



Fig. 1 Ohio River Flood Visualization

Overview

- Flood visualization in 3D using Augmented Reality (AR) through a slider to change water elevation (Fig. 1)
- Provides improved visualization of coastal storm damages for assessment.
- Real-time flood detection with flooded area segmentation in images and videos using advanced AI Computer Vision (Fig. 2)
- Accurate 3D visualization of advanced physics-based HEC-RAS modeling (Fig. 3)

Features

- Interactive water-elevation slider to explore varying inundation levels and potential damage zones.
- Immersive visualization using Google tiles for a photorealistic view, showing city-scale models of structures, flora and water bodies.
- Advanced AI driven flood detection using images and videos from CCTV and traffic cameras.
- Dynamic simulation engine powered by HEC-RAS for precise 1D/2D and 3D modeling.
- Augmented Reality (AR) driven visualization tools to evaluate risk, response strategies, and infrastructure impacts.



Fig. 2 Flood Detection Using Advanced AI

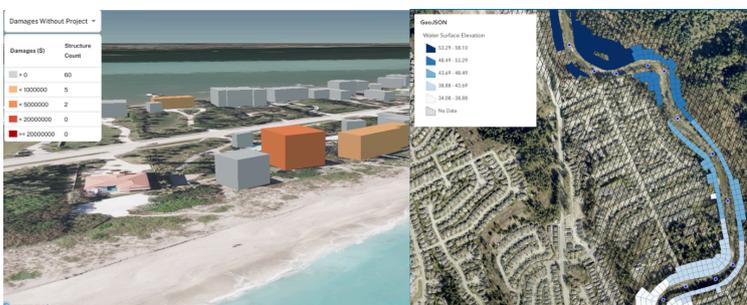


Fig. 3 Visualization of HEC-RAS Results in 3D

Advantages

- Allows for tabletop exercises resulting in better emergency preparedness.
- Reduces response times and supports proactive flood mitigation.
- Builds resilience through predictive modeling of catastrophic scenarios.
- Identifies at-risk infrastructure, strengthens long-term flood mitigation strategies, and builds resilient communities.