

Abstract

With the rapid growth of the world coffee market, maintaining the quality of coffee beans is important. Quality control of coffee beans can be done by detecting defects in green coffee beans. In general, previous studies applied classification methods and were limited to one coffee bean or several spaced coffee beans. However, this study uses a different approach, namely using the Detection Transformer (DETR) to detect defects in a group of Arabica green coffee beans and compare it with the You Only Look Once version 8 (YOLOv8) method. The implementation of the DETR model shows that the model can detect defects outside of the annotated and non-overlapping ones. Meanwhile, YOLOv8 excels in speed and lack of false positives. This research not only focuses on the importance of detecting defects in Arabica green coffee beans but also introduces a new approach to achieve this goal through the DETECTION TRANSFORMER (DETR). By comparing it with the You Only Look Once version 8 (YOLOv8) method, this research reveals the various strengths and contributions of these methods in detecting defects, providing new insights for the quality assurance process of coffee beans in the ever-evolving global market.

Keywords: Coffee beans, Detection Transformer, You Only Look Once