

An Overview of Deep Learning Models for Prediction of MPOX Disease

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Abstract: Infections from pathogenic organisms including bacteria, viruses, and fungus are what cause communicable diseases. Due to the limits of diagnostic techniques and the associated costs, infection diagnoses are frequently delayed or made late. This could lead to the infections spreading and have a negative impact on effective therapies. Another major problem is the dearth and unequal distribution of specialized physicians in urban and rural areas. Contrary to non-communicable illnesses, early detection is essential to halt the spread of communicable illnesses and new threats like Mpox, which otherwise could infect millions of people globally. Artificial intelligence is widely used, particularly in the medical field. Deep learning, a kind of AI, processes health care data incredibly quickly and accurately—even better than doctors. Therefore, establishing a deep learning-based medical diagnostic system for communicable disease prediction can aid in a more accurate diagnosis than current practices. With the use of several deep learning models based on transfer learning, we suggest a communicable disease diagnostic system for anticipating Mpox. The method determines if a person has Mpox or not based on a photograph of their skin lesions. To reduce loss and increase accuracy, techniques like data augmentation, transfer learning, and fine-tuning are increasingly used. According to experimental findings, this model offered greater accuracy when compared to other current literature studies. Our approach can aid in the early detection of Mpox infections, stop the disease's spread, and guarantee that treatments can be administered on schedule.

Keywords: CNN, pre-trained model, Deep learning, Transfer learning, Monkeypox, Disease prediction