IEEE CE Hong Kong Chapter Runs Successful One-Day Workshop

The IEEE CE Hong Kong Chapter organized a one-day workshop on 10 March 2018 in Hong Kong, coorganized with the CIE Hong Kong Chapter. The focus of the event was on the system biology aspects of consumer health-care devices, reliability, and optimization of preventive-care solutions. The workshop featured speakers from the industry as well as the international research community. Also included were panel discussions and a roundtable working group aimed at future actions by the Hong Kong government system biology and biomedical systems initiative to foster adaption and acceptance of consumer health-care applications. Approximately 50 people were in attendance for the day-long workshop that consisted of ten technical papers and four posters.

> The workshop focused on the biomedical aspects of these consumer health-care devices and medical systems.

The Workshop Organizing Committee included General Chair Bernard Fong, Auckland University of Technology, New Zealand; Deputy General Chair K.F. Tsang, City University of Hong Kong; Technical Program Committee Chair Bingo W.K. Ling, Guangdong University of Technology, China; Publicity Chair C.K. Li, Add-Care Ltd.; Local Liaison Chair W.C. Lee, Hong Kong Polytechnic University; Publications Coordinator Dr. Robin S. Bradbeer; and Finance Chair Edward Cheung, Hong Kong Polytechnic University. Supporting organizations included the IEEE Product Safety Engineering Society Hong Kong Chapter, Institution of Engineering and Technology Hong Kong, and Hong Kong Institution of Engineers Electronics Division.

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The Organizing Committee of the IEEE CE Hong Kong Chapter workshop. Far left: George Woo, vice-chair; third from right, Dr. Robin Bradbeer, secretary; second from right, K.F. Tsang, chair.

The workshop guest speakers.

Recent advances in wearable health devices, ranging from general consumer health monitors for daily activity tracking to sophisticated medical devices, provide a platform for gathering vital information about a user in the event of an emergency. As healthcare service providers become increasingly reliant on intelligent and interconnected devices in every aspect of health support, critical reliability, data integrity, and interoperability are important considerations that need to be thoroughly addressed. In addition to the technical challenges, relevant social and economic issues also need to be solved for integrating these devices into the national health systems so that the electronic patient records of individual users can be continuously updated. The workshop focused on the biomedical aspects of these consumer health-care devices and medical systems.

The following topics were covered: interoperability, backward, and forward compatibility for legacy system integration as well as future trends; flexible deployment, self-cognizant devices, and systems; resource management and optimization; efficiency and reliability for emergency support; biosensing and biomaterials in consumer health applications; and health-care development, the elderly, safety, biomedical sensors, wearables, and Internet of Things (IoT) health care.

The event opened with welcoming remarks by Hong Kong CE Society Chapter Secretary Dr. Robin S. Bradbeer.

The event opened with welcoming remarks by Hong Kong CE Society Chapter Secretary Dr. Robin S. Bradbeer. This was followed by the keynote speech "IoT, Health Data, and Patient-Oriented Health Management," by Clube Ng, coopted board member, eHealth consortium, and working council member, Asia eHealth Information Network. This was followed by the paper presentation, "Blood Sugar Estimation with Hotoplethysmogram," by Dr. Chih-wei Tsai, Dr. Chun-Hung Li, Dr. Ringo Lam, Dr. C.K. Li, and Sam Ho, Add-Care Ltd. "Safety IoT Healthcare," by Woody C.K. Wu, K.F. Tsang, Hongxu Zhu, and YuCheng Liu, all with City University of Hong Kong, was also presented to the attentive crowd.

After a coffee break, the workshop continued with "Healthcare Product Analysis," by Dr. Tony Lee, the Open University of Hong Kong; "Smart Elderly Care Robot," by Ivan Cheng and Dr. Y.H. Shum, Department of Engineering, Hong Kong Institute of Vocational Education (Shatin). Lunch was then followed by the following presentations: "Wearable Devices for Health Informatics," by Dr. Yali Zheng, Chinese University of Hong Kong; "Eye-Based Mobile Health System: More Than Meets the Eye," by Dr. Kevin Hung, Open University of Hong Kong; "Miniature System for Optogenetic Neural Circuit Manipulation," by Dr. Pun Sio Hang, Biomedical IC Research Line, State Key Lab of Analogue and Mixed-Signal VLSI, University of Macau, China; "Skin Impedance Measurement in Wearable Noninvasive Optical Blood Glucose Monitors," by C.K. Li, B. Fong, and Chih-Wei Tsai; and "Restoring Severe Quantized Signals for Blood Glucose Estimation," by Dr. Yuwei Liu and Dr. Wing-Kuen Ling, Guangdong University of Technology, China, and Chi-Kong Li and Sam Ho, Shu Tang Information Technology (Shenzhen) Company.

The workshop was considered a great success and will be held again in 2019.

—Robin Bradbeer and K.F. Tsang

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