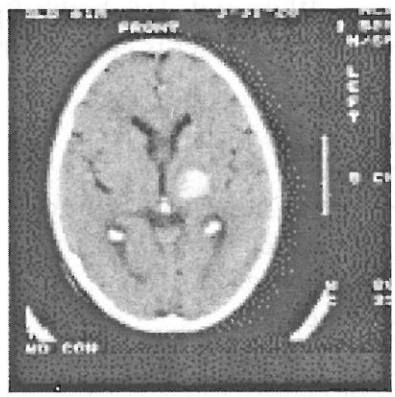
Special Issue on Biomedical Image Processing and Analysis

Guest Editor's Introduction



It is my pleasure to announce the Special Issue on Biomedical Image Processing and Analysis of the Journal of Computing and Information Technology (CIT). In 1997, I was offered to be a Guest Editor of a special issue on the topic of my professional interest. Soon after, I became an Editor of the CIT Journal so now I am writing this editorial in a double role. The editorial philosophy of the CIT journal is twofold. First, CIT publishes papers from a wide area of computing and information technologies attracting authors from different fields and encouraging interdisciplinary interaction. Secondly, CIT publishes special issues to focus on various fields of scientific and professional interest, in such a way being able to serve researchers in narrowly specialized areas.

This special issue is the first CIT special issue concentrating on the topic of biomedical image processing and analysis. The field of biomedical imaging has witnessed intensive research activities. The development of biomedical engineering areas such as new imaging modalities have enabled us to measure and collect more and more data reflecting biological processes in the human body. It is becoming increasingly difficult to interpret and combine the acquired images for the purpose of quantitative image analysis and medical visualization to enable computer aided diagnosis and intervention in medicine.

Response to the call for papers has been very good. Eighteen papers coming from European and US researchers have been selected for publication. However, due to restrictions on the size of each individual issue we have had a hard time selecting a subset of papers for publication in this special issue with other papers scheduled for publication in subsequent issues of the CIT journal. This special issue contains nine papers from different areas of biomedical image processing and analysis such as:

- Medical image analysis
- Medical image registration
- Shape modeling
- Medical image compression
- Medical visualization

The paper by Glasbey introduces a new technique for ultrasound image segmentation. Valli, Poli, Cagnoni, and Coppini describe a neural network method for medical image segmentation. Sarwal and Dhawan describe a neural network-based method for segmentation of coronary arteries. Palagyi and Kuba propose a new algorithm for thinning of 3-D medical images. Buzug and Weese provide an overview of voxel-based similarity measures for medical image registration. Kovalev and Petrou describe a method for non-rigid volume registration of medical images. Pardo, Vilarino, Turnes, Cabello, Heras, and Couceiro describe application of deformable models to surgery planning. Bruckman and Uhl describe a method for medical image compression using wavelet techniques. Abrishami, Moghaddam, and Lerallut propose a technique for volume visualization of the heart.

Finally, I want to thank all the authors for their submissions that made this CIT special issue possible. I would also like to use this opportunity to thank a number of distinguished scientists for their efforts in reviewing in the papers. Without their help this Special Issue would not have been possible. The list of reviewers in alphabetical order is given below.

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