

Review on Monkey Pox Diagnosis with Interpretable Deep Learning

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Abstract: *In 2022, the World Health Organization (WHO) declared an outbreak of monkeypox, a viral zoonotic disease. With time, the number of infections with this disease began to increase in most countries. A human can contract monkeypox by touching with an infected human, or even by touch with animals. In this thesis, diagnostic model for early detection of monkeypox infection based on artificial intelligence methods is proposed. The proposed method is based on training the Artificial Neural Network (ANN) with the Adaptive Artificial Bee Colony (aABC) Algorithm for the classification problem. In the study, the ABC algorithm was preferred instead of classical training algorithms for ANN because of its effectiveness in numerical optimization problem solutions. The ABC algorithm consists of food and limit parameters and three procedures: employed, onlooker and scout bee. In the algorithm standard, artificial onlooker bees are produced as much as the number of artificially employed bees and an equal number of limit values are assigned for all food sources. In the advanced adaptive design, different numbers of artificial onlooker bees are used in each cycle, and the limit numbers are updated. For effective exploitation, onlooker bees tend towards more successful solutions than the average fitness value of the solutions, and limit numbers are updated according to the fitness values of the solutions for efficient exploration.*

Keywords: Monkeypox, Monkeypox Clinical Symptoms, Machine Learning, Artificial Neural Network, Algorithm etc

