DILEEP KUMAR MUNAGAPATI

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PROFESSIONAL SUMMARY

Leveraging a Master's degree in Robotics and AI, I have **consistently** integrated robotics, AI, to drive **cutting-edge** research and development. My **hands-on** expertise spans **sustainable** robotics solutions, **autonomous** systems, and **machine learning** applications—**underscored** by a passion for **innovation** and **efficiency**. **Eager** to translate data-driven insights into **tangible** advancements, I aspire to make a **significant** impact in the dynamic field of robotics across **diverse** industries.

PROFESSIONAL EXPERIENCE

Knest Aluform Pvt. Ltd — **Pune, IND**
Robotics Engineer - (ROS2 - developer | R&D Dept.) — **Feb *2024 - Present***

- **Spearheaded** the end-to-end design and implementation of an autonomous robot from initial concept to **POC stage**, achieving a **40% reduction** in development time and successfully deploying it in construction environments.
- **Proactively researched and developed** a robust path-planning algorithm utilizing real-time camera feeds, improving navigation accuracy by **85%** across dynamic **construction sites**.
- **Expertly** handled and maintained the robotic software (ROS/ROS2), decreasing system downtime by **25%** through meticulous debugging, optimization, and performance tuning.
- **Researching** and **developing** a **molecular visual odometry** approach (lines and points) that **demonstrates** higher **reliability** than LiDAR, wheel odometry, and IMU, while **strategically** integrating these sensor inputs to **further** improve localization **accuracy** and **robustness**.
- **Collaborating** closely with Machine Learning teams to innovate visual-based mapping and odometry solutions, increasing mapping speed by **60%** and tailoring the technology exclusively for **construction site** applications.

Robotics Solutions — **UAE**
Machine Learning Engineer — ***Sep 2023 - Dec 2023***

- Developed advanced algorithms, emphasizing neural networks, boosting accuracy.
- Collaborated across teams, integrating AI solutions into systems using TensorFlow and Keras.

Middlesex University Dubai — **Dubai, UAE**
Research Assistant Intern (Robotics) — ***Sep 2022 - Oct 2023***

- **Robotics Project Development**: Led the design and completion of nine robotics projects, improving efficiency and innovation. Projects included advanced areas like **industrial robot packaging** and **facial expression recognition**.
- **Innovative Robotics-Music Integration**: Initiated the "Musical Interaction with 3D Hand Tracking" project, blending robotics with music, resulting in a novel prototype for human-like musical interaction.
- **Multidisciplinary Machine Learning Research**: Conducted comprehensive **machine learning research**, including computer vision and NLP, using Python. Currently leading a significant project combining sustainability, air quality, and robotics.

Labware Arabia — **Dubai, UAE**
Full-Stack Developer. — ***Jan 2022 - Aug 2023***

- **Innovative Platform Development**: Led the development of a secure **Inspection Management System** (IMS) and **Training Management** (TM) platform, leveraging the Flask Framework for robust backend functionality. Achieved a **20%** increase in platform reliability and security.
- **Full-Stack Expertise**: Utilized Python with Flask, along with HTML, JS, CSS, and Bootstrap for front-end development, connected to a secure MSSQL database. This integration enhanced user interface efficiency by 30%.
- **Comprehensive Development** and **Quality Assurance**: Engaged in comprehensive end-to-end development, from initial design to final deployment, including **rigorous testing** and **debugging**. This process ensured high-quality software performance, reducing post-launch issues by **40%**.

Tata Consultancy Services (TCS) — **HYD, IND**
Developer Analyst — ***March 2021 - July 2022***

- **Enhanced Data Management**: Spearheaded the design and development of ETL processes using AWS Glue, leading to a 30% reduction in manual data handling efforts. Expertly utilized Pyspark for efficient data extraction, aggregation, and consolidation.
- **Optimized Data Security and Availability**: Successfully implemented and managed secure S3 buckets on AWS, boosting data storage and backup security by 40%. Ensured high data availability across projects.
- **Improved System Efficiency and Stability**: Proactively troubleshot and optimized Linux servers on AWS, resulting in a 25% decrease in downtime. Administered various AWS services like EC2, S3, and Trusted Advisor, enhancing overall system stability and reducing potential issues by 35%.
- **Streamlined Process Automation and Deployment**: Automated job scheduling using UNIX shell scripts and crontab, enhancing process efficiency by 50%. Developed Python scripts for operational efficiency and integrated production deployment using CI/CD pipelines, Jira, Airflow, and GIT, ensuring streamlined workflows and consistent code integration.

EDUCATION

Middlesex University — **Dubai, UAE**
Master's Degree in Robotics (MSc Robotics & AI), GPA: 3.9 / 4 — ***2022 - 2023***

Vignana Bharathi Institute of Technology (JNTUH affiliated**)** — **Hyderabad, IND**
Electronics and Communication Engineering in B-Tech, CGPA: 7.47 — ***2016 - 2020***

SKILLS

Technical:

- **Robotics & Control**: Robot Operating System (ROS/ROS2), Sensor Integration (LiDAR, IMU, Cameras), Path Planning, SLAM, Navigation Algorithms, Molecular Visual Odometry
- **Programming & Tools**: Python, C++, MySQL, R, Git, Visual Studio Code, Jupyter Notebook
- **Data Analysis & Visualization**: Pandas, NumPy, Matplotlib, Image Processing, Pattern Recognition
- **Machine Learning & AI**: Deep Learning, Neural Networks, Clustering Models, scikit-learn, TensorFlow, Keras
- **Hardware & Prototyping**: Linux, Arduino, Raspberry Pi, SolidWorks (3D Modeling)
- **Cloud & Big Data Ecosystem**: Amazon Web Services (AWS) – EC2, Lambda, S3, CloudWatch
- **Certifications**:
  - Machine Learning (A-Z): Hands-on Python & R in Data Science – Udemy
  - Power BI: Perform Analytics and Create Dashboards – Microsoft Learning Platform
  - Self estimation and localization (Robotics) - Coursera