# International Workshop on Computational Intelligence for Processing Brain Images

## Call for Papers and Abstracts

## Introduction

Brain tumor is one of the most common major causes for the increase in Mortality among children and adults in the world. Many different types of brain tumors exist. Some brain tumors are noncancerous (benign), and some brain tumors are cancerous (malignant). Early detection of the brain tumor is very important and the motivation for further studies. In the brain magnetic resonance imaging (MRI), the tumor may appear clearly but for further treatment, the physician also needs the quantification of the tumor area. The computer and image processing techniques can provide great help in analyzing the tumor area.

On the other side, computer-aided detection (CAD) has been developing fast in the last two decades. The main idea of CAD is to assist radiologists in interpreting medical images by using dedicated computer systems to provide 'second opinions'. Studies on CAD systems and technology show that CAD can help to improve diagnostic accuracy of radiologists, lighten the burden of increasing workload, reduce cancer missed due to fatigue, overlooked or data overloaded and improve inter- and intra-reader variability. The final medical decision is made by the radiologists. Consequently, radiologists expect that CAD systems can improve their diagnostic abilities based on synergistic effects between the radiologist and the computer with medical image analysis and machine learning techniques.

With the advance of computational intelligence (CI) and machine learning (ML)techniques, computer-aided detection attracts more attention for brain tumor detection. It has become one of the major research subjects in medical imaging and diagnostic radiology.CI and ML became very important in extracting meaningful relationships and making accurate prediction in many fields. In the area of processing the brain images, Computer Aided-Diagnosis (CAD) systems are basically relied on different machine learning techniques in all its stages to implement a system that can help the radiologists by

providing a second opinion that can assist in detection and diagnosis of brain tumors based on imaging techniques that are widely used in clinical care. Magnetic resonance imaging (MRI) is an imaging technique that plays a vital role in detection and diagnosis of brain tumors in both research and clinical care for providing detailed information about the brain structure and its soft tissues.

This workshop is devoted to discussion of current research of the AI techniques and knowledge engineering methodologies for developing intelligent CAD Systems. The goal is to provide a forum for the exchange of ideas between practitioners from neuroscience, cognitive science, physicians, and computer scientists, and knowledge engineers to address the important issues in those areas. Papers related to methodologies, techniques and applications in brain informatics, telemedicine, and neuro-imaging technologies are especially solicited.

## Topics of Interests

The topics include, but are not limited to:

- Smart techniques for developing CAD systems

- Smart brain imaging techniques

- MRI Image acquisition and preprocessing

- Intelligent segmentation techniques

- intelligent feature extraction approaches

- intelligent classification techniques

- Pattern recognition techniques

- Classification using Deep Learning Neural Networks for Brain Tumors

- Artificial neural network based classifiers

- Classification of Brain MRI for Alzheimer's Disease

## Submissions and Publication

Similar to the main conference of BI 2019, we welcome two types of paper submissions:

- Type Ⅰ: Full Paper Submissions. Authors should submit their full papers with a maximum paper length of up to 10 pages in Springer LNCS format using our online submission system (https://wi-lab.com/cyberchair/2019/bi19/scripts/submit.php?subarea=S05&undisplay_detail=1&wh=/cyberchair/2019/bi19/scripts/ws_submit.php). The accepted and presented papers will be published by Springer as a volume of the series of LNCS/LNAI.

- Type Ⅱ: Abstract Submissions. Abstracts have a word limit of 500 words. Experimental research is particularly welcome. Accepted abstract submissions will be included in the conference program and will be printed out as a single, collective Abstract Note.
  Submit your abstracts via
  https://wi-lab.com/cyberchair/2019/bi19/scripts/submit.php?subarea=S05&undisplay_detail=1&wh=/cyberchair/2019/bi19/scripts/ws_submit.php

All submissions will be reviewed by at least two reviewers who will give detailed comments. If the submission gets accepted, the authors will submit a revised ("camera-ready") version that takes into account this feedback.

## Important Dates:

- July 20th, 2019: Submission deadline for workshop/special session/tutorial proposals (Extended)

- July 25th, 2019: Notification of workshop/special session proposal acceptance (Extended)

- August 4th, 2019: Submission deadline for full papers (Extended)

- August 4th, 2019: Submission deadline for workshop/special session papers (Extended)

- September 6th, 2019: Notification of full paper acceptance

- October 8th, 2019: Submission deadline for abstracts (Extended)

- October 28th, 2019: Notification of abstract acceptance

- December 13th, 2019: Tutorials, workshops and special sessions

- December 14th - 15th, 2019: Main conference

## Session Chairs:

**Abdel-Badeeh M. Salem Ph.D.**

Computer Science, Faculty of Computer and Information Sciences,

Head of Artificial Intelligence and Knowledge Engineering Research Labs,

Ain Sham University, Egypt

For more information, please go to http://wi-consortium.org/conferences/bi2019/index.html

We look forward to seeing you in Haikou, China, 2019