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DATA SCIENCE

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<https://github.com/ArpanC03/GuviProject3DataScience>



Multi-Species Survival Prediction System

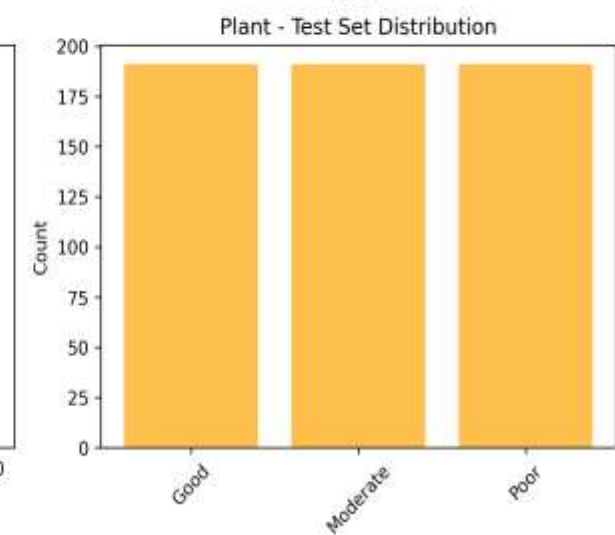
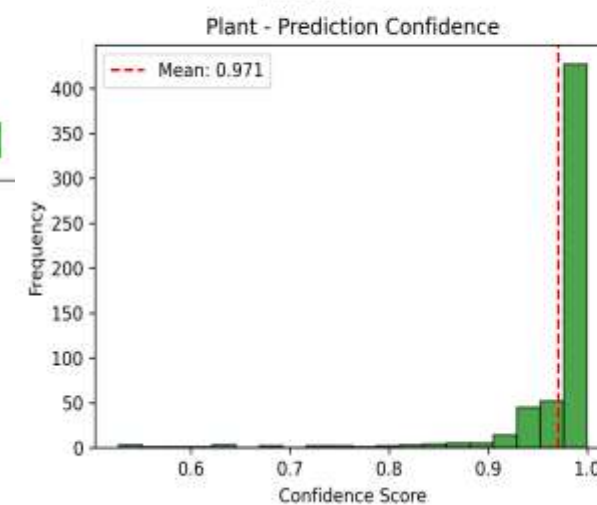
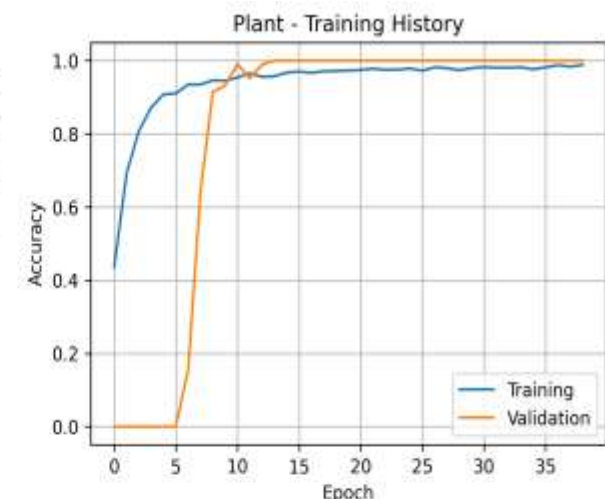
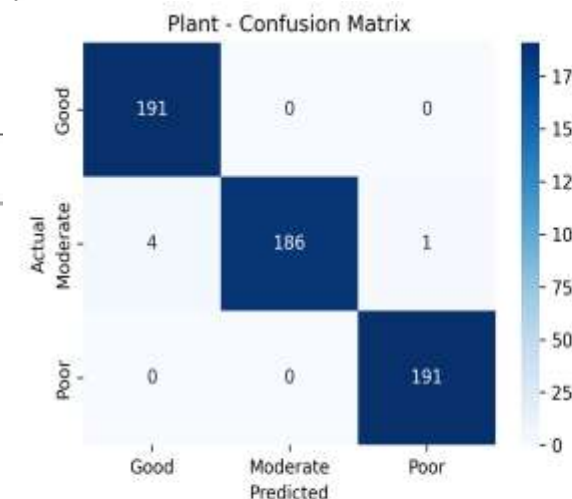
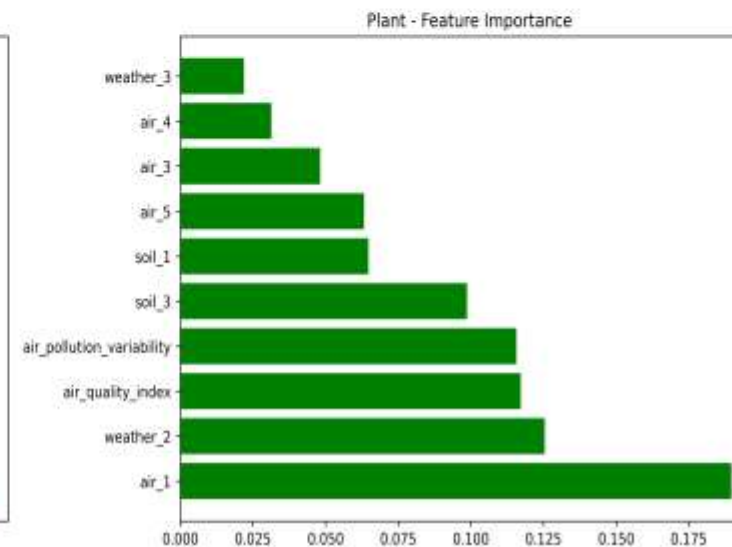
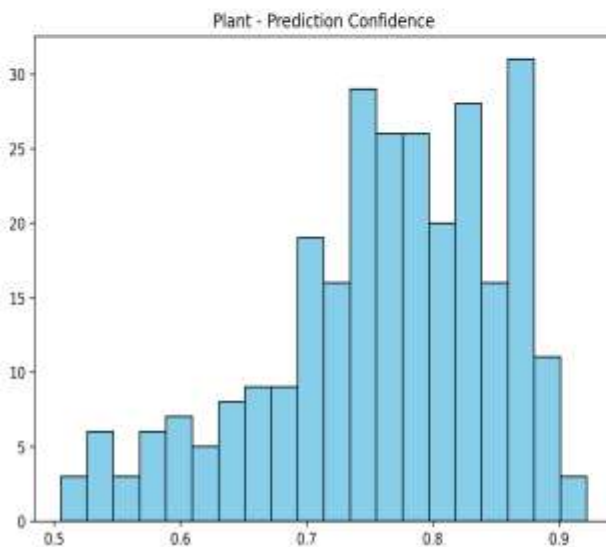
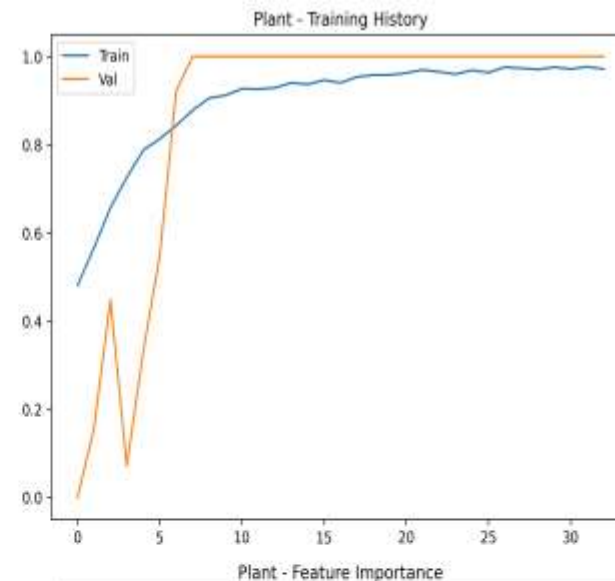
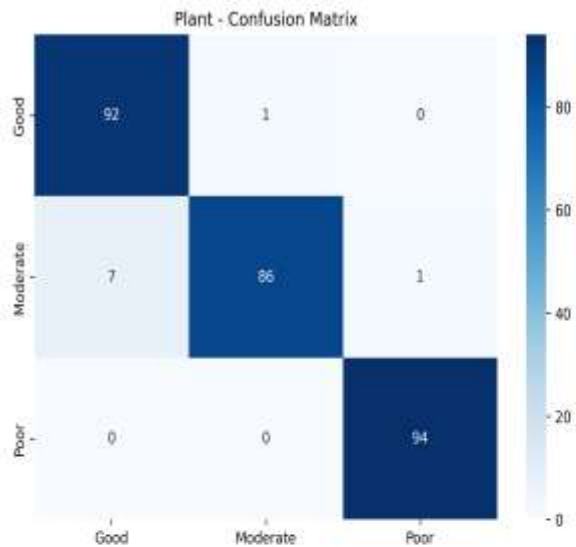
Multi-Species Survival Prediction integrates air quality, weather condition, soil quality, type of soil, water quality, water availability and personal health data to forecast environmental suitability for plants, animals, and humans. Using deep learning, it provides real-time ecosystem and health risk insights for sustainable environmental and public health management.

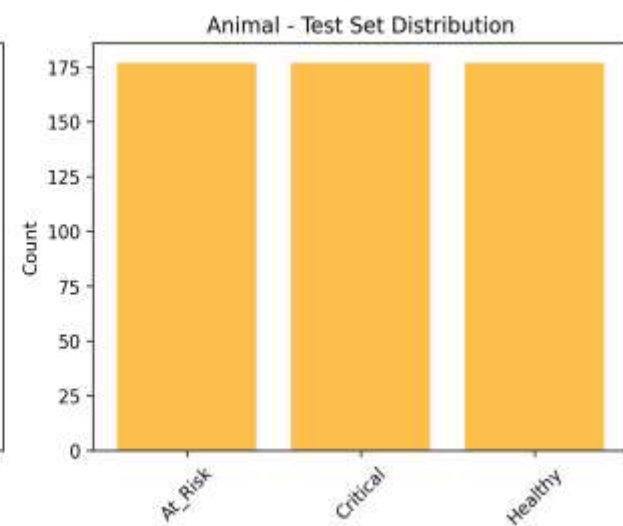
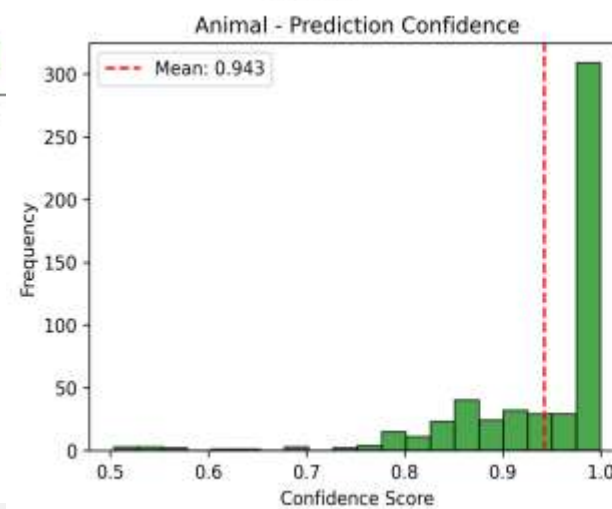
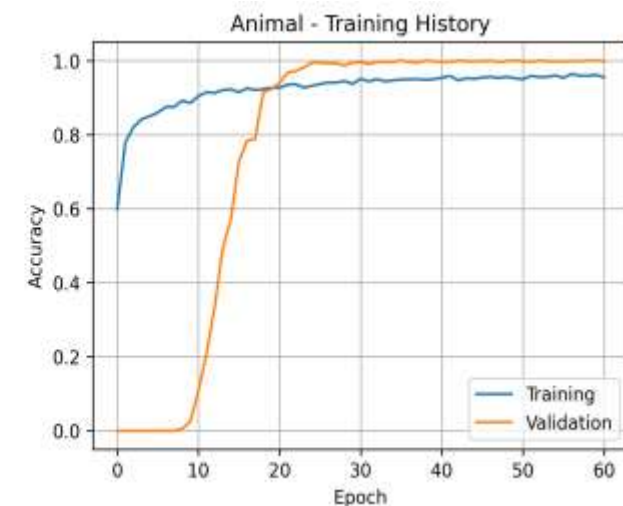
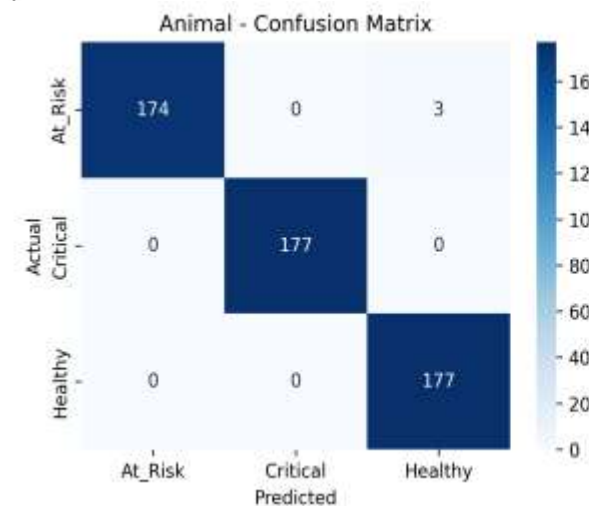
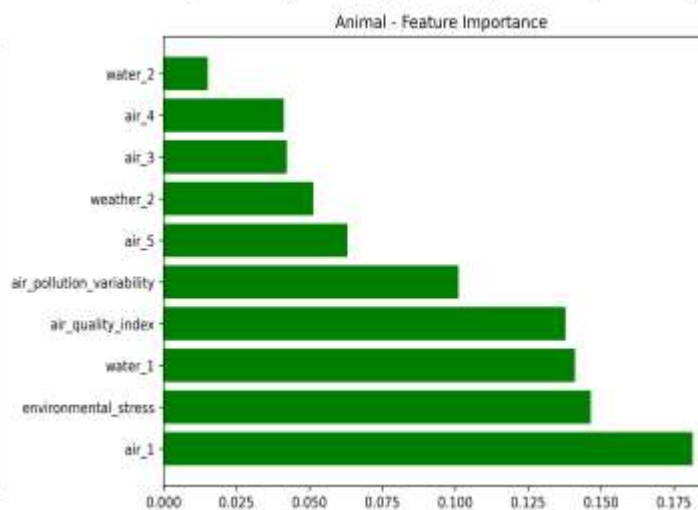
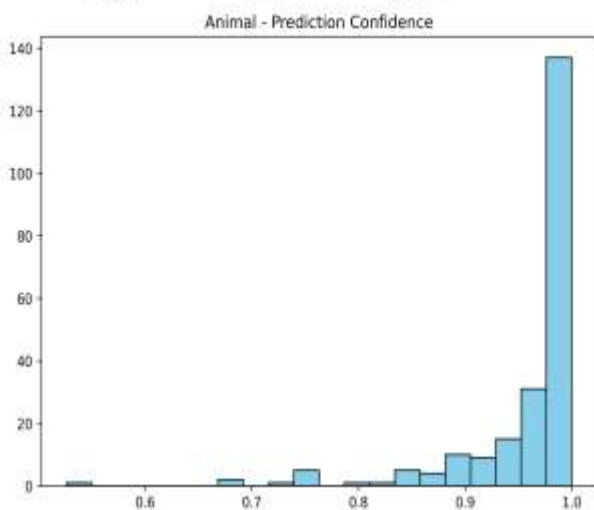
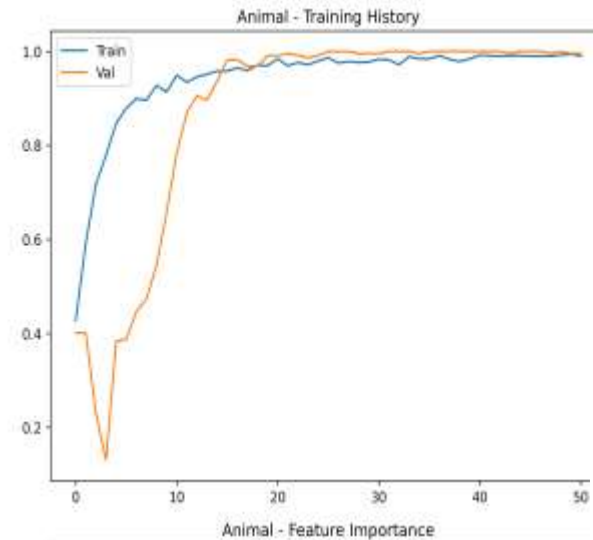
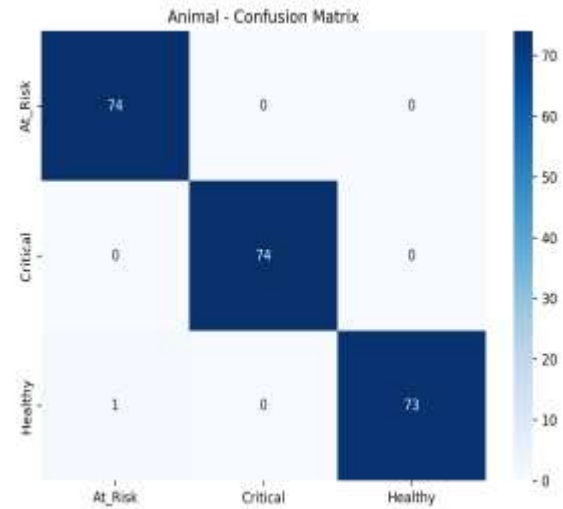


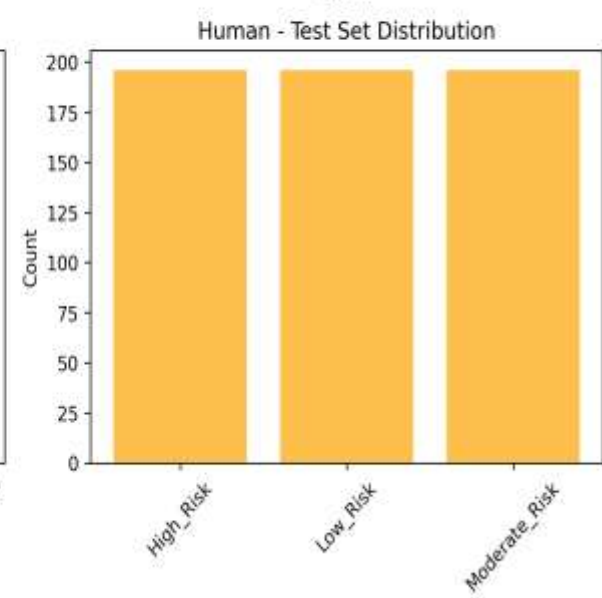
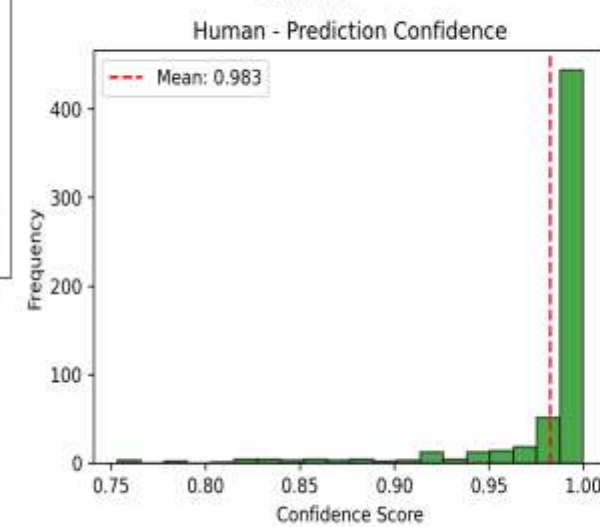
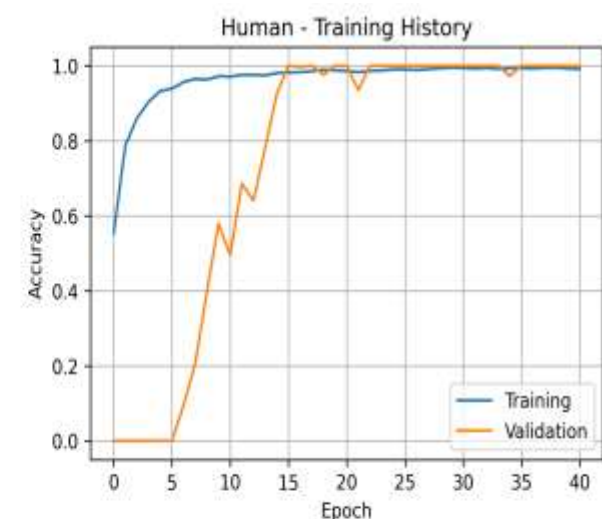
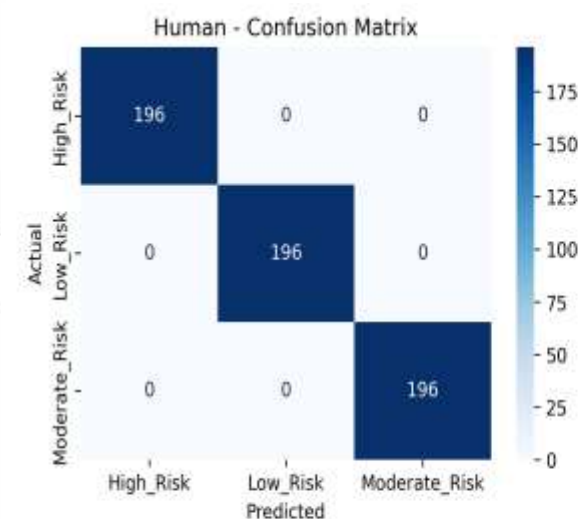
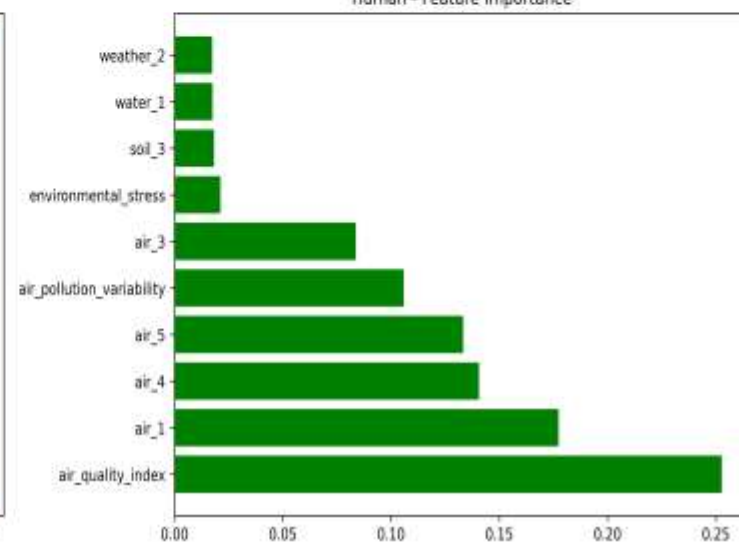
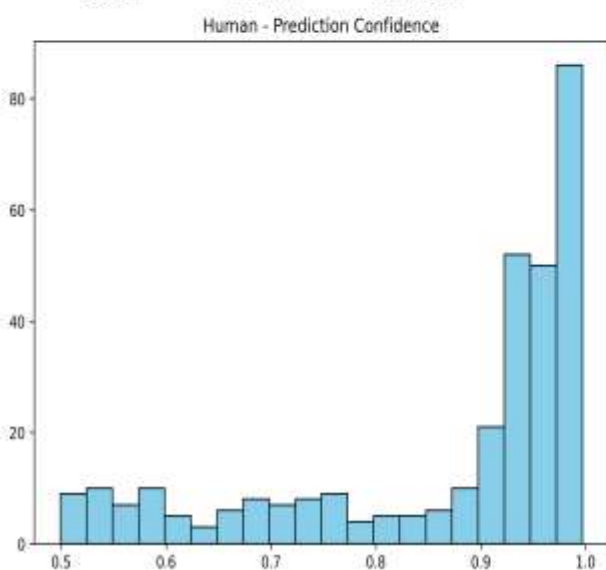
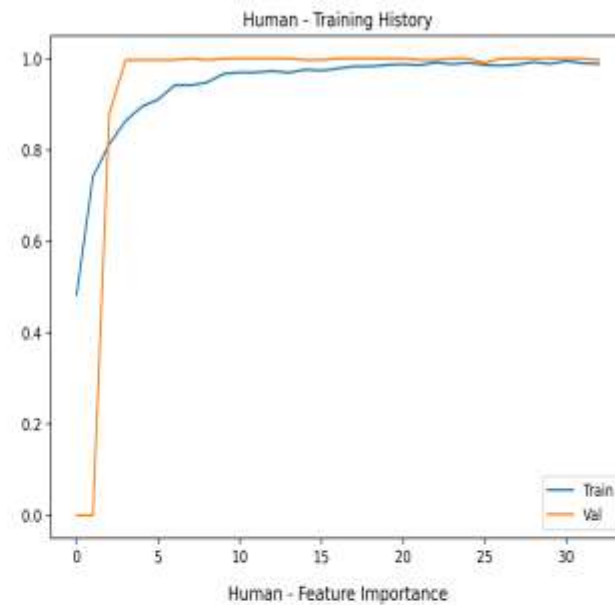
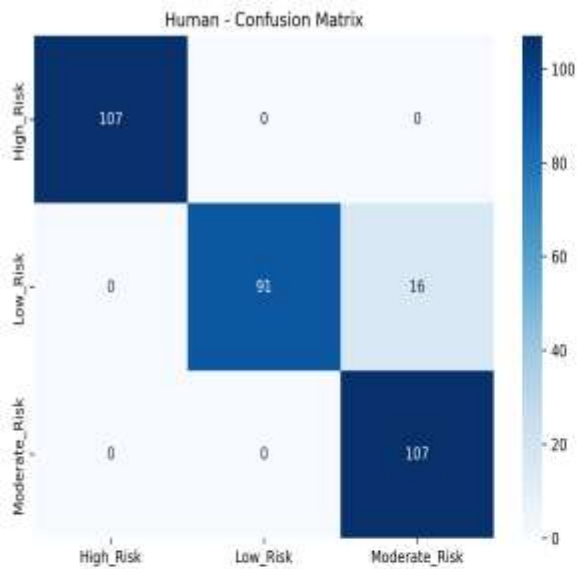
Project Goals & Motivation

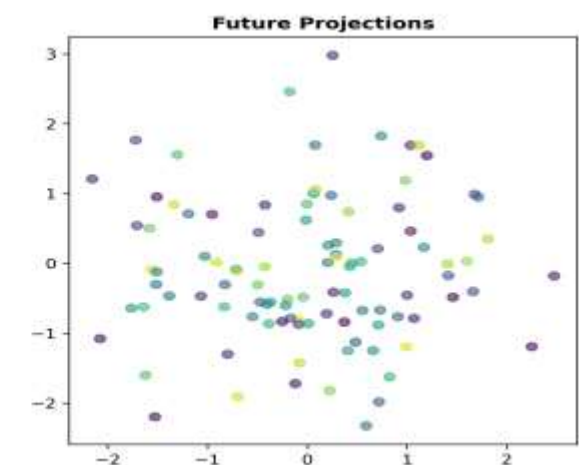
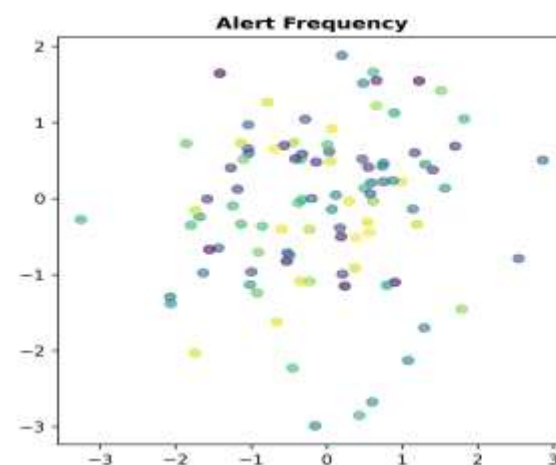
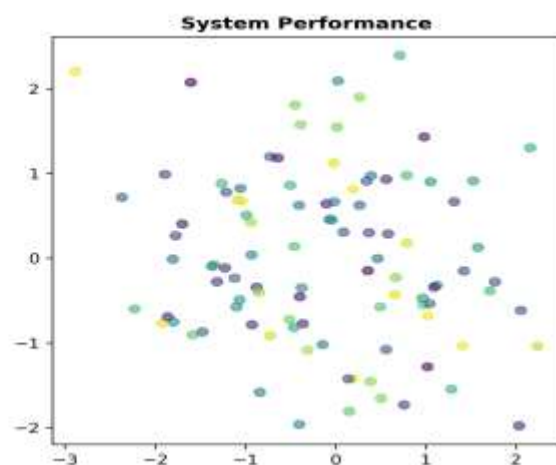
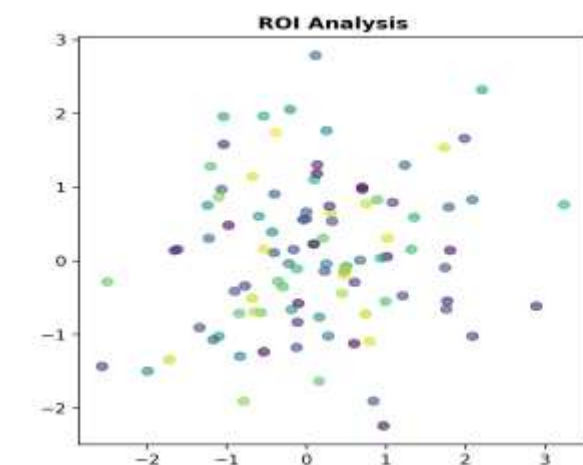
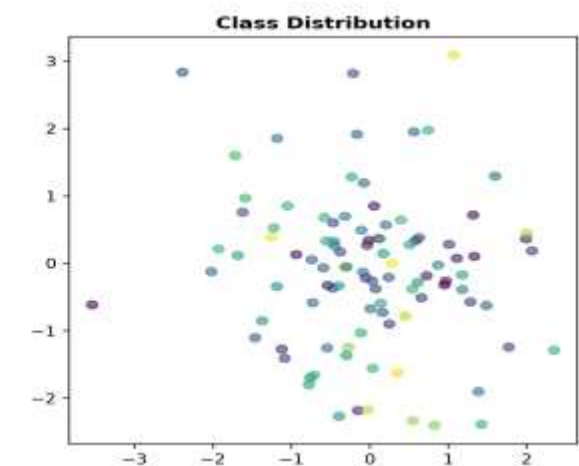
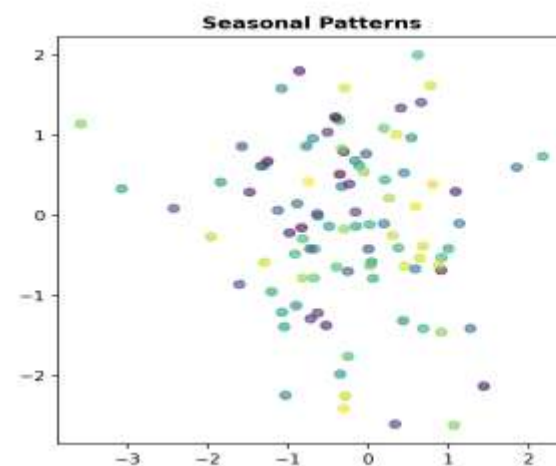
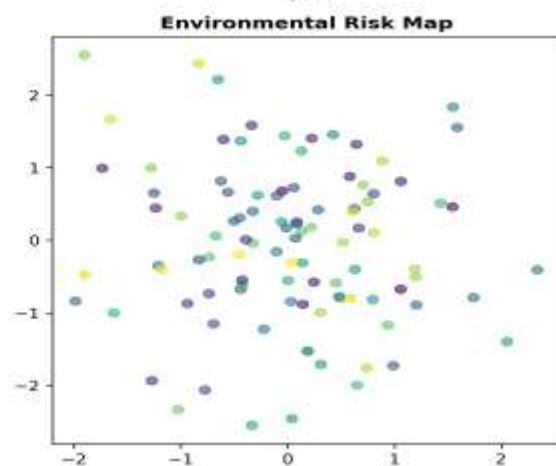
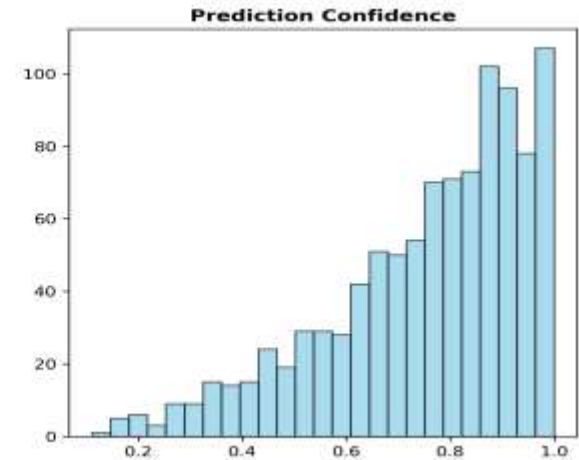
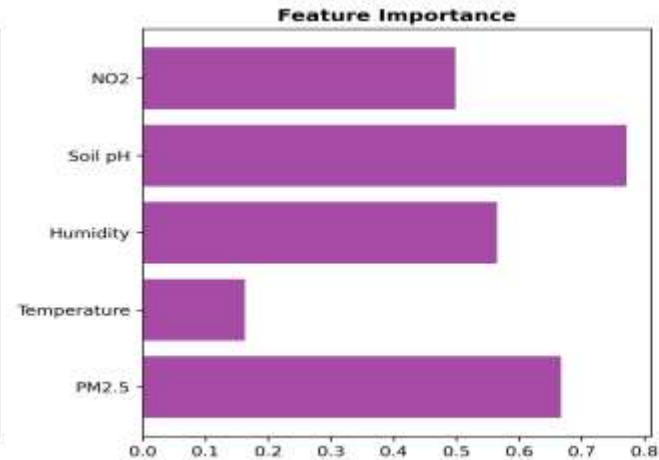
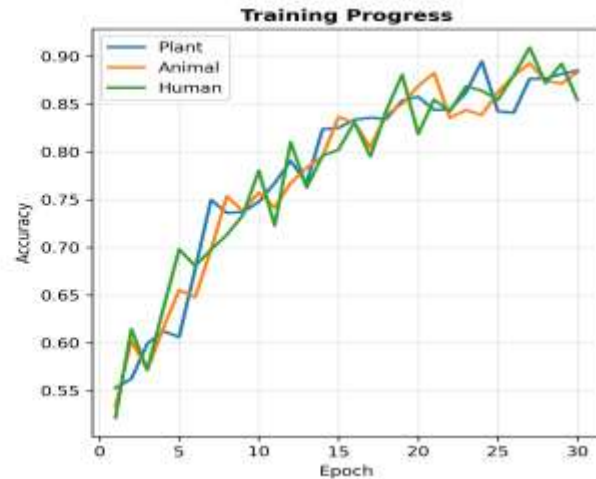
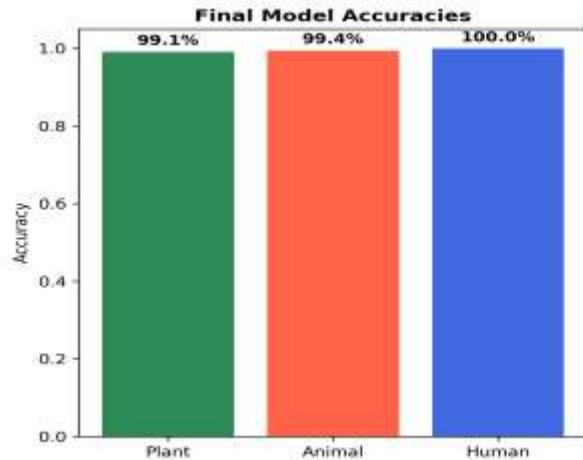
- Develop robust health status prediction models for plants, animals, and humans.
- Handle imbalanced datasets using SMOTE for fair class representation.
- Build superior CNN architectures with ensemble learning for improved accuracy.
- Provide comprehensive evaluation and interpretability through explainability methods and feature importance.
- Deliver interactive and insightful visualizations for environmental monitoring and decision support.





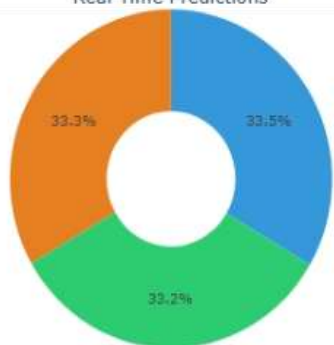




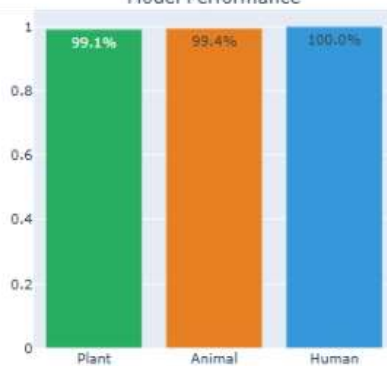


Multi-Species Environmental Intelligence Dashboard

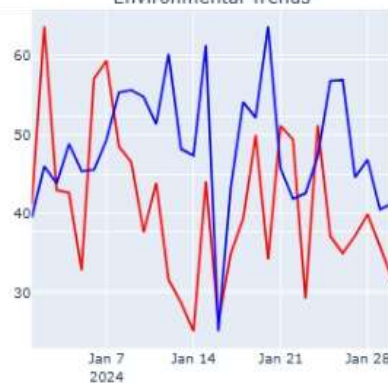
Real-Time Predictions



Model Performance



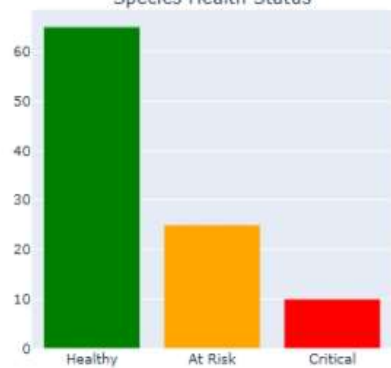
Environmental Trends



Risk Assessment



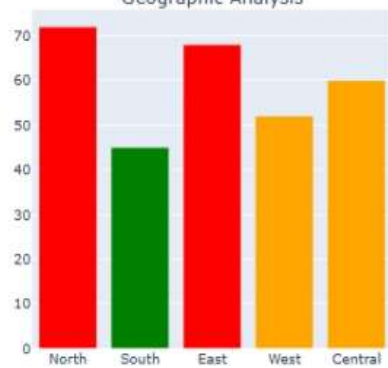
Species Health Status



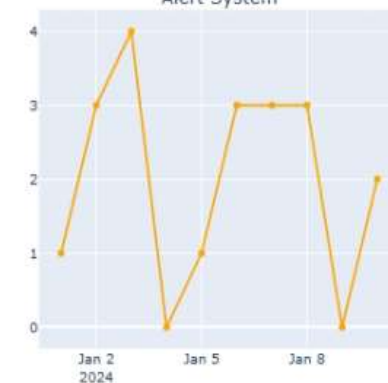
Confidence Levels



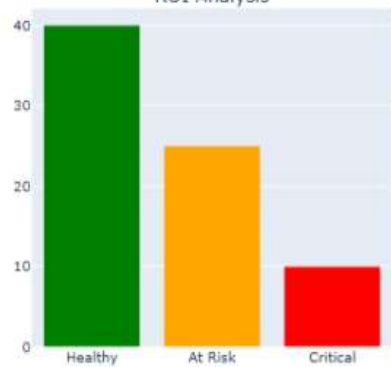
Geographic Analysis



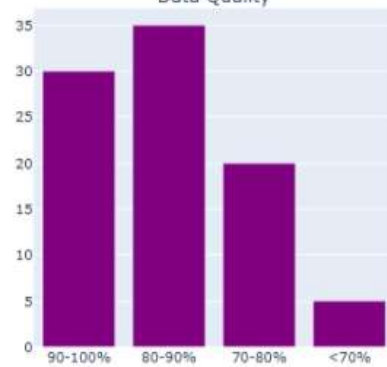
Alert System



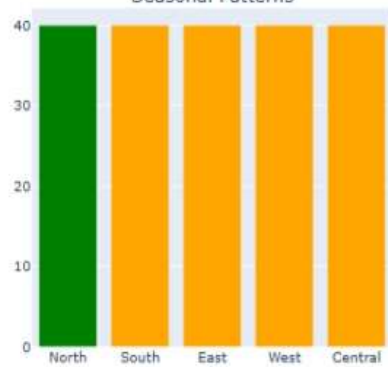
ROI Analysis



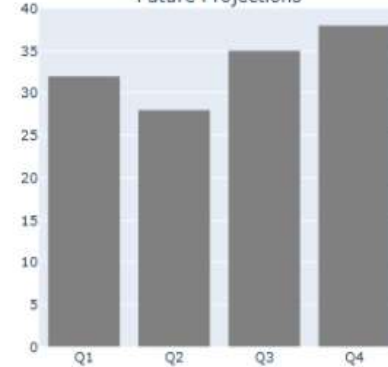
Data Quality



Seasonal Patterns

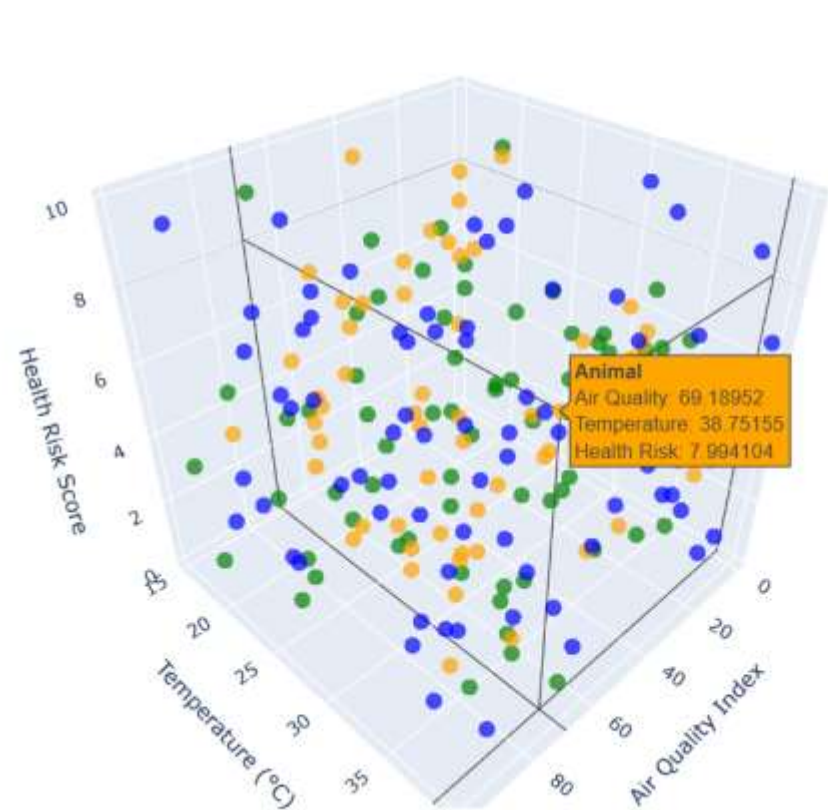


Future Projections

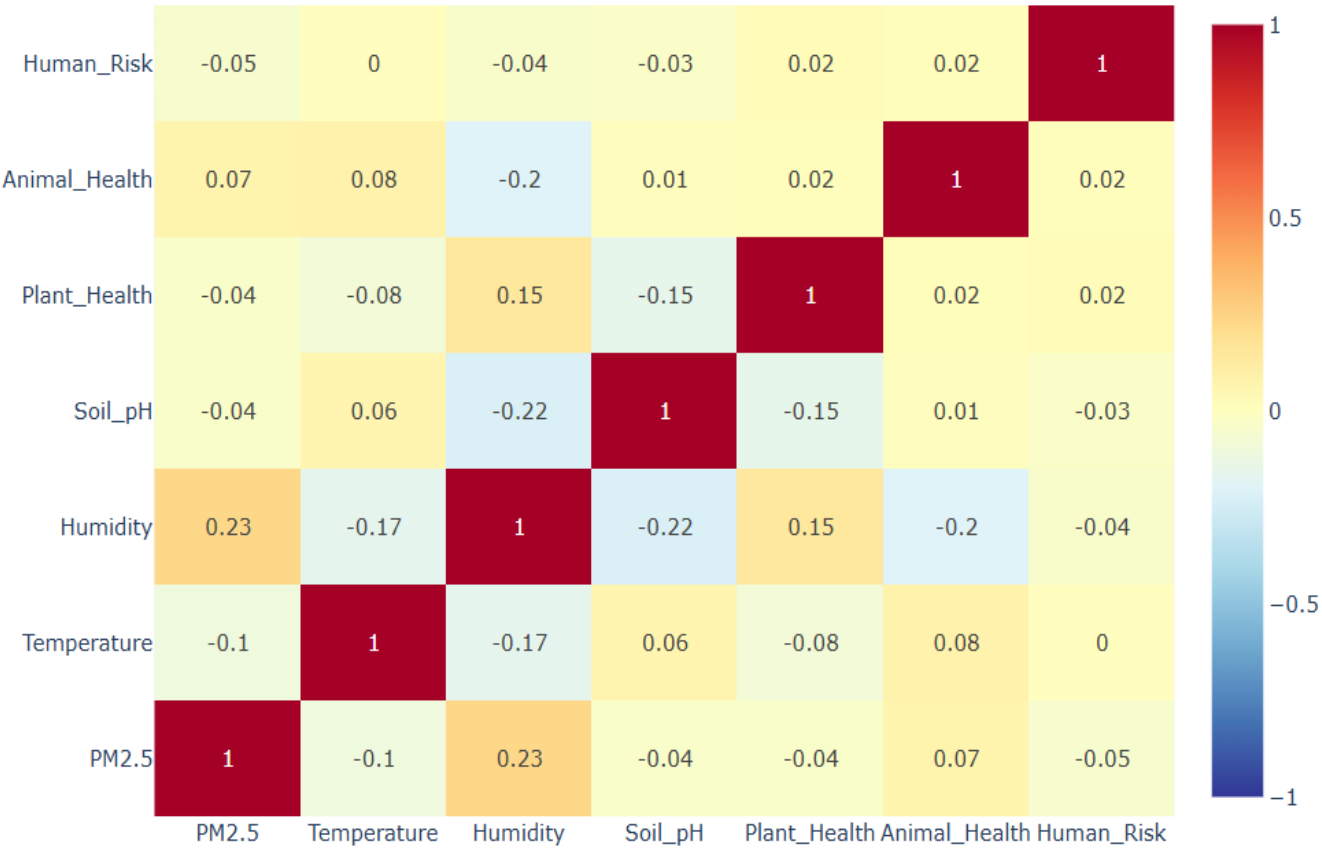


- Human
- Animal
- Plant
- trace 1
- PM2.5
- Temperature
- trace 5
- trace 6
- trace 7
- Alerts
- trace 9
- trace 10
- trace 11
- trace 12

3D Multi-Species Environmental Risk Assessment



Environmental Factors Correlation Matrix





Thank You

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