

Full-Stack Intern (AI & Digital Twins)

Role: Full-Stack Intern

No of opening: 1 Intern

Required Qualifications

- **Education:** Pursuing/ completed Bachelor's or master's degree in computer science engineering, Electrical engineering, Electronics & Communication Engineering or any related Field.
- **Experience:** Demonstrated experience in executing AI integrated industry-relevant projects
- **Tenure:** 2 months
- **Salary:** 25,000/month

Location: Kozhikode, Kerala

About Us: Airawat Research Foundation (ARF) is a Section 8 company established to advance a mission of national importance leveraging AI for sustainable urban transformation. ARF serves as the institutional vehicle for the prestigious Centre of Excellence in Artificial Intelligence for Sustainable Cities, led by IIT Kanpur, under the aegis of a consortium selected by the Government of India.

Nireekshan AI Dynamics Pvt Ltd is a pioneer in AI based smart structural inspection, leveraging advanced Unmanned Aerial Vehicles (UAVs) and Internet of Things (IoT) technologies. We specialize in the inspection of critical infrastructure, including Bridges, Dams, Landslides, Towers and Transmission lines, ensuring safety and longevity through high-precision data acquisition and analysis.

The Role

We are seeking a highly skilled and experienced Full-Stack Developer Intern with a specialization in to be a foundational member of our engineering team. You will be responsible for mainly designing and deploying the core web platform, with a critical focus on the real-time visualization and interaction with animated 3D computer graphics in a web browser. This role demands a unique blend of robust full-stack development expertise and deep knowledge of modern web-based 3D rendering technologies.

Key Responsibilities

1. 3D/WebXR Platform Development

- Design and maintain the 3D rendering pipeline for our core web platform using modern technologies like Three.js, Babylon.js, Cesium.js and WebGL/WebGPU.

- Optimize the loading, rendering, and interaction with large-scale 3D models (including use of GLTF loader, orbit controls, point cloud data, decimation, and raycasting techniques).

2. Full-Stack Development & Architecture

- Aid in development of the front-end interface, ensuring a seamless, high-performance user experience using modern frameworks (e.g., Next.js/React.js) and responsive design libraries (Tailwind CSS/Bootstrap).
- Develop and maintain robust, scalable back-end services using Node.js/Express.js or Python frameworks (FastAPI/Django/Flask).
- Design and manage databases (PostgreSQL, MongoDB, Firebase), ensuring efficient data storage and retrieval for structural health reports.

3. Data Integration and DevOps

- Integrate third-party APIs using RESTAPI principles and maintain code integrity using GIT/GitHub workflows.
- Deploy, manage, and scale the application infrastructure on local servers like Apache/Nginx servers and containerization using Kubernetes/Docker
- Manage hosting environments, including domain connection and cPanel operations.
- Implement advanced features, including LLM integration for insightful data querying and AI-based computer vision algorithms for structural analysis.

4. Core Competencies & Mindset

- Proven ability to take ownership of complex technical challenges and quick learner.
- Excellent problem-solving and analytical skills focused on optimizing application speed and performance.
- Strong verbal and written communication skills in collaborating with team and coordination.
- A strong passion for applying technology to real-world, high-impact national infrastructure challenges.