

Abstract

Cancer research has been pushing the bounds of early detection, this being a driving factor of curability. Colon cancers specifically can be identified in precancerous stages after a routine colonoscopy. Serrated adenomas in particular carry a meaningful risk of developing into full cancer but are nontrivial to identify. We aim to provide an algorithm to identify biopsies containing serrated adenomas with performance similar to that of expert pathologists. In particular, we explore both deep neural networks and a pipeline of more traditional image processing and machine learning techniques. Deep neural networks often produce good results with raw images and require little to no preprocessing. An image processing pipeline allows for targeted learning with less wasted overhead. In our experiments, we found that the pipeline outperformed the neural network and approached the results of a human expert.