**A PROJECT WORK**

**ON**

**DETECTION OF MALARIA PARASITES IN BLOOD SMEARS USING CONVOLUTIONAL NEURAL NETWORKS**

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**A PROJECT WORK**

**PRESENTED TO THE DEPARTMENT OF PHYSICAL SCIENCES, FACULTY OF SCIENCE, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR DEGREE OF SCIENCE (B.Sc.) IN COMPUTER SCIENCE OF BENSON IDAHOSA UNIVERSITY, BENIN CITY, EDO STATE, NIGERIA**

**JUNE, 2019**

**DECLARATION**

I hereby declare that the project work entitled “**DETECTION OF MALARIA PARASITES IN BLOOD SMEARS USING CONVOLUTIONAL NEURAL NETWORKS”** submitted to the Department of Physical Sciences, Faculty of Science, is a record of an original work done by me under the guidance of Mr. Samuel Obadan, Senior Lecturer, Department of Physical Sciences, Benson Idahosa University, Benin City, and this project work is submitted in the partial fulfillment of the requirements for the award of the degree of Bachelor of Science in Computer Science. The work embodied in this project work has not been submitted to any other University or Institute for the award of any degree or diploma.

**Omoregie Efe Marvellous .**

(Student) (signature and date)

**CERTIFICATION AND APPROVAL**

This is to certify that the project work entitled, **“DETECTION OF MALARIA PARASITES IN BLOOD SMEARS USING CONVOLUTIONAL NEURAL NETWORKS**”, which is being submitted herewith for the award of B.SC in Computer Science, is the result of the work completed by **OMOREGIE EFE MARVELLOUS** under my supervision and guidance within the four walls of the university and the same has not been submitted elsewhere for the award of any degree.

**Rev. Samuel Obadan .**

(Project Supervisor) (signature and date)

**Dr. Osatohanmwen Enagbonma .**

(Ag. Head of Department) (signature and date)

**DEDICATION**

I dedicate this project to God Almighty my creator, my strong pillar, my source of inspiration, wisdom, knowledge and understanding. I also dedicate this work to My Parents; Mr. and Mrs. Omoregie.

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**ABSTRACT**

Half of the world’s living population is at risk of malaria. WHO estimates the number of malaria deaths at 435,000 for 2018. Although almost completely eradicated in developed countries, malaria continues to devastate poorer areas of the world where lack of money for facilities and treatment allows it to kill with impunity. The current “gold standard” diagnosis procedure in developing nations is staining blood samples and manually using a microscope to identify potential parasites, resulting in an extremely slow diagnosis. Although alternatives exist, they are either too expensive or inaccurate to be effective on a large scale. This primitive method of diagnosis needs to be improved. The goal of this project is to take the first step in solving this problem by creating an algorithm that identifies malaria parasites in photographs of stained blood samples quickly and accurately. Regions of photos infected with malaria were given to the algorithm as training material to identify typical color patterns of the parasite. The algorithm then discovered similar color patterns in photos that it had not seen before and was judged based on how accurately it classified those photos. The Results seem to suggest that malaria diagnosis using machine learning algorithms is promising and should continue to be explored as a potential tool to eradicate malaria from the face of the earth.