Colorectal cancer (CRC) is one of the most common types of cancer in the western world. CRC develops from dysplastic precursor lesions. Colonoscopy is the gold standard to detect these precursor lesions, so called polyps. Despite colonoscopy is the gold standard; it is not yet 100% protective against CRC.

The first part of this thesis focuses on the development of advanced colonoscopic imaging techniques and their ability to detect and differentiate the lesions found during colonoscopy.

Patients with longstanding inflammatory bowel disease have a 2-3x increased risk on colorectal cancer. Due to the longstanding inflammation inflammation-related dysplastic lesions can develop, which harbour an increased on CRC.

The second part of this thesis addresses the detection, differentiation and management of potentially malignant lesions in patients with IBD.