

ABSTRACT

Tuberculosis (TB) is an infectious disease caused by Mycobacterium tuberculosis, most commonly affecting the lungs and transmitted via droplet nuclei. Despite being preventable and treatable, TB remains a leading cause of death from infectious diseases in many developing countries, including Indonesia. Early detection through chest X-ray often relies on manual interpretation, which is prone to subjectivity and inconsistency. This study proposes the application of two Convolutional Neural Network architectures, VGG16 and VGG19, to automate TB diagnosis in an objective and consistent manner. The dataset used in this research comprised 1,400 images (700 TB cases, 700 normal). Test results showed that VGG16 achieved accuracy, precision, recall, and F1-score of 99.29 %, while VGG19 obtained 98.93 % on all four metrics. These findings confirm that VGG16 and VGG19 are reliable and efficient diagnostic aids, capable of minimizing reading errors and supporting medical professionals in establishing faster and more accurate TB diagnoses.

Keywords: *Tuberculosis, Chest X-ray, VGG16, VGG19, Convolutional Neural Network, Automated Diagnosis.*