DEEP LEARNING TECHNIQUES FOR DISEASE DETECTION

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PREFACE

Diabetes is one of the leading fatal diseases globally, putting a huge burden on the global healthcare system. Early diagnosis of diabetes is of utmost importance and could save many lives. However, current techniques to determine whether a person has diabetes or has the risk of developing diabetes are primarily reliant upon clinical biomarkers

We propose a novel deep learning architecture to predict if a person has diabetes or not from a photograph of his/her retina. Using a relatively small-sized dataset, we develop a multi-stage convolutional neural network (CNN)-based mode which can successfully identify the regions on the retina images that contribute to diagnosis of diabetes. So, retinal images can be used in the clinical setup to diagnose diabetes.

Brain Tumor segmentation is one of the most crucial and arduous tasks in the terrain of medical image processing as a human-assisted manual classification can result in inaccurate prediction and diagnosis. Moreover, it is an aggravating task when there is a large amount of data present to be assisted. Brain tumors have high diversity in appearance and there is a similarity between tumor and normal tissues and thus the extraction of tumor regions from images becomes unyielding. In this paper, we proposed a method to preprocess the 2D Magnetic Resonance brain Images (MRI) by Otsu algorithm which was followed by a convolutional neural network. The experimental study was carried on a real-time dataset with diverse tumor sizes, locations, shapes, and different image intensities.

✍ *V. Divya Raj*

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Lastly, I would like to express my heartfelt gratitude to all the readers and users of this book. It is my sincere hope that this work will contribute to advancing the field of disease detection and inspire further research in deep learning techniques.

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✍ *V. Divya Raj*

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