

Floodnet: Classification for Post Flood Scene with a High-Resolution Aerial Imaginary Dataset

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Abstract : Emergency response and recovery operations are severely hampered by natural catastrophes, especially floods. Understanding post-flood scenarios is essential to disaster management because it facilitates quick evaluation and decision-making. To this end, we introduce FloodNet, a brand-new high-resolution aerial picture collection created especially for comprehending post-flood scenes. A varied collection of excellent aerial photos taken during and after flood occurrences make up FloodNet, which offers comprehensive representations of flooded landscapes, damaged infrastructure, and changed topographies. The dataset provides a thorough resource for training and assessing computer vision models designed to handle the complexity of post-flood scenarios, including a variety of environmental conditions and geographic regions. Pixel-level semantic segmentation masks are used to label the pictures in FloodNet, allowing for a more detailed examination of flood-related characteristics, including debris, water bodies, and damaged structures. Furthermore, temporal and positional metadata improve the dataset's usefulness for longitudinal research and spatiotemporal analysis. For activities like flood extent mapping, damage assessment, and infrastructure recovery projection, we provide baseline standards and evaluation metrics to promote research and development in the field of post-flood scene comprehension. By integrating FloodNet into machine learning pipelines, it will be easier to create reliable algorithms that will help politicians, urban planners, and first responders make choices both before and after floods. The goal of the FloodNet dataset is to support advances in computer vision, remote sensing, and disaster response technologies by providing a useful resource for researchers. FloodNet helps to create creative solutions for boosting communities' resilience in the face of natural catastrophes by tackling the particular problems presented by post-flood situations.

Keywords : image classification, segmentation, computer vision, nature disaster, unmanned arial vehicle(UAV), machine learning.

Conference Title : ICBDC 2024 : International Conference on Big Data Computing

Conference Location : Amsterdam, Netherlands

Conference Dates : February 05-06, 2024