Part 3: Futuristic Proposal (10%)

AI-Guided Climate Restoration Drones (2030)

Problem It Solves:

By 2030, climate change is expected to accelerate extreme weather, biodiversity loss, and food insecurity. Traditional carbon removal and reforestation efforts are often slow, manually intensive, and hard to scale. There is an urgent need for autonomous, AI-guided environmental restoration systems that operate at scale, especially in hard-to-reach areas.

Proposed AI Application:

"EcoDrones 2030" – a fleet of autonomous, AI-powered drones designed to detect degraded ecosystems and replant native vegetation, optimize carbon sequestration, and restore biodiversity.

AI Workflow:

Component	Description
Data Inputs	Satellite imagery, drone-mounted cameras, LIDAR, soil sensors, carbon maps

AI Model Type

- CV Model (CNN) for terrain classification & plant species detection
- Reinforcement Learning for dynamic drone flight planning|
- Site-specific restoration plans
- Autonomous drone path optimization

Societal Benefits:

- Biodiversity Recovery: Reintroduces native species based on ecosystem modeling
- Job Creation: New roles in AI-environmental monitoring, drone engineering, and data ethics

Societal Risks:

- Algorithmic Bias: AI may favor regions with more data, neglecting marginalized zones
- Job Displacement: May reduce manual reforestation jobs without reskilling programs
- Surveillance Concerns: Drones collecting geospatial and environmental data may raise privacy issues

Conclusion:

EcoDrones 2030 envisions an era where AI becomes a steward of the planet—restoring what humans have damaged, while operating ethically and transparently for all communities.