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Xiahai Zhuang · Lei Li (Eds.)

# Myocardial Pathology Segmentation Combining Multi-Sequence Cardiac Magnetic Resonance Images

First Challenge, MyoPS 2020

Held in Conjunction with MICCAI 2020


Lima, Peru, October 4, 2020

Proceedings



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# Preface

Assessment of myocardial viability is essential in the diagnosis and treatment management for patients suffering from myocardial infarction (MI). Different cardiac magnetic resonance (CMR) sequences can image and provide unique information of the heart. These sequences include the late gadolinium enhancement (LGE) CMR, which visualizes MI, the T2-weighted CMR, which images the acute injury and ischemic regions, and the balanced steady-state free precession (bSSFP) cine sequence which captures cardiac motions and presents clear boundaries. Combining these multi-sequence CMR data can provide rich and reliable information with regards to the pathological as well as the morphological information of the myocardium.

MyoPS 2020 provides the three-sequence CMR, i.e., bSSFP CMR, T2 CMR, and LGE CMR, from 45 patients. All the clinical data has received institutional ethic approval and has been anonymized. The data released here has been pre-processed using the multivariate mixture model method, to align the three-sequence CMR images into a common space and to resample them into the same spatial resolution. The training images are provided with gold standard labels, including left ventricular (LV) blood pool, right ventricular blood pool, LV normal myocardium, LV myocardial edema, and LV myocardial scars. MyoPS 2020 also intended to present an open and fair platform for various research groups to test and validate their methods on these datasets acquired from the clinical environment. The aim is not only to benchmark various myocardial pathology segmentation algorithms, but also to cover the topic of general cardiac image segmentation, registration, and modeling, and raise discussions for further technical development and clinical deployment.

A total of 16 papers were accepted and presented at MyoPS 2020, and are published by Springer in this LNCS volume. MyoPS 2020 was held in conjunction with the MICCAI 2020 international conference. MyoPS 2020 was scheduled to be held in Lima, Peru on October 4, 2020, but finally was held through a virtual conference management platform due to the COVID-19 pandemic. The readers can find more information about MyoPS 2020 at the website:

<http://www.sdspeople.fudan.edu.cn/zhuangxiahai/0/myops20/>.

We would like to thank all organizers, reviewers, authors, and sponsors for their time, efforts, contributions, and support in making MyoPS 2020 a successful event.

October 2020

Xiahai Zhuang  
Lei Li

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# Contents

Stacked BCDU-Net with Semantic CMR Synthesis: Application to Myocardial Pathology Segmentation Challenge . . . . .	1
<i>Carlos Martín-Isla, Maryam Asadi-Aghbolaghi, Polyxeni Gkontra, Victor M. Campello, Sergio Escalera, and Karim Lekadir</i>	
EfficientSeg: A Simple But Efficient Solution to Myocardial Pathology Segmentation Challenge. . . . .	17
<i>Jianpeng Zhang, Yutong Xie, Zhibin Liao, Johan Verjans, and Yong Xia</i>	
Two-Stage Method for Segmentation of the Myocardial Scars and Edema on Multi-sequence Cardiac Magnetic Resonance . . . . .	26
<i>Yanfei Liu, Maodan Zhang, Qi Zhan, Dongdong Gu, and Guocai Liu</i>	
Multi-modality Pathology Segmentation Framework: Application to Cardiac Magnetic Resonance Images . . . . .	37
<i>Zhen Zhang, Chenyu Liu, Wangbin Ding, Sihan Wang, Chenhao Pei, Mingjing Yang, and Liqin Huang</i>	
Myocardial Edema and Scar Segmentation Using a Coarse-to-Fine Framework with Weighted Ensemble. . . . .	49
<i>Shuwei Zhai, Ran Gu, Wenhui Lei, and Guotai Wang</i>	
Exploring Ensemble Applications for Multi-sequence Myocardial Pathology Segmentation. . . . .	60
<i>Markus J. Ankenbrand, David Lohr, and Laura M. Schreiber</i>	
Max-Fusion U-Net for Multi-modal Pathology Segmentation with Attention and Dynamic Resampling. . . . .	68
<i>Haochuan Jiang, Chengjia Wang, Agisilaos Chartsias, and Sotirios A. Tsaftaris</i>	
Fully Automated Deep Learning Based Segmentation of Normal, Infarcted and Edema Regions from Multiple Cardiac MRI Sequences . . . . .	82
<i>Xiaoran Zhang, Michelle Noga, and Kumaradevan Punithakumar</i>	
CMS-UNet: Cardiac Multi-task Segmentation in MRI with a U-Shaped Network . . . . .	92
<i>Weisheng Li, Linhong Wang, and Sheng Qin</i>	
Automatic Myocardial Scar Segmentation from Multi-sequence Cardiac MRI Using Fully Convolutional Densenet with Inception and Squeeze- Excitation Module. . . . .	102
<i>Tewodros Weldebirhan Arega and Stéphanie Bricq</i>	

Dual Attention U-Net for Multi-sequence Cardiac MR Images Segmentation . . . . .	118
<i>Hong Yu, Sen Zha, Yubin Huangfu, Chen Chen, Meng Ding, and Jiangyun Li</i>	
Accurate Myocardial Pathology Segmentation with Residual U-Net. . . . .	128
<i>Altunok Elif and Oksuz Ilkay</i>	
Stacked and Parallel U-Nets with Multi-output for Myocardial Pathology Segmentation . . . . .	138
<i>Zhou Zhao, Nicolas Boutry, and Élodie Puybareau</i>	
Dual-Path Feature Aggregation Network Combined Multi-layer Fusion for Myocardial Pathology Segmentation with Multi-sequence Cardiac MR . . .	146
<i>Feiyan Li and Weisheng Li</i>	
Cascaded Framework with Complementary CMR Information for Myocardial Pathology Segmentation. . . . .	159
<i>Jun Ma</i>	
Recognition and Standardization of Cardiac MRI Orientation via Multi-tasking Learning and Deep Neural Networks . . . . .	167
<i>Ke Zhang and Xiahai Zhuang</i>	
Correction to: Two-Stage Method for Segmentation of the Myocardial Scars and Edema on Multi-sequence Cardiac Magnetic Resonance . . . . .	C1
<i>Yanfei Liu, Maodan Zhang, Qi Zhan, Dongdong Gu, and Guocai Liu</i>	
<b>Author Index . . . . .</b>	<b>177</b>