

# Lecture Notes in Networks and Systems

Volume 613

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Sandeep Kumar · Harish Sharma ·  
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Editors

# Third Congress on Intelligent Systems

Proceedings of CIS 2022, Volume 2

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# Preface

This book contains outstanding research papers as the proceedings of the 3rd Congress on Intelligent Systems (CIS 2022), held on September 05–06, 2022, at CHRIST (Deemed to be University), Bangalore, India, under the technical sponsorship of the Soft Computing Research Society, India. The conference is conceived as a platform for disseminating and exchanging ideas, concepts, and results of researchers from academia and industry to develop a comprehensive understanding of the challenges of the advancements of intelligence in computational viewpoints. This book will help in strengthening congenial networking between academia and industry. We have tried our best to enrich the quality of the CIS 2022 through the stringent and careful peer-review process. This book presents novel contributions to Intelligent Systems and serves as reference material for advanced research.

We have tried our best to enrich the quality of the CIS 2022 through a stringent and careful peer-review process. CIS 2022 received many technical contributed articles from distinguished participants from home and abroad. CIS 2022 received 729 research submissions from 45 different countries, viz., Algeria, Australia, Bangladesh, Belgium, Brazil, Bulgaria, Colombia, Cote d’Ivoire, Czechia, Egypt, Ethiopia, Fiji, Finland, Germany, Greece, India, Indonesia, Iran, Iraq, Ireland, Italy, Japan, Kenya, Latvia, Malaysia, Mexico, Morocco, Nigeria, Oman, Peru, Philippines, Poland, Romania, Russia, Saudi Arabia, Serbia, Slovakia, South Africa, Spain, Turkmenistan, Ukraine, United Kingdom, United States, Uzbekistan, and Vietnam. After a very stringent peer-reviewing process, only 120 high-quality papers were finally accepted for presentation and the final proceedings.

This book presents second volume of 60 research papers data science and applications and serves as reference material for advanced research.

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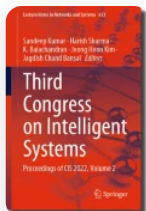
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# Efficient Segmentation of Tumor with Convolutional Neural Network in Brain MRI Images

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## Abstract

Brain and other nervous system cancer are the 10th major reason for morbidity. It is highly required to exactly locate the boundaries and tumor area before the treatment such as chemotherapy or brain surgery to resume a normal life. This paper discusses

different traditional segmentation techniques and various deep learning approaches incorporating convolutional neural networks (CNN). An automatic tumor segmentation and classification model are implemented for four different classes with U-shaped encoder–decoder architecture. Architecture performance is measured and compared with the best available models using various standard metrics like accuracy, sensitivity, specificity, Dice similarity coefficient (DSC), and mean intersection over union (MIoU) on different datasets with freely available resources. The implemented architecture outperforms various existing algorithms in comparison with accuracy and sensitivity metrics.

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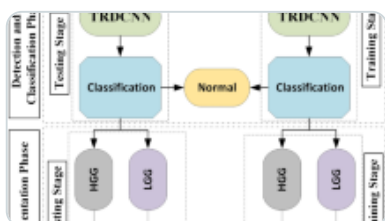
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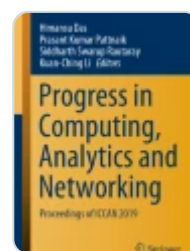
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