



## **MONTHLY RESEARCH SEMINAR**

### **Perspective of IoT-based Healthcare Systems**

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Texas Southern University

#### **Abstract**

Taiwan's elderly population will increase from 2.486 Million in 2010 to 7.844 Million in 2060, which means the proportion of elderly to total population will grow from 10.7% to 45.6%. Many countries nowadays are also facing a serious social problem of ageing population structure. The medical care problems that accompany the aged population will aggravate the burden of national health insurance. Therefore, there is an imminent need to develop simple yet effective wearable devices to long-term monitor and measure health conditions of elderly people. Recently, self-healthcare at home becomes one of the blooming research topics. However, most healthcare budget is allocated to medical cure to heal the sick in current health insurance system. Due to the continuing increase in medical care expense, it is time to also consider the importance of daily health maintenance, accident prevention as well as mental care so that senior citizens can have a chance to better enjoy the beauty of a longer life span. Conventional health care systems assumed that elderly people have no physical and social activities. Even worse, they are designed for sick elderly. It is worthy to emphasize the issues such as how to assist the elderly to live in a healthy state while being comfortable and happy. This talk will address from the Internet of Things (IoT), big medical data mining and system engineering perspective for systems developed to resolve the sensing, networking and applications involving Parkinson's Disease (PD) tremor measurement, joint rehabilitation after Total Knee Arthroplasty Reconstruction (TKA), cognition examination, and Visual Acuity (VA) for self-healthcare.

#### **Biography**



Dr. Huang received his Ph.D. in electrical engineering from Texas Tech University, Lubbock, TX, USA. He is currently a Professor in the Department of Electrical Engineering at National Taipei University of Technology (NTUT), Taiwan and a Professor in the Department of Computer Science and Information Engineering at National Taipei University, Taiwan. He also serves as President of Taiwan Association of Systems Science and Engineering, and Chairman of IEEE SMC Taipei Chapter. Under his leadership, SMC Taipei Chapter was awarded as the Outstanding Chapter Awards from both IEEE SMC Society and IEEE Taipei Section in 2016. He was the secretary general at

NTUT, Chairman of IEEE CIS Taipei Chapter and CEO of Joint Commission of Technological and Vocational College Admission Committee in Taiwan. He was professor and Dean of College of Electrical Engineering and Computer Science, Tatung University, Taipei, before joining NTUT. His research interests include Internet of Things (IoT), fuzzy control, intelligent systems design, and medical data mining. Prof. Huang is a senior member of the IEEE and a fellow of the IET.