Nursing-2013
OMICS Group Conferences
Accelerating Scientific Discovery
International Conference on
Nursing & Emergency Medicine
December 2-4, 2013 Las Vegas, USA

Cardiac tele-healthcare with video cameras in daily life, especially for rural or disaster areas

Makoto Yoshizawa
Tohoku University, Japan

Abstract

Although two and a half years have passed from the date 3.11 of the Great East Japan Earthquake, about 270 thousand people are still forced to live as refugees in Japan. Such people living in temporary houses are not always conveniently located in terms of public transportation and medical facilities. Especially, it is difficult for elderly people to control their health-care in daily life. Telemedicine can improve such poor medical environment not only in disaster areas in Japan but also in remote rural areas all over the world. However, usual telemedical systems need special and expensive devices or sensors.

On the other hand, we have begun to extract pulse wave information from a green signal of a video image of a body surface taken by an ordinary video camera. This fact will be extensively applied not only to remote medical check but also to other wide fields. Almost all smart phones or tablet PCs have video cameras and can be connected with the internet. Therefore, we can easily realize a remote health monitoring system based on pulse wave information using these sets without any other special devices.

In this presentation, a method for obtaining the pulse transit time from the video image of a human face and hand will be introduced on the basis of Hilbert transform of two signals, comparing with direct measurement of photoplethysmogram. The results indicated that the proposed methods are possible to be used for estimation of the autonomic nervous function easily even at home.

Biography

Makoto Yoshizawa received his Ph.D. in Electrical and Communication Engineering from Tohoku University in 1983. He became a visiting scientist, Research Institute of Medicine, Johns Hopkins University and Baylor College of Medicine in 1999. Since 2001, he has been a Professor in Cyberscience Center, Tohoku University. He engages in application of virtual reality to medicine, intelligent control of artificial hearts, assessment of effects of visual stimulation on humans and tele-healthcare. He was a member of AdCom of IEEE EMBS from 2009 to 2011.

yoshizaw@isc.tohoku.ac.jp