



Warehousing Images in the Digital Hospital: Interpretation, Infrastructure, and Integration

WIDTH Newsletter

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Another successful story

By **Thomas Deserno (Germany), Yan Zhang, Xinzhou Xie (China)**

From Jul. 1st to Sept. 10th, 2013, Mr Yan ZHANG and Mr Xinzhou XIE, both Ph.D students under the supervisor of Professor Yuanyuan WANG at Medical Ultrasound Lab of Fudan University, visited Rheinisch-Westfälische Technische Hochschule Aachen (RWTH-Aachen) under the EU WIDTH-project (see [Newsletter Edition 17](#)).

During their stay in Germany, they took part in the research project on a remote ECG therapy system in Germany. The project is in charge of the automatic thumbnail generation for big signal and image data, which is integrated into OpenClinica electronic case report forms (eCRF). The project researchers have developed a software in which the data on the server side can be processed instantly and the ECG thumbnail can be automatically generated with the patient ID and data quality included. The work has been successfully accomplished and a manuscript has been submitted to the conference of SPIE Medical Imaging 2014 ("PACS and Imaging Informatics: Next Generation and Innovations").

Successfully, the submitted paper "Image-based improvement of OpenClinica's

electronic case-report forms" has been accepted for Poster presentation. The conference of "PACS and Imaging Informatics: Next Generation and Innovations" is part of Medical Imaging 2014 and will be held 16-20 February 2014 in San Diego, California USA

The Front page of of the paper

Image-based improvement of OpenClinica's electronic case-report forms

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Abstract: Automatic thumbnail generation for big signal and image data is integrated into OpenClinica electronic case report forms (eCRFs) that are used in controlled clinical trials. Long-term electrocardiography (ECG) is acquired in a multicenter trial and uploaded to the server using OpenClinica. Due to the big data volume (64 GB), quality checks and data analysis cannot be processed on the client. Thus, we developed software to instantly process the data on server side and generate an ECG thumbnail including information on data quality. Additionally, relevant meta information like Patient-ID and recording time is visualized and passed into the corresponding eCRF fields.

Keywords: OpenClinica, automated preview generation, Electrocardiography, information encoding

1. Description of Purpose

To give feedback of successful transfer and adequate data quality of large files that are transferred via the Internet into an OpenClinica (OC) case report form (CRF). Visual feedback supports the study-nurses collecting data at different study centers in controlled clinical trials (CCT), if the data is processed at a central facility.

2. Introduction

Electrocardiography (ECG) is a well known method of collecting information about the heart activity. It is based on electrodes on the body surface that derive the changing potential differences over a period of time. ECG is an important tool for the diagnosis of heart diseases. Hence, ECG recordings are used as surrogate endpoints in CCTs. However, such recording are manually transferred to an optical disc, which is then send by mail to a central facility for



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