Introduction to Big-Data on Healthcare Application Minitrack

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The recent confluence of new technologies and data-intensive research methodologies offers a new research platform for the interdisciplinary research. High-performance computing, client-cloud architecture, broadband networks, personal devices and sensors, multimedia and multimodal data pervade our society. This creates an unprecedented explosion in data volume in many forms and is often described as "Big Data". The applications of Big Data are important to visualize the social needs and to generate new knowledge for smart decision-making. Social networks, digital behavior, data analytics on health are the typical research areas.

This new mini-track broadly covers a variety of issues related to digital health, including mobile platforms and wearable devices applied on healthcare, artificial intelligence and machine learning application on healthcare, telemedicine for patient management, impact of environmental and climate changes for health, big-data architecture and cloud computing for health systems, data capturing techniques on personal health records, image processing and voice recognition for data extraction, data analytics on worldwide and open source health data, data simulation for scenario modeling on health system, and feature selection in genomic data.

The mini-track aims at providing an international and interdisciplinary forum that is dedicated to exploring the Big Data application in healthcare. It also provides an opportunity for current researches that examine large-scale healthcare data with the use of scalable data analytics methods, such as machine learning. The six papers in this mini-track include studies that: (1) develop novel machine learning model for complex healthcare data, (2) analyze the use of big-data techniques on global health problems; and (3) assess association of literacy and healthiness among Chinese community from a genetic view taking advantage of big-data methods.

The presentations of six papers are arranged in two sessions. The first session focuses on quantitative and machine learning solutions of health records based on empirical studies. The physician's perspective as well as the patient-centric view will be addressed. Exemplary prototypical systems will be introduced. Papers within the second session exhibit results of conceptual models for completeness of electronic medical records and the qualitative study of the potential of big data on the health care delivery value chain. All together the contributions serve to illustrate the potentials of big-data research on healthcare application.

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