Aman Agarwal

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Skills

Languages: Python, C++, C, Java
Frameworks and Tools: Flask, GitHub, Linux, ROS2, OpenCV, Streamlit, MySQL, APIs, Dialogflow,Arduino
Libraries: Pandas, Tensorflow, Scikit-learn, Numpy, Mediapipe
Soft Skills: Team Management, Scheduling and Planning, Team Leadership, Presentation, Public Speaking, Problem Solving

Experience

Robotics and Circuits Student Project March 2023 – Present
Coding Domain *Manipal, Karnataka*

- Robot Simulations and Competitions: Utilized Gazebo and ROS2 to simulate various robotic scenarios. Participated in the VRX (Virtual RobotX) competition, where we automated a Wave Adaptive Modular Vehicle (WAM-V) and executed additional tasks, including object recognition in a simulated environment.
- Wearable Gait Analysis: Spearheaded a biomedical project titled "Wearable Gait," focusing on developing knee and ankle braces equipped with sensors like FlexiForce and IoT Arduino with integrated gyroscope and accelerometer. The project aimed to collect and analyze patient gait cycle data accurately while eliminating the need for expensive setups traditionally used for gait analysis .
- Maze-Solving Robotics: Developed and embedded pathfinding algorithms, such as A* and Dijkstra, into autonomous robots to efficiently solve complex mazes.
- Coordinated and managed a comprehensive training phase for junior students, aimed at imparting fundamental skills and facilitating ideation sessions. Ensured that the junior team members were well-prepared to engage in advanced student projects.

ISA Student Chapter Februaray 2023 – February 2024
AIML Domain *Manipal, Karnataka*

- Foundational Training: Completed a comprehensive task phase that provided a solid grounding in the fundamentals of data science and machine learning, equipping me with the necessary skills to tackle complex projects.
- Data Analysis Workshop and Competition: Participated in a data analysis workshop and competition, gaining practical experience in working with real-world datasets, performing exploratory data analysis, and developing machine learning models.
- Pneumonia Detection Model: Represented my college at the iACT 2023 competition held in Bangalore, where I presented a machine learning model designed to detect pneumonia from patient images with increased accuracy compared to traditional approaches.

Projects

Air-Glide | *Python, Flask, OpenCV, Mediapipe*

- Developed Air-Glide, a revolutionary web application that uses hand gestures to control desktop operations, transforming user interaction with PCs by eliminating the need for traditional hardware devices.
- Gesture Recognition and Web Development: Utilized OpenCV and MediaPipe libraries for recognizing hand gestures and Flask for developing the web application.
- Automation and Touchless Login: Integrated Google's Text-to-Speech and pyautogui libraries to automate mouse and keyboard signals, and employed a face recognition library for creating a touchless login system.
- Database Management: Used a MySQL database for data storage and management of login details, ensuring secure and efficient data handling.

Yatri-GPT | *Python, Flask, Llama API, Dialogflow*

- Developed Yatri GPT, an AI-powered chatbot leveraging speech recognition and natural language processing to provide comprehensive details about flights, restaurants, hotels, and nearby locations, as well as acting as a guide for image-based inquiries.
- Web Application Development: Created the web application using Flask, ensuring a robust and user-friendly interface.

- Chatbot Functionality: Powered backend development with Dialog Flow and LLaMA2 LLM API for enhanced chatbot capabilities and user interaction.
- API Integration and Audio Features: Integrated TripAdvisor and Google Maps APIs for location information, and utilized Google's Speech-to-Text and Text-to-Speech for an audio-based travel planning experience.

Software Developer Salary Prediction Web App | *Python*, *Pandas*, *Numpy*, *Streamlit*

- Developed a Software Developer Salary Prediction Web App using Streamlit, leveraging Stack Overflow 2023 data to enable users to explore and predict salaries based on specific criteria.
- Data Exploration: Interactive interface for exploring country-wise salary data with visualizations.
- Salary Prediction: Users input academic qualifications, country, and experience to get estimated salary ranges using machine learning models.
- Development: Built with Streamlit for a responsive user experience, utilizing latest Stack Overflow data for accurate predictions.

Education

Manipal Institute of Technology Expected July 2026

Bachelor of Technology in Computer Science with specialization in AIML (CGPA: 8.85 / 10.00) *Manipal, Karnataka*

- **Relevant Coursework:** OOPS, Data Structures, Operating Systems, Artificial Intelligence, DBMS(Oracle SQL), Algorithms, Data Analysis

Achievements

- Secured a **top 6** position in the Voice AI Hackathon organized by DaaS startup, showcasing the **Yatri-GPT** project.
- Presented the **Air-Glide** project at **Technoxian WRC 2023**.
- Showcased the **Wearable Gai**t project in the flagship Innovation Challenge at MIT Manipal.