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Review Report

Advanced environmental scene recognition: ecological essence

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ABSTRACT

Environmental scene recognition plays a vital role in sustainable development, aiding in real time monitoring of ecological regions and enabling automated systems to make environmentally responsible decisions. Existing systems often suffer from limited dataset diversity, lack of generalization to unseen environments, and inadequate accuracy in identifying complex ecological scenes. The proposed system introduces a deep learning based multi modal architecture that integrates visual and spectral data for enhanced scene recognition. This model is trained on an expanded dataset including diverse biomes, seasonal variations, and environmental anomalies. Initial results show improved classification accuracy and reduced misclassification of ambiguous scenes. This advancement contributes to smarter ecological monitoring systems, promoting proactive environmental conservation.

Keywords: Environmental scene recognition,, deep learning, dataset diversity, environmental anomalies, smart monitoring, conservation.

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