Editorial Preface

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Web pages/applications are a must for organizations. Nowadays, they face two more choices, native apps and mobile web apps, because more people use devices instead of PCs or notebooks to access the Internet. However, not all organizations are able to afford all three because there is a trade-off among the three technologies, web pages/applications, native apps, and mobile web apps. Native apps are convenient and trendy, but it is not easy to develop. On the other hand, mobile web apps can be created by modifying the traditional web pages/applications, but they are not as fit as native apps are. Organizations have to make a decision among the three technologies based on their needs, budget, and personnel. This issue consists of four articles covering the current research topics of handheld computing including: (i) face recognition, (ii) an artificial pancreas system, (iii) a WLAN indoor positioning system, and (iv) mobile applications. Brief introductions of the four articles are given next.

Article 1. A hybrid feature extraction framework for face recognition—HOG and compressive sensing: Many smartphones and mobile apps are with a face-recognition function, which could be used for many applications such as identity check and people search. This research proposes a hybrid face-recognition framework based on the features obtained by using histograms of oriented gradients (HOG) descriptor and compressive sensing (CS). The HOG feature descriptor has the advantage of extracting face feature vectors even with changes in face appearance and is fully capable of handling variations in illumination. On the other hand, the CS is used to reduce the density of the resulting HOG face features which has a significant effect on improving the computational cost and performance of the system. The results demonstrated that the proposed hybrid method could be implemented in a complete system for recognizing and identifying faces with varying illuminations, facial expressions and poses, and backgrounds in real time.

Article 2. Hardware and software implementation of an artificial pancreas system on a mobile device: Diabetes is a serious health issue. There were more than 400 million people are diagnosed with a type 2 diabetes according to the World Health Organization (WHO). Once people are with diabetes, taking care of themselves or them becomes a huge task to the patients and the healthcare personnel. In this work, an artificial pancreas (AP) system, implemented on a mobile device is described. The proposed AP platform integrates hardware (insulin pump, glucose monitor, various sensors for vital signs and physical activities) and software (closed-loop control algorithm, sensor fusion, data storage and remote server access) components via smartphone that is running a dedicated operating system designed for AP systems. Interfacing with this operating system and custom application development steps are presented. Closed loop operation is demonstrated with case studies.

Article 3. Convex optimization via Jensen-Bregman divergence for WLAN indoor positioning system: An indoor positioning system (IPS) is a network of devices used to locate and track objects in buildings. It could be used by many applications such as locating objects or people and emergency evacuation. This paper proposes a framework for WLAN ISP that incorporates the probabilistic neural network (PNN) with Jensen-Bregman Divergence (JBD). To validate their algorithm, the results were compared with PNN and kNN nearest neighbor. Where implemented inside an academic

building. Experiment results show that PNN-JBD achieves competitive performance comparing with traditional approaches.

Article 4. The use of embedded mobile, RFID, location based services and augmented Reality in mobile applications: This paper discusses the uses of embedded mobile, radio-frequency identification (RFID), location-based services (LBS), and augmented reality (AR). Embedded mobile refers to preprogrammed tasks that are performed on a mobile device. The RFID device, consisting of a small chip and an antenna, serves the same purpose as a bar code. Other than providing a unique identifier for that object, it is able to carry more data, 2,000 bytes, than a bar code or magnetic strip does. A location-based service is a service based on the geographical position of a mobile handheld device. Finally, augmented reality is a view of a real-world scene where components are augmented by computer-generated objects like images and audio clips. One example is complementing the Google Maps Street Views by markers like store names.

Handheld computing becomes very popular since there are more than 1 billion smartphones delivered every year. Developers have created millions of apps covering all activities of our daily lives including location-based services, handheld games, mobile social networks, and enterprise mobile management, just to name a few. It is believed the handheld computing will continue flourishing in the future. The content within this issue includes papers from the Annual IEEE International Conference on Electro/Information Technology (EIT), and each manuscript was carefully selected following a rigorous peer review process. The IJHCR is entering its 8th year and will continue sharing contemporary handheld-computing research with handheld community. The Editor-in-Chief appreciates your support and hope you will enjoy it.

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Wen-Chen Hu received a BE, an ME, an MS, and a PhD, all in Computer Science, from Tamkang University, Taiwan, the National Central University, Taiwan, the University of Iowa, Iowa City, and the University of Florida, Gainesville, in 1984, 1986, 1993, and 1998, respectively. He is currently an associate professor in the Department of Computer Science of the University of North Dakota, Grand Forks. He was an assistant professor in the Department of Computer Science and Software Engineering at the Auburn University, Alabama, for years. He is the Editor-in-Chief of the International Journal of Handheld Computing Research (IJHCR), the general chairs of a number of international conferences such as the 2016 International Conference on Big Data, IoT, and Cloud Computing (BIC 2016), and associate editors of several journals like Journal of Information Technology Research (JITR). In addition, he has acted more than 100 positions as editors and editorial advisory/review board members of international journals/books, and track/session chairs and program committee members of international conferences. He has also won a couple of awards of best papers, best reviewers, and community services. Dr. Hu has been teaching for about 20 years at the US universities and over 10 different computer/IT-related courses, and advising/consulting more than 100 graduate students. He has published over 100 articles in refereed journals, conference proceedings, books, and encyclopedias, edited more than 10 books and conference proceedings, and solely authored a book entitled "Internet-enabled handheld devices, computing, and programming: mobile commerce and personal data applications." His current research interests include handheld/mobile/smartphone/spatial/tablet computing, location-based services, web-enabled information system such as search engines and web mining, electronic and mobile commerce systems, and web technologies.