JACOB BINU MANCHERIKALAM

SOFTWARE DEVELOPER

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PROFILE

Computer Science graduate specializing in Artificial Intelligence with 2 years of industry experience in software development, full-stack development, IT management, and AI model deployment. Proficient in developing responsive web applications using HTML, CSS, JavaScript (React) on the front end and Flask and Django on the back end. Skilled in working with RESTful APIs and databases like MySQL, PostgreSQL, and SQLite, deploying applications on AWS and GCP using Docker and Kubernetes for containerization and orchestration.Experienced in building, training, and fine-tuning machine learning and deep learning models using TensorFlow, Keras, and PyTorch. Successfully deployed AI models in production environments, leveraging AWS Sagemaker and Azure ML for scalable and efficient solutions. Expertise includes real-time model serving, automating CI/CD pipelines, and integrating models into web applications and APIs for tasks like object recognition, natural language processing (NLP), and predictive analytics. Also proficient in optimizing models for performance and cost-efficiency, ensuring seamless integration into existing systems while maintaining high performance. Versatile in applying advanced technologies to solve complex problems and deliver impactful AI-driven solutions in real-world environments.

WORK EXPERIENCE

January 2025 - current

Coventry Building Society l Coventry CV3 2TQ

MLOps Engineer

- Conduct evaluation and implementation of new ML platforms; lead proof-of-value (PoV) initiatives to assess capabilities and integration potential.
- Collaborate with data science and engineering teams to build scalable data pipelines and solutions using Python, Pandas, PySpark, and SAS.
- Contribute to the integration of MLOps best practices, ensuring reproducibility, versioning, and deployment automation across environments.

August 2022 - August 2023

Tata Motors Design Tech Centre l Coventry CV4 7AL

IT Engineer (Internship)

- Worked as an IT engineer creating autonomous scripts for OS deployment on Windows with pre-requirements software configured, mostly removing manual intervention by 80% and saving 30 hours per deployment.
- Contribute to team efficiency, IT project implementation, and quality control by configuring systems.IT completion rate for ticket closure from 50% to 100% within six months.

April 2020 - July 2021

Mancherikalam Supermarket | Kottyam

Assistant IT Manager

- Maintained and updated computer software and hardware for over 50 systems, ensuring optimal performance and reduced downtime for Windows updates.
- Put forward a new supplier information tracking system, enhanced stock auditing accuracy and reordering efficiency time by 30%.

EDUCATION

2021 - 2024 (Bachelor's Degree)

COVENTRY UNIVERSITY, COVENTRY

- BSc Computer Science with AI
- First Class with honors
- Major focusing on AI development with deep neural networks

2017 - 2019 (KOTTYAM)

PLACID VIDYA VIHAR, KOTTAYAM

- Subjects: Mathematics, Physics, Chemistry, English, Computer Science (C++)
- Cumulative Mark: 80%

POSITIONS OF RESPONSIBILITY

- Liaised as a member of the Formula Student AI (FSAI) team, assisting with AI Formula 1 coding, documentation, racing simulations, and track testing.
- Led and programmed projects in Python and C++, mentoring a team of 5 members, and delivering projects 15% ahead of schedule.
- Served as Lead Team Member in the Google Student Developer Club, organizing 3 technical workshops attended by over 100 students.

SKILLS

- **Python & Machine Learning:** Proficient in Python with experience in scikit-learn, TensorFlow, Keras, and PyTorch for ML and deep learning models.
- **Deep Learning :** Experience with CNNs, RNNs, LSTMs, Transformers and other architectures
- **Data Analysis:** Skilled in NumPy and Pandas for data preprocessing and manipulation.
- **NLP and Computer Vision:** Knowledge of GPTs, Open LLMs, RAG, OpenAI API, and Hugging Face Transformers ,LangChain ,LangGraph and OpenCV.
- **Database Management:** Experience with SQLite3, MongoDB, Redis, Kafka and MySQL.
- **Web & Full-Stack Development:** Developed applications using Flask, Django, HTML, CSS, JavaScript, and React.
- **Cloud & Deployment:** Docker, Kubernetes, AWS, GCP, Azure, and Microsoft Azure DevOps
- **Software Tools:** Proficient in Microsoft Office Suite, MATLAB, Android Studio, and VS Code.
- **Operating Systems & Hardware:** Proficient in Windows, macOS, and Linux; experienced in computer assembly and maintenance.
- **Technical Project Management:** Experienced in Agile practices with CI/CD integrations
- **Additional Skills:** Proficient in Git, CUDA, cuDNN, MATLAB, C#, and C++, Java

CERTIFICATIONS

- **CCNA: Enterprise Networking, Security, and Automation**: Expertise in managing and automating enterprise networks with a focus on security and modern technologies.
- **CCNA: Switching, Routing, and Wireless Essentials:** Foundational skills in configuring, managing, and troubleshooting switched, routed, and wireless networks.
- **Introduction to LangGraph:** AI Agentic workflow with LangGraph
- **Introduction to Prompt Engineering for Generative AI (2023)**
- **Learning Kubernetes:** Kubernetes for container autoscaling
- Learning Docker: Docker for containerization
- **Generative AI: Introduction to Large Language Models**
- **Generative AI: Working with Large Language Models**

PROJECTS

- ***Context-Aware Chatbot Using RAG Framework (Dissertation-Project):*** Initiated works on an innovative Retrieval Augmented Generation (RAG) framework to create context-aware Chatbot using state-of-the-art large language models (LLMs) such as OpenAI's GPT and Meta's Llama2 *(https://github.com/Jakee4488/CustomGPT-RAG).*

- ***CNN for Comparative Analysis for Plant Disease Classification:*** Conducted a comparative analysis of Convolutional Neural Network (CNN) architectures to evaluate model performance in detecting and classifying plant diseases. *(https://github.com/Jakee4488/PlantDiseases_CNN_Classification).*

- ***Autonomous OS Deployment System for Tata Motors:*** Identified inefficiencies in Tata Motors' OS deployment process and implemented a fully autonomous system for centralized deployment. This solution reduced manual intervention time by 4 weeks, streamlining system imaging operations.

- ***Comparitive analysis of Mushroom Classification different ML algorithms :*** Created the project utilized various machine learning algorithms for mushroom classification, including Random Forest, Logistic Regression, and Support Vector Machines. Each algorithm was trained on the prepossessed data and evaluated using metrics aganist F1-scores.(https://github.com/Jakee4488/Mushroom_Classification)

- **Online Bookshop and Cybersecurity Project:** Developed a secure online bookshop application using Python Flask, JavaScript, HTML, and CSS. Implemented robust cybersecurity measures, including RSA encryption for password protection and the use of cost-effective APIs, to safeguard user data and mitigate potential cyber threats. (https://github.com/Jakee4488/BookShop2-6005-secure-v2)