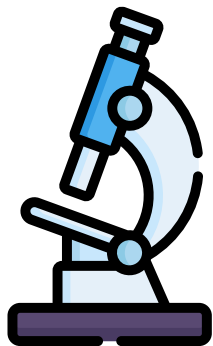


Pathology slide diagnostics

Reading microscope slides with tissue samples to diagnose cytological disease

Benefit

Increased capacity for cytological diagnosis by providing a cheap and accurate tool to support pathologists.



Context

Cytopathologists extract tissue samples from patients and examine these samples under a microscope in order to arrive at a diagnosis. Diagnoses often include various types of cancers and may be performed during surgery to guide the amount of surrounding tissue to be removed. Cytopathology is a highly-trained role and is therefore subject to skills shortages. These algorithms were trained to arrive at the same diagnosis of board-certified cytopathologist.

Methodology

Images of prepared cytology slides and their corresponding diagnoses from a board-certified cytopathologist were used to train a variant of a convolutional neural network. An app was also created to allow cytopathologists to upload images and diagnoses into the algorithms' database to allow for seamless retraining of the algorithms and continuous improvement of accuracy as well as automated report generation.

Results

100%

accuracy on diagnoses trained to date

25

images diagnosed per second on a standard desktop PC