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AI in Medical Assay

Modelling, machine learning and measurement, in collaboration with medical research, can lead to improved medical assays. In this project, lateral flow urine lipoarabinomannan (lam) assays are used as a diagnostic test for tuberculosis (TB) for people living with human immunodeficiency virus (HIV). It is used when patients may be too weak to produce sputum for standard TB tests such as GeneXpert and MGIT TB cultures. However, the interpretation of the lam assay has been seen to be very subjective as the lines provided by the test can vary significantly in intensity. We aimed to develop an image-based algorithm that would standardise the interpretation of these assays. During the study, over 300 images of lam assays were collected from participants using different smartphones, in different environmental and lighting conditions such as background colours, colour temperature, light intensity and shadow casts. Using these images of the assays, the algorithm, based on deterministic and machine learning methods, would isolate regions of interest (ROI), detect test markings and classify each assay as either positive or negative for TB. The computer-aided interpretation of medical assays, such as TB Lam assays, can be used to minimise the subjectivity related to the reading of these results.

Apply to be considered for a student ; award (Yes / No)?

Yes

Level for award;(Hons, MSc, PhD, N/A)?

PhD

Consent on use of personal information: Abstract Submission

Primary author: CHIRWA, Temweka (Perinatal HIV Research Unit)

Co-authors: Dr OTWOMBE, Kennedy (Perinatal HIV Research Unit); CONNELL, Simon (University of Johannesburg); Dr HARLEY, Charis (University of Johannesburg); Dr NABEEMEEAH, Firdaus (Perinatal HIV Research Unit); Mr SWANEPOEL, Floris (Perinatal HIV Research Unit); Prof. MARTINSON, Neil (Perinatal HIV Research Unit (PHRU))

Presenter: CHIRWA, Temweka (Perinatal HIV Research Unit)

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