



"سخنرانی‌های علمی"

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Medical Image Segmentation

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Abstract

Medical images play a key role in medical treatment and diagnosis. The goal of Computer-Aided Diagnosis (CAD) systems is providing doctors with more precise interpretation of medical images to follow-up of many diseases and have better treatment. Moreover, accurate and reliable processing of medical images results in reducing the time, cost, and error of human-based processing. A critical step in numerous medical imaging studies is image segmentation, the process of partitioning an image into multiple meaningful regions. Due to the complex geometry and inherent noise value of medical images, segmentation of these images is difficult. Interest in medical image segmentation has grown considerably in the last few years. This is due in part to the large number of application domains, like segmentation of blood vessel, skin cancer, lung, and cell nuclei. For instance, one of the most deadly form of skin cancer is melanoma, which is the result of unusual growth of melanocytes. The detection of melanoma in dermoscopic images by the dermatologists may be inaccurate or subjective. If melanoma is detected, by the automatic algorithms, in its early stages, the five-year relative survival rate will be 92%. Like other fields of research in computer vision, deep learning approaches have achieved outstanding results in skin lesion segmentation.

In this talk, we first introduce the most important deep neural networks for image segmentation. We will discuss about the main advantages of each network. Next, our proposed methods for medical image segmentation will be presented. At the end, the archived results by our methods will be compared with the state-of-the-art approaches.

Biography

Maryam Asadi received both B.Sc. and M.Sc. degrees in Computer Engineering from Iran University of Science and Technology (IUST). She then received her PhD from Sharif University of Technology. She is currently a postdoc researcher at the Institute for Research in Fundamental Sciences (IPM). Her research interests include medical image analysis, machine learning, 3D computer vision, deep learning, and data mining.

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