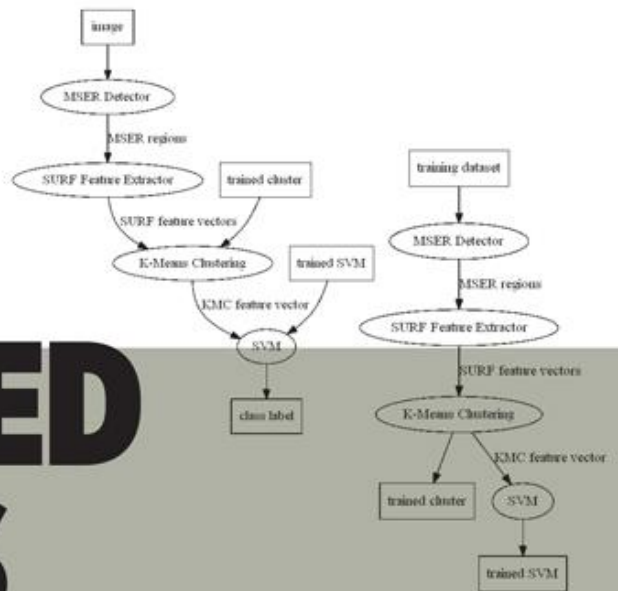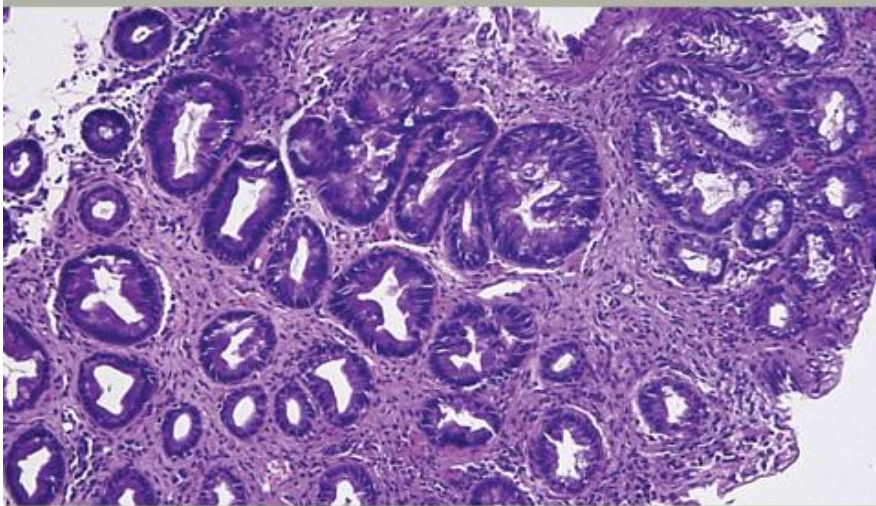# COMPUTER DETECTION OF SERRATED ADENOMAS IN COLON BIOPSIES

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	SA $F1$ score (%)	Mean $F1$ score (%)
Random Guessing	31.82	46.18
Pipeline	45.05 - 46.60	60.08 - 60.83
Doctor	53.66	67.04

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 provide an algorithm to identify biopsies containing serrated adenomas with performance similar to that of expert pathologists. Specifically, we explored both deep neural networks and a pipeline of image processing and machine learning techniques. Deep neural networks often produce good results with raw images and require little to no preprocessing whereas an image processing pipeline allows for targeted learning with less wasted overhead and data. We found that the pipeline approach outperforms neural networks and approaches the results of a human expert.

WORK SPACE **SHOWCASE**

THE COOPER UNION ANNUAL STUDENT EXHIBITION
ACADEMIC YEAR 16/17