Minitrack for Big-Data on Healthcare Application

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The recent confluence of new technologies and data-intensive research methodologies offers a new research challenges for traditional 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 fundamental definitions of Big Data include three V's: Volume – incredible amounts of data in computing scale, Velocity – speed of data creation and Variety – data beyond the traditional format, e.g. voice or image. Recently, the definitions were extended to five V's with Veracity and Value: Veracity – quality and trustworthiness of the data; and Value – interpretation and application of healthcare data. The applications of Big Data are important to visualize the political and social needs and to generate new knowledge for decision-making. Social networks, digital behavior, data analytics on health are the emerging research areas.

This minitrack broadly covers a variety of research topics on digital health, including mobile platforms and wearable devices applied on health monitoring, artificial intelligence and machine learning application on health data, 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 open source health data, data simulation for scenario modeling on health system, and feature selection in genomic data. We aim 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 largescale healthcare data with the use of scalable data analytics.

The six papers in this mini-track include studies that: (1) detect Schizophrenia through machine learning on one-minute EEG records; (2) diagnosis of sleep disorders with machine learning on EEG records; (3) identify concept networks in selected clinical safety incident classes; (4) evaluate complementary and integrative health treatments in patient with musculoskeletal disorders with explainable deep learning and logistic regression; (5) predict risk of hospital readmission for comorbidity with deep learning framework; (6) forecasting blood glucose with open source artificial pancreas system. All papers are competitive to be selected in this meeting and will serve to illustrate the potentials of big-data research on healthcare application.

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