

Deep learning methods for small object detection

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Abstract:

In the growing field of computer vision, detecting small objects presents a unique set of challenges, largely due to their low resolution and lack of discernible features when compared to larger objects and the background. This research aims to bridge the gap in existing deep learning methodologies by developing more robust and efficient algorithms specifically tailored for small object detection. The significance of this study is underscored by the growing demand for precise and reliable detection in various practical applications, such as enhanced surveillance systems, where the identification of distant or small objects can be crucial for security purposes. Similarly, accurately detecting small objects like vehicles or infrastructure developments in satellite imagery analysis can provide valuable insights for urban planning and environmental monitoring. Another noteworthy application lies in the agricultural sector, where detecting small objects, such as pests or crop diseases, using drone or satellite imagery could revolutionize precision farming practices. This research will not only contribute to the theoretical advancements in the field of deep learning but also has the potential to impact diverse real-world applications by enabling more accurate and efficient small object detection.

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