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Review Report

Bone Fracture Detection in Real Time with YoloV8

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ABSTRACT

A crucial application in the fields of computer vision and artificial intelligence is **automated bone fracture detection**, which aims to enable machines to accurately identify fractures in X-ray images despite variations in bone structure, orientation, and image quality. Traditional methods relied on manually crafted features and rule-based image processing techniques, as well as early machine learning models such as Support Vector Machines (SVM) and Decision Trees. While these models performed reasonably well in controlled environments, they often failed to generalize effectively to complex real-world medical imaging due to variability in fracture appearance, overlapping anatomy, and imaging noise.

The advanced fracture detection system presented in this project is based on **YOLOv8l**, a state-of-the-art object detection model that leverages **deep learning** and learn spatial features from raw X-ray images. YOLOv8l is highly effective for real-time image detection tasks due to its fast inference speed and high accuracy, making it ideal for clinical applications.

Keywords: YOLOv8l, Bone Fracture Detection, Deep Learning, Medical Imaging, Real-Time Detection, Accuracy, Adaptability

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