1. Summary and Scope
In the past decade, we have witnessed the greying of society and the escalating costs of medical managements, which have been the number one concern of most governments. This has heightened the need for preventive healthcare practices that helps to anticipate and prevent the onset of illnesses. On the other hand, with the help of advanced medical devices and social networking services, medical data is more convenient to be acquired, shared, and delivered. As such, medical filed is entering a big data era. When being applied to big medical data applications, lots of the existing tools and systems for big medical data analytics would become questionable. However, the big medical data itself in turn has provided unique opportunity for better wellbeing.

On the other hand, there is a realization that an essential part of long-term healthcare is in adopting a good life style that involves proper exercises and diets. Many companies marketing wearable health sensor products therefore also offer mobile health apps that provide first-order analytics to monitor and track personal life styles. However, the sensing data and the low-level analytics are typically used in isolation without integration to medical knowledge or environmental data, such as weather and pollution. In addition, there are strong links between personalized health sensor data to knowledge of critical illnesses such as Diabetes, Depression or Arthritis, as the long-term cares of these illnesses are related to proper activities and diets. The integration of these sources would usher in a new era of personalized wellness that enables the system and users to work collaboratively towards better wellness and lifestyles.

This special issue aims to link big medical data to sensor and environmental data to support better personalized health and user mobility, especially with respect to critical illnesses. Originality and impact on society, in combination with the innovative technical aspects of the proposed solutions will be the major evaluation criteria.

The list of possible topics includes, but not limited to:
- Gathering, analysis and organization of multi-source medical data
o Medical support groups discovery from active social networks
o Social media and public health
o Multi-modal analysis and mining in healthcare
o Integration of medical sensor data and environmental data
o Personalized lifestyles and medicine
o Drug-related research and development
o Data security and protection for health data
o Systems for monitoring and managing population health
o Delivering health information and knowledge to the public
o Using analytics to improve healthcare outcomes (patient safety, medical error reduction etc.)
o Developing data-driven systems that better support patient-provider interaction
o Improving healthcare workflow and process efficiency
o Improving government and community health policy making
o Detecting disease outbreaks & biological threats using analytics
o Personal health records and self-care systems
o Health-oriented question answering systems
o Health-oriented search and indexing
o Cloud-based multimedia applications and services for e-health
o Visual analytics of skin diseases and interactive computation
o Integrated multimedia patient record systems
o Tele-health and immersive health systems
o Multimedia delivery for healthcare
o Music or game therapy
o Multimedia sensing data in healthcare
o Health log analysis and visualization
o Mobile and augmented reality technology in healthcare
o Quality assessment of multimedia health data
o Human computer interaction for medicine and healthcare

2. Submission Guideline

Before submitting your manuscript, please ensure you have carefully read the Instructions for Authors for IEEE TBD. The complete manuscript should be submitted through IEEE TBD’s
To ensure that you submit to the correct special issue, please select the appropriate section in the drop-down menu upon submission. In your cover letter, please also clearly mention the title of the SI.

3. Important Dates:

- Paper submission due: Nov 1, 2015
- First notification: Jan 1, 2016
- Revision: Mar 1, 2016
- Final decision: Apr 1, 2016
- Publication: Jul 1, 2016

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