Abstract

Body surface potential mapping (BSPM) is used to detect real diagnostic information about the myocardium state more than the standard 12-lead electrocardiogram (ECG). The present research introduces a practical solution for recording body surface potential maps using the standard 12-lead ECG with different positions. It is called pseudo BSPM where all channels were not read out simultaneously. It is based on the assumption that heart beat body surface potential mapping (BSPM) is used to detect real diagnostic information about the myocardium state more than standard 12-lead electrocardiography (ECG). Pseudo BSPM pattern is not changed considerably during the whole measurement session. Body surface potential mapping was applied to normal and abnormal persons suffering from coronary heart diseases (CHD). We detect QRS complexes using filter banks and consequently build up a cardiac map using 3D wavelet transform. Our results for the cardiac map demonstrate the changes that occur for the cardiac electrical activity which represents the patient case in color degradation patterns.


Mohammed Abdel-Megeed Salem, Multiresolution Image Segmentation, Department of Computer Science, Humboldt-Universitaet zu Berlin, November 21, 2008, Berlin, Germany.


Mohamed A. Tahoun, Mohamed Abdel-Megeed Salem, Khaled A. Nagaty, Taha I. El-Arief, "A Robust Content-Based Image Retrieval System Using Multiple Features Representations", IEEE International Conference on Networking, Sensing and Control (ICNS'05), March 10-22, 2005, Arizona, USA.

M. Kania, M. Fereniec, R. Maniewski, Wavelet Denoising for Multi-lead High Resolution
ECG Signals, MEASUREMENT SCIENCE REVIEW, Volume 7, Section 2, No. 4, 2007.

**Index Terms**

Computer Science  
Signal Processing

**Keywords**

ECG; Body Surface Potential Mapping; Cardiac mapping; Filter banks; Wavelet Transform