Big Data Can Open a New Era of Healthcare

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Abstract
With the evolution of bioinformatics in conjunction with technology, healthcare has grown from individual to global scale. Consequently, healthcare and IT professionals are utilizing technology to its best for providing better medical services and facilities. With this evolution, the surge of accumulating personal data from human activities and vital signs for better healthcare and wellbeing services has grown exponentially. Personal gadgets and electronics like smart phones and watches are well equipped with sensors acquiring various types of vital signs and activity information. Clinical data is complemented with this accumulated personal data for medical, well-being, and care-giving reasons. Personal data generated by human beings due to interactions with the environment is of various types and magnitude. To support this variety and volume of personal data, information technology is providing numerous platforms. However, these platforms are limited either by scope, magnitude or efficiency. A cumulative resolution that can handle this large volume of heterogeneous personal data with efficiency continues to be missing. To support large volumes, we have big data technologies, however these technologies need to be exploited further to handle heterogeneity with efficiency. Thus, a new era of personalized healthcare support information technology platform can be achieved. To embrace this evolution, we have proposed a comprehensive healthcare platform called “Mining Minds” that is based on a layered architecture and provides high quality personalized services. Mining minds platform takes benefit from the technology of big data with respect to the variety as well as volume, mapping of life events through sensory environment with reasoning and prediction to process the real-time data for providing personalized services. The platform will benefit the users in the form of personalized life quality improving services, Silver business services, proactive way to control the chronic disease services, and life care services.

Short Biography
Sungyoung Lee received his B.S. from Korea University, Seoul, South Korea in 1978. He got his M.S. and Ph.D. degrees in Computer Science from Illinois Institute of Technology (IIT), Chicago, Illinois, USA in 1987 and 1991 respectively. He has been a professor in the Department of Computer Engineering, Kyung Hee University, Korea since 1993. He is a founding director of the Ubiquitous Computing Laboratory, and has been affiliated with a director of Neo Medicinal
ubiquitous-Life Care Information Technology Research Center, Kyung Hee University since 2006. Before joining Kyung Hee University, he was an assistant professor in the Department of Computer Science, Governors State University, Illinois, USA from 1992 to 1993. His current research focuses on Ubiquitous Computing, Cloud Computing, Intelligent Computing, Context-Aware Computing, WSN, Embedded Realtime and Cyber-Physical Systems, and eHealth. He has authored/coauthored more than 510 technical articles (190 of which are published in archival journals). He is a member of the ACM and IEEE.