

Title: Assessing blood samples for malaria

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Category: AI/Machine Learning

Malaria is a life-threatening disease that is strongly prevalent in tropical and subtropical regions of the world. It is particularly pervasive in the sub-Saharan region of Africa, where it remains a leading cause of death. In 2021 there were an estimated 217 million reported cases of malaria worldwide which led to 619 000 deaths. With prevention measures being actively implemented by the World Health Organisation, malaria's pernicious influence remains ever-present. Therefore my project aims to provide much-needed support by developing a software solution that classifies red blood cells among at-risk patients.

Employing a fusion of computer vision and machine learning, the software is able to accurately segment individual blood cells from blood smear images and accurately classify them according to their respective infection status. The software uses state-of-the-art models which can analyse single images or folders of images with low computational complexity, making it suitable for use in less technologically advanced regions. Furthermore, the software is completely user-friendly with a primitive design, which allows non-specialized users to operate it.

Not only is the software responsive, displaying an evaluated result to the user almost instantaneously, but it also has the ability to collect and save the images and information for later analysis by experts. This is crucial as expert-reviewed work is invaluable in this field. With its high level of accuracy and versatility, my project solution is the perfect fit for affected at-risk environments.