Syed Ahmad Shah

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EDUCATION

Stevens Institute of Technology **Hoboken, NJ**

Bachelor of Engineering in Software Engineering, *Computer Science* Minor | GPA: 3.8/4.0 *Expected May 2025*

- **Relevant Coursework:** Data Structures and Algorithms, Data-Mining & Applied Machine Learning, Object-Oriented Software Engineering, Logistics & Supply Chain Management, Software Design
- **Activities:** Software Engineering Club, Robotics Club, Launchpad (Startup Assistance Organization), Hackathon Mentor

WORK EXPERIENCE

National Science Foundation **Miami, FL**

Machine Learning Intern *June 2024 – September 2024*

- Developed an AI-driven drone system by integrating a YOLOv8 object detection, bytetracker algorithm and a real-time facial recognition pipeline—achieving 92% detection accuracy and 40% reduced latency—to accurately identify, track, and geolocate individuals to emergency services.
- Created a reinforcement learning algorithm utilizing agents trained in Airsim physics environment using a Deep Q-Network implemented using Stable Baselines architecture, coordinating drones to avoid obstacles in a complex city environment
- Engaged within a cross-functional team of 6 engineers, facilitating bi-weekly stand-ups, sprint reviews and retrospectives, to manage iterative sprint cycles for AI-driven drone development

Machine Learning Intern *May 2024 – August 2024*

- Spearheaded development of a machine learning pipeline for grape phylloxera detection, achieving 70% detection accuracy and a 0.9 F-score on classification
- Developed and optimized a segmentation workflow using Segment Anything Model (SAM) and Deeplabv3 to isolate infected leaf regions, improving model precision by 15% and cutting inference time by 40% compared to baseline approaches

Department of Civil, Environmental, and Ocean Engineering **Hoboken, NJ**

Software Developer Intern *Sept 2023 – May 2024*

- Designed a self-sustaining offshore monitoring power system, managing project requirements and supported budget estimates accelerating hardware procurement and development.
- Created comprehensive project documentation—including bills of materials, production cost analysis, and implementation timelines spanning over 60 pages, encompassing more than 10 critical hardware components, and fostered proactive stakeholder engagement
- Developed a real-time telemetry system, using Radio Frequency modules for remote data acquisition over distances up to 2km.
- Designed a modular codebase involving Python and C++ supporting four interchangeable IoT sensors, reducing firmware integration time for new sensors by 50%

Launchpad **Hoboken, NJ**

Full-Stack Developer Intern *Sept 2022 – May 2023*

- Engineered a Python-based drone tracking system using YOLOv5 for object detection and MediaPipe for real-time gesture controls, achieving over 95% detection accuracy with intuitive remote operation
- Built an interactive Python dashboard to visualize real-time drone telemetry and predicted suspect trajectories—streamlining data ingestion, enabling dynamic filtering of live feeds, and reducing operator response time
- Authored and presented strategic business plans—covering market analysis, value proposition, and financial forecasts—that secured interest from 8 individual investors and contributed to obtaining initial prototype funding

PROJECTS

Cognitive Assistance with LiDAR Localization (C-ALL)—*Mobile Application Developer* *Oct 2024 - Current*

- Developed an iOS Augmented Reality navigation assistance system for the visually impaired using Swift, ARKit, and RealityKit, implementing real-time obstacle detection and avoidance through Lidar depth sensing and AR mesh analysis, achieving 90% obstacle avoidance accuracy with a 130 ms scene update rate
- Engineered a geospatial tracking system utilizing CoreLocation and ARGeoTracking for sub-meter accuracy, relaying information through a haptic glove device controlled by a Raspberry Pi 4

Fitbit Web App—*Full Stack Developer* *Jan 2024 – May 2024*

- Created a web application in React Native with the Fitbit API, enabling health professionals to monitor patients and access key metrics for analysis, resulting in improved patient monitoring and data-driven insights

LIDAR Positioning System—*Software Developer* *Sep 2023 – Dec 2023*

- Engineered a vehicle navigation system integrating LIDAR and ultrasonic sensor data into a C++ driven serial network to accurately locate vehicles, guiding them safely toward targets while avoiding potential hazards in a mock city-like environment

TECHNICAL SKILLS

Programming Languages: Python (Pandas, Numpy), C++, Java, Javascript, React.js, HTML/CSS, Swift, SQL

Tools and Frameworks: Github, Docker, MongoDB, PowerBI, Tensorflow, Pytorch, OpenCV, NumPy, scikit-learn, JUnit, Node.js, Jetbrains utilities, Microsoft 365, MATLAB, Git, Eclipse, Amazon Web Services, Microsoft Server Management Studio, LTSpice, Latex

Skills: Project Management, Data Analysis, Project Estimation, Client Communication, Machine Learning, Devops, UI/UX, UML Modeling

Certifications: AT&T Technology Academy (Agile Methodology)