**ANURAG KALAPALA**

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**SUMMARY**

Highly motivated and results-oriented Machine Learning Engineer with a strong foundation in deep learning, MLOps, and cloud technologies. Proven experience in developing and deploying machine learning models for diverse applications. Eager to contribute to the cutting-edge advancements in humanoid robotics at Persona AI by applying expertise in areas like robot learning, real-world deployment, and building robust ML pipelines.

**EDUCATION**

**MS in Computer Science | University of Massachusetts Lowell                                                   Jan 2023 - May 2024** Coursework: Machine Learning, Deep Learning, Computer Vision, NLP, Data Mining, Software Engineering

**BE in Electronics and Communication | Chaitanya Bharathi Institute of Technology             June 2018 – May 2022** Coursework: Signal Processing, Digital Communications, Data Structures, Statistics

**PROFESSIONAL EXPERIENCE**

**Machine Learning Engineer | HealthEdge                                                                                                           July 2024 - May 2025**

* Developed and deployed predictive models using **Python**, TensorFlow, and scikit-learn, integrating them into a clinical support platform to forecast patient events.
* Established and maintained a modular **MLOps pipeline** leveraging MLflow for experiment tracking and model versioning, with automated **CI/CD** via GitHub Actions and **AWS CodePipeline**.
* **Developed and deployed RESTful APIs** using FastAPI and Docker to serve machine learning models, ensuring scalable and low-latency performance.
* Implemented real-time model monitoring with Prometheus and Grafana, enabling drift detection and performance alerting.

**Graduate Research Assistant | University of Massachusetts Lowell                                             June 2023 - May 2024**

* Designed and developed deep learning models using TensorFlow and PyTorch for enterprise text analytics, achieving a 20% accuracy improvement over baseline systems.
* Fine-tuned BERT and RoBERTa models for domain-specific named entity recognition, reducing error rates by 30% and improving data extraction efficiency.
* Collaborated on interdisciplinary AI applications spanning business analytics and automated content processing.

**RPA Developer| Genpact                                                                                          June 2021 – December 2022**

* Designed and deployed RPA bots using Automation Anywhere and UiPath for tasks like invoice processing and client onboarding.
* Built intelligent workflows using OCR, email parsing, and Excel automation.
* Developed **Python** automation scripts for data analysis and created a COVID-19 trend prediction pipeline using scikit-learn.
* Performed social media scraping and sentiment analysis with Reddit (PRAW) aiding marketing insights.

**TECHNICAL PROJECTS**

**Autonomous Robot Navigation System | PyTorch, ROS, Computer Vision**

* Developed deep reinforcement learning models for robot path planning and obstacle avoidance.
* Implemented behavior cloning for robotic arm manipulation tasks using demonstration data.
* Simulated and tested models in robotic environments, achieving high task completion rates.

**Enterprise Misinformation Detection Platform | Python, BERT, NLP, Hugging Face, Docker, FastAPI**

* Developed an end-to-end NLP pipeline for classifying 17,500+ articles across six credibility tiers using BERT/SBERT.
* Deployed as containerized microservices with FastAPI and Docker.
* Automated data ingestion, model inference, and reporting with CI/CD integration and Prometheus alerts.
* Scaled architecture to handle 1,000+ docs/min using cloud-native deployment on AWS ECS.

**AI-Powered Visual Classification System | PyTorch, ResNet-18, Computer Vision, MLflow**

* Built a full ML pipeline for dermatoscopic image classification using the HAM10000 dataset, fine-tuning ResNet-18 (7-class) with augmentation, achieving 83% accuracy.
* Tracked experiments and model versions using MLflow.
* Integrated Grad-CAM for interpretability and deployed as a REST API with model versioning and monitoring.
* Implemented CI/CD for training and deployment using GitHub Actions and Dockerized workflows.

**TECHNICAL SKILLS**

* **Programming Languages:** Python, SQL, Java, C++ (Exposure)
* **ML & Data Science:** PyTorch, TensorFlow, scikit-learn, XGBoost, Pandas, NumPy, MLflow
* **Deep Learning:** CNN, LSTM, Transfer Learning, ResNet, BERT, Transformers, SBERT
* **LLMs & GenAI:** LangChain, Hugging Face Transformers, RAG Pipelines, Prompt Engineering, OpenAI APIs
* **NLP:** Hugging Face, SpaCy, TextBlob, NER, Sentiment Analysis, Topic Modeling
* **Robotics:** ROS, Gazebo, PyBullet (Exposure), Behavior Cloning, Reinforcement Learning (Exposure)
* **Motion Planning:** Trajectory Optimization (Conceptual)
* **MLOps & Deployment:** Docker, FastAPI, GitHub Actions, AWS (SageMaker, CodePipeline, ECS), Prometheus, Grafana, CI/CD
* **Cloud & Platforms:** AWS, GCP, Git, GitHub, Flask, MongoDB, Tableau, Power BI
* **Real-time Systems:** Real-time Control (Conceptual)

**CERTIFICATIONS**

TensorFlow Developer Certificate – Google

Generative AI with LLMs – DeepLearning.AI

LangChain for LLM Application Development – DeepLearning.AI

Automation Anywhere RPA Professional Certificate