

Abstract

During the pandemic, the need for X-ray imaging analysis especially on the thorax or chest area is increasing. However, understanding an X-ray image requires special expertise; Things that not everyone can understand and do. Therefore, this research was conducted to assist nonprofessionals in understanding the structural anatomy of the thorax via a Posterior-Anterior Chest X-ray image. This research uses a computer vision and deep learning-based approach which has become a trend in recent years, including its use in the medical world. By using a U-Net-based neural network architecture, we perform semantic segmentation tasks to identify human organs, including heart, bronchi, left lung, and right lung. Our proposed system trained U-Net models and achieved a satisfactory performance with 72% of mean IoU, much better than a comparative model, in carrying out the organ anatomical semantic segmentation task to assist users in medical imaging analysis.

Keywords: semantic segmentation, anatomical structures, medical imaging, X-ray, U-Net