MANOJ KUMAR EEDHARA

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Summary

Robotics engineer with a Master's degree in Robotics from the University of Birmingham, specializing in developing and deploying machine learning models for intelligent systems and data-driven applications. Passionate about advancing the fields of Robotics and AI through innovative solutions and cutting-edge research. Seeking roles in ML engineering & Robotics within the tech industry to contribute to the next generation of intelligent systems.I have the right to work in the UK.

Education

- **University of Birmingham** — Birmingham,UK
  MSc.Robotics; Merit — *Sep 2022 - Dec 2023*
  Courses: *Intelligent Robotics, Advanced Robotics, Machine Learning, Evolutionary computation, Artificial Intelligence, Neural computation, Computer Vision*
  Dissertation: *Meta-Learning for Robotic Search Applications in Remote and Inaccessible Terrains*

Skills Summary

- **Languages**: C++, C, Python, PHP, JavaScript, SQL,Dart
- **Frameworks**: TensorFlow, PyTorch, Scikit-learn, NLTK, SpaCy, Fastai, HuggingFace, Django, Flask, NodeJS, ReactJS
- **Tools**: Kubernetes, Docker, Git, MySQL,
- **Platforms**: Linux, AWS, GCP, ROS, Apache Airflow

Experience

- **MAASR LTD** — UK
  ML Developer — *Jan 2024 - Present*
  - **System Design**: Architected and implemented a scalable web solution utilising React.js frontend and Flask/FastAPI backend. Engaged with stakeholders to gather requirements and ensure alignment with business needs.
  - **Cognitive Computing Integration**: Implemented NLP-driven features for email analysis, sentiment detection, and intelligent task automation leveraging SpaCy, NLTK, scikit-learn & LangChain.
  - **Data Ecosystem Design**: Implemented hybrid MySQL/MongoDB solution for optimizing data storage and retrieval. Collaborated with managers to identify KPIs and address data-related pain points.
  - **Cloud and DevOps**: Orchestrated AWS deployment using Docker containers and Kubernetes. Implemented CI/CD pipelines via GitHub Actions.
- **Radical AI** — UK
  AI Engineer - Intern — *Mar 2024 - May 2024*
  - **AI Model Development**: Developed ReX, an AI Coach, utilizing OpenAI, Vertex AI, and TensorFlow. Implemented NLP and machine learning techniques to enhance personalized career coaching, resulting in a 20% improvement in user satisfaction and engagement.
  - **Cloud-Based Data Processing**: Leveraged cloud-based data warehousing and processing pipelines to streamline collaboration. Implemented automated data pre-processing techniques, reducing data processing times by 15% for customized learning solutions.
  - **Model Optimization**: Assisted in fine-tuning AI models, focusing on improving accuracy and performance of natural language processing algorithms. Contributed to the development of more responsive and context-aware coaching interactions.
- **Dash Dot Robotics** — India
  Robotics Engineer — *Jun 2021 - Aug 2022*
  - **IoT System Architecture**: Architected Box-it, an autonomous inventory management system, integrating robotics and IoT solutions. Led a 10-engineer team, implementing features that eliminated manual counting and increased sales by 4-8% through improved accuracy.
  - **Robotics and Software Development**: Engineered real-time tracking and sensor-based autonomous functionality using C++ and ROS2. Developed advanced communication protocols leveraging star and mesh network configurations for optimized device connectivity.
  - **Cloud Integration and Networking**: Ensured seamless integration with AWS cloud services, enhancing real-time monitoring and management capabilities. Implemented efficient data transmission between Box-it devices and cloud infrastructure.
  - **UI and Machine Learning Integration**: Engineered a ML-powered UI for inventory analysis and optimization. Implemented real-time management features, significantly reducing operational discrepancies and enhancing system efficiency.

Projects

- **Frontier Based Exploration using Meta-Learning (Deep RL, Meta-Learning, Robotics Simulation)**: Developed a meta-learning framework for SAR robot simulations using MAML, REPTILE, and Zero-shot Learning. Implemented Deep RL algorithms (PPO, A3C), achieving 40% increase in exploration capabilities and 30% improvement in decision-making accuracy. **C++, Python, PyTorch, OpenAI Gym, ROS2, Gazebo.**
- **Spot - Fire Defender Robot (Robotics, AI, Computer Vision)**: Engineered fire detection system for Boston Dynamics' Spot robot using Python API and ROS. Implemented reinforcement learning algorithms (DQN, PPO) for navigation and decision-making in hazardous environments. Integrated thermal imaging and LIDAR data processing for enhanced situational awareness. **C++, SLAM, OpenCV, Spot SDK, GCP.**
- **Deliveri-Bot: Autonomous Hotel Delivery Robot (Robotics, AI, Navigation)**: Developed an AI-powered robot for automating hotel room service deliveries, enhancing guest experience and operational efficiency. Implemented autonomous navigation in dynamic indoor environments, obstacle avoidance, and secure delivery protocols. **ROS, Python, PyTorch, OpenCV, Gazebo, SLAM algorithms, TensorFlow, Git.**
- **Hashtag Generator ST7 (NLP, Cloud Computing, DevOps)**: Developed a scalable hashtag generation system for social media content, leveraging NLP for sentiment analysis and entity recognition to enhance hashtag relevance. Implemented continuous model training and real-time monitoring for improved accuracy and user insights. **Python, BERT, XLNet, AWS, Azure, Docker, Kubernetes, REST APIs, TensorFlow, Git.**
- **IntBuddy: International Student Interaction Platform (Web Development, APIs, Machine Learning)**: Developed a website facilitating peer interaction among international students. Engineered robust APIs and backend systems, designed efficient databases, and implemented machine learning algorithms for student data analysis. Conducted comprehensive testing to ensure code quality and reliability. **ReactJS, PHP, MySQL, RESTful APIs, Machine Learning libraries, Git.**