AYUSH RAWAT

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EDUCATION

University at Buffalo, State University of New York — *Buffalo, NY, USA*
Master of Science in Robotics — Aug 2022 – Dec 2023

Jaypee Institute of Information Technology — *Noida, India*
Bachelor of Technology in Electronics and Communications Engineering — Jul 2016 – Aug 2020

SKILLS

Programming	Python, JAVA, MATLAB, SQL, JavaScript, C++
Libraries & Frameworks	PyTorch, TensorFlow, scikit-learn, Pandas, NumPy, Fast API, Streamlit
Tools	CUDA, Google Cloud, Vertex AI, Docker, OpenCV, Linux/Unix, LangChain
Robotics	ROS, ADAS, SolidWorks, Simulink, Fanuc, CAD, Rviz, Gazebo, Autonomous Robotics
AI Techniques	Natural Language Processing (NLP), Convolutional Neural Networks (CNN), Large Language Models (LLMs), Generative AI, Retrieval-Augmented Generation (RAG)

WORK EXPERIENCE

Artificial Intelligence Engineering Intern | Radical AI | USA — *March 2024 - Present*

- Developed ReX, an AI Coach utilizing OpenAI and Google Gemini, to provide personalized career coaching and mentorship, enhancing learner engagement and career development.
- Integrated Large Language Models (LLMs) to generate custom educational content, resulting in more efficient instructional design and assessment management for educators.
- Implemented comprehensive unit tests for core functions using PyTest, improving code reliability.
- Utilized Google Cloud and Vertex AI to set up AI projects, manage authentication, and deploy models.
- Integrated SDK authentication for secure access to cloud services, ensuring data privacy and security.

Associate Software Engineer | Accenture | India — *March 2021 – January 2022*

- Designed and implemented data models using SAP HANA Studio optimizing database performance and reducing data redundancy. Utilized SQL techniques for data storage, retrieval, and import processes.
- Conducted performance tuning and optimization techniques, including indexing and query optimization, resulting in faster data retrieval and improvement in system efficiency.
- Integrated Power BI for data visualization and reporting, creating interactive dashboards and reports.

PROJECTS

Gemini Quizify: Python, Google Cloud, Vertex AI — *LINK*

- Created an AI-powered assessment and quiz tool using Google Cloud, Vertex AI, providing instant feedback. Developed user-friendly interfaces with Streamlit for easy document upload and quiz generation.
- Implemented document ingestion, data pipeline, and embedding processes using LangChain and Chroma DB.

Reinforcement Learning with SARSA Algorithm: Python, NumPy, OpenAI Gym, Matplotlib — *LINK*

- Implemented a grid-based reinforcement learning environment using the SARSA algorithm, with custom rewards, penalties, and epsilon-greedy action selection for agent navigation and goal achievement.
- Optimized learning by tuning hyperparameters (alpha, gamma) and visualizing progress with decay plots.

Automated Lane Assist System: MATLAB, Simulink, ADAS

- Developed an Automated Lane Assist System using MATLAB, enhancing vehicle dynamics. Implemented robust control algorithms for automated lane keeping in Advanced Driver Assistance Systems (ADAS).
- Utilized Simulink for dynamic modeling and simulation, integrating control systems with real-time data.

Autonomous Robotics: MATLAB, ROS, Python, Gazebo, RVIZ

- Executed Path Programming and implemented A-star algorithm for path planning on Universal Robot UR3 in RVIZ. Implemented RANSAC algorithm for object detection in Gazebo using data obtained from LiDAR range finder.
- Used the line detected by RANSAC to implement Bug2 algorithms having wall follow and goal seek modes. Developed a pursuer and evader bot module and simulated it in ROS.