

Accepted Manuscript

Polyp Detection during Colonoscopy using a Regression-based Convolutional Neural Network with a Tracker

Ruikai Zhang , Yali Zheng , Carmen C.Y. Poon , Dinggang Shen , James Y.W. Lau

PII: S0031-3203(18)30200-0
DOI: [10.1016/j.patcog.2018.05.026](https://doi.org/10.1016/j.patcog.2018.05.026)
Reference: PR 6570



To appear in: *Pattern Recognition*

Received date: 15 August 2017
Revised date: 7 May 2018
Accepted date: 21 May 2018

Please cite this article as: Ruikai Zhang , Yali Zheng , Carmen C.Y. Poon , Dinggang Shen , James Y.W. Lau , Polyp Detection during Colonoscopy using a Regression-based Convolutional Neural Network with a Tracker, *Pattern Recognition* (2018), doi: [10.1016/j.patcog.2018.05.026](https://doi.org/10.1016/j.patcog.2018.05.026)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Polyp Detection during Colonoscopy using a Regression-based Convolutional Neural Network with a Tracker

Ruikai Zhang^{a, +}, Yali Zheng^{a, +}, Carmen C. Y. Poon^{a, *}, Dinggang Shen^{b, c, *}, and James Y. W. Lau^a

^a*Department of Surgery, The Chinese University of Hong Kong, Hong Kong
rzhang, ylzheng, cpoon, lauzyw@surgery.cuhk.edu.hk*

^b*Department of Radiology and Biomedical Research Imaging Center (BRIC), University of North Carolina, Chapel Hill, NC, United States of America
dgshen@med.unc.edu*

^c*Department of Brain and Cognitive Engineering, Korea University, Seoul, Korea*

+ Authors contribute equally to this work

* Corresponding authors

Abstract

A computer-aided detection (CAD) tool for locating and detecting polyps can help reduce the chance of missing polyps during colonoscopy. Nevertheless, state-of-the-art algorithms were either computationally complex or suffered from low sensitivity and therefore unsuitable to be used in real clinical setting. In this paper, a novel regression-based Convolutional Neural Network (CNN) pipeline is presented for polyp detection during colonoscopy. The proposed pipeline was constructed in two parts: 1) to learn the spatial features of colorectal polyps, a fast object detection algorithm named ResYOLO was pre-trained with a large non-medical image

Download English Version:

<https://daneshyari.com/en/article/6938759>

Download Persian Version:

<https://daneshyari.com/article/6938759>

[Daneshyari.com](https://daneshyari.com)