Abstract

Biomedical imaging is a series of procedures which create images of the human body, or parts of the body, to help screen for possible illness or injury, diagnose the likely cause of symptoms and monitor health conditions or the effects of treatment. The objective of the paper is to provide an overview about various biomedical imaging techniques used in detection and diagnosis of Cancer. Each of these imaging techniques provides information about the anatomy, chemical or physiologic phenomena of the human body which are studied independently by doctors to identify Cancer. The biomedical imaging systems, applications, benefits, drawbacks and research challenges are discussed. Image Fusion and its role in biomedical imaging is also discussed. Image Fusion is the process of fusing two or more biomedical images which contain complementary information into a single composite image. These enrich image quality and avoid redundancy thereby increase the clinical applicability of medical images for cancer detection, prognosis and treatment planning of Cancer.

References
Advances in Biomedical Imaging and Image Fusion

6. Thomas Flohr and Bernd Ohnesorge, "Multi Slice CT Technology ", Book Chapter.
19. MGP Cavalcanti, SS Rocha and MW Vannier, " Craniofacial measurements based on


30. Wolf-Dieter Heiss, Peter Raab and Heinrich Lanfermann, "Multimodality Assessment of Brain Tumors and Tumor Recurrence, "The Journal of Nuclear Medicine, August 12, 2011.


37. Abraham Varghese, Kannan Balakrishnan, Reji R Verghese and Joseph S Paul," Content Based Image Retrieval of T2 Weighted Brain MR Images similar to T1 Weighted
Advances in Biomedical Imaging and Image Fusion


53. Breuilly M, Malandain G, Ayache N, Guglielmi J, "Image based motion detection in 4D
images and application to respiratory motion suppression" 2013 IEEE 10th International Symposium on Biomedical Imaging.


72. Francisco Pereira, Matthew Botvinick, "A systematic approach to extracting semantic
Advances in Biomedical Imaging and Image Fusion


Arnold C Paulino, Wade L Thorstad and Timothy Fox, "Role of Fusion in Radiotherapy Treatment Planning," Seminars in Nuclear Medicine, Vol XXXIII, No.3 (July), 2003,pp 238-243.


Karl G Baum et al, "Techniques for Fusion of Multimodal Images: Application to Breast
Advances in Biomedical Imaging and Image Fusion

Index Terms

Computer Science

Image Processing

Keywords

CT, MRI, PET, SPECT, Ultrasound imaging, Biomedical Image Fusion