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## Alzheimer's and Parkinson's Diagnosis with YOLO Models

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In the field of healthcare, accurate diagnosis of neurological diseases is critical for detecting diseases at an early stage. This study aims at accurate and fast diagnosis of Alzheimer's and Parkinson's diseases using Magnetic Resonance (MR) images. For this purpose, the latest versions of the YOLO (You Only Look Once) algorithm, YOLOv8 and the experimentally developed YOLOv11 models are used. The dataset "enfermedades\_cerebro-uagpl" was obtained from the Roboflow platform and contains images of Alzheimer's, Parkinson's and normal brain.

The results show that the YOLOv11 model offers higher accuracy and generalization capability, with an accuracy of 100%. The YOLOv8 model performed comparatively poorly with a success rate of 89.7%. The evaluation of the models is based on accuracy, mAP and other statistical metrics. The results show that YOLO algorithms provide an effective and fast solution, especially in the field of medical imaging.

This study highlights the potential of deep learning techniques in neurological disease diagnosis and increases the importance of AI-based diagnostic systems in future healthcare applications.

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