### ****UJWAL WAGHRAY****

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### ****Education****

**SUNY Buffalo** | **MS in Engineering Sciences (Robotics)**  
Expected Graduation: May 2025

**SRM University, Chennai, India** | **Bachelor of Technology, Electronics & Instrumentation**  
Graduated: May 2018

### ****Skills****

* **Programming Languages:** Python, C++, Shell Scripting, Arduino-C
* **Robotics Frameworks:** ROS (ROS 1), Gazebo, RViz; Expertise in simulation, sensor integration, and visualization.
* **Path Planning & Navigation:** Algorithms like RRT, Bug 2, and wall-following for autonomous navigation.
* **Kinematics & Dynamics:** Forward/Inverse kinematics and trajectory tracking in joint/Cartesian spaces.
* **Computer Vision:** Object recognition, gesture recognition (TensorFlow/Keras), image processing (OpenCV).
* **Cloud & DevOps:** Microsoft Azure, Terraform, Azure DevOps, Docker, Kubernetes.
* **Data Science & Machine Learning:** Scikit-learn, TensorFlow, Pandas, Numpy, CNNs, and ANNs.
* **Tools & Frameworks:** Three.js, Flask, Angular, Seaborn, Matplotlib.

### ****Professional Experience****

#### ****Developer ThoughtWorks Technologies Pvt Ltd**** | Oct 2022 – Dec 2023

* **VR POC (Innovation Labs):** Developed VR environments for fashion retail using Unity3D and Blender. Deployed on Meta Oculus Quest 2.
* **Polaris (Front-End):** Designed a responsive UI using HTML5, CSS, and Angular for an internal asset tracking system.
* **Catalyst (Infrastructure):** Automated deployment pipelines using Terraform and Azure DevOps. Explored Argo for continuous deployment.
* **Crop Recommendation Engine:** Led a team to build a machine learning engine recommending crops using SVM, KNN, and Naïve Bayes, addressing challenges for underprivileged farmers.

#### ****Intern Innodatatics Pvt Ltd**** | Jan 2022 – Apr 2022

* Developed a personalized job recommendation system using collaborative filtering and Scikit-learn.
* Visualized market trends using Matplotlib and Seaborn.
* Built a Flask-based web interface for seamless user interaction.

#### ****Device & Alexa Support Associate Amazon Development Centre Pvt Ltd**** | Sep 2019 – Dec 2019

* Provided detailed diagnostic support for Alexa devices.
* Conducted root cause analysis to address recurring issues effectively.

### ****Projects****

#### ****Leaf Disease Detection System****

* Developed a CNN-based system for identifying six leaf diseases using ResNet50 and EfficientNetB0.
* Achieved 80% validation accuracy with data augmentation techniques.
* Created a GUI for real-time testing and deployed it on GPU-enabled devices for agricultural applications.

#### ****Real-time Face Recognition and Attendance Tracking****

* Implemented a Python-based system using OpenCV and face\_recognition library.
* Automated attendance tracking with CSV logging.

#### ****Autonomous UGV for Agricultural Data Collection****

* Designed a UGV equipped with NPK sensors and remote control via Raspberry Pi.
* Visualized environmental data with a Python-based dashboard.
* Established robust wireless communication using NRF24L01 transceivers.

#### ****Airbnb Price Prediction & Analysis****

* Built regression models and conducted EDA to predict rental prices.
* Integrated sentiment analysis of guest reviews using TextBlob.

#### ****Automated CNC Plotting Machine****

* Developed a scalable precision farming system using Arduino Mega 2560.
* Integrated sensors for soil and crop monitoring with stepper motors for automation.

### ****Achievements****

* **ThoughtWorks Innofest Winner:** Recognized for developing the Crop Recommendation Engine.
* **Robotics Competitions:** Consistently demonstrated leadership in academic and professional robotics challenges.