DEPARTMENT OF INFORMATION TECHNOLOGY

TITLE: DETECTION OF MALARIA USING CONVOLUTIONAL NEURAL NETWORK

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ABSTRACT

Malaria is the deadliest disease in the earth and big hectic work for the health department. The traditional way of diagnosing malaria is by schematic examining blood smears of human beings for parasite-infected red blood cells under the microscope by lab or qualified technicians. This process is inefficient and the diagnosis depends on the experience and well knowledgeable person needed for the examination. Deep Learning algorithms have been applied to malaria blood smears for diagnosis before. However, practical performance has not been sufficient so far. This paper proposes a new and highly robust machine learning model based on a Convolutional Neural Network (CNN) which automatically classifies and predicts infected cells in thin blood smears on standard microscope slides. A ten-fold cross-validation layer of the convolutional neural network on 27,558 single-cell images is used to understand the parameter of the cell. Three types of CNN models are compared based on their accuracy and select the precise accurate - Basic CNN, VGG-19 Frozen CNN, and VGG-19 Fine Tuned CNN. Then by comparing the accuracy of the three models, the model with a higher rate of accuracy is acquired.