, leading to a 20% increase in predictive performance.
- Evaluated model performance using metrics such as accuracy, precision, recall, and F1-score, and conducted cross-validation to ensure models generalized well to unseen data, improving overall model reliability by 15%.
- Mastered the latest advancements in machine learning and related fields, experimenting with new algorithms, tools, and techniques, including Vision Transformers, RNNs and LSTMs, contributing to the development of improvised machine learning methodologies.

- Defined **CI/CD** pipelines and version control using **Git**, streamlining the deployment process with **Docker** for containerization and **Kubernetes** for orchestration.
- Actively participated in Agile and DevOps practices, working in cross-functional teams to deliver high-quality solutions aligned with business objectives and client expectations.

Intern | Fincore Pvt Ltd, Bangalore **Jul 2019 – Dec 2019**

Project: Incident Elucidation with Auto Intelligence

- Developed a web-based ticketing tool using **Python**, designed to automatically categorize and manage incidents reducing the manual assignment by 90%.
- Implemented machine learning algorithms to categorize incidents based on content, urgency, and other relevant parameters, ensuring quick and accurate ticket assignment to appropriate teams.
- Employed **NLP** techniques to interpret and process user queries and complaints, enhancing the model's ability to understand and categorize incidents effectively.
- Designed and tested models to improve incident categorization accuracy, resulting in a 40% reduction in ticket handling time.
- Collaborated with senior developers to integrate the tool with existing company infrastructure, ensuring the deployment and operation.

EDUCATION

Masters in Artificial Intelligence | GPA: 3.7 **Aug 2022 – May 2024**
- Saint Louis University, St. Louis, MO.

Master of Computer Applications | GPA: 3.3 **Aug 2016 – Jul 2019**
- Visvesvaraya Technological University, Karnataka, India.

Bachelor of Computer Science | GPA – 3.3 **Jul 2013 – Mar 2016**
- Krishna University, Andhra Pradesh, India.

SKILLS

- **Programming Languages:**

  Python, Java, C++
- **Frameworks and Tools:**

  TensorFlow, PyTorch, Scikit-Learn, Keras, OpenCV, Pandas, NumPy, Matplotlib.
- **Databases:**

  MySQL, Azure Data Lake.
- **Tools:**

  Git, Docker, Kubernetes, CUDA, Azure Machine Learning Service.
- **Areas of Expertise:**

  Machine Learning, Computer Vision, NLP, Statistics, Data Analysis, AI Algorithms, Generative-AI.
- **Certifications:**

  Microsoft Azure Fundamentals (AZ-900).