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Remote Health Monitoring: Saving the Healthcare System Using Wireless Health
Dr. Hassan Ghasemzadeh, UCLA
Seminar

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Abstract

The rapid expansion of elderly population and increasing costs associated with chronic disease management demand novel technological solutions that shift healthcare services from clinical and hospital settings to a remote and home-bound scenario. Fortunately, the last decade has witnessed rapid advances in several technological domains including electronics, communications, and sensor design leading to the development of new remote health monitoring systems capable of collecting and analyzing varying heterogeneous physiological signals from human subjects. These systems promise to reduce healthcare costs and improve quality of life by reducing the morbidity, mortality, and economic costs associated with hospital readmissions due to various chronic diseases. The development of effective and sustainable remote health monitoring systems, however, faces a number of challenges regarding their robustness, scalability, power efficiency, and real-time responsiveness. This talk presents an end-to-end research methodology for design and development of next generation remote health monitoring platforms. A data-driven system design approach is described to enhance power efficiency and usability of these systems while improving medical outcomes. Specifically, novel techniques are introduced for optimal sensor selection and placement using wearable wireless sensor devices.

Biographical Information

Hassan Ghasemzadeh is currently a Research Manager at the UCLA Wireless Health Institute and an Adjunct Professor of Biomedical Informatics at San Diego State University. His research interests lie in different aspects of Embedded System Design including sustainable and green computing, low-power architectures, reconfigurable computing, and system-level optimization. The focus of his current work is on processing platform design, collaborative signal and information processing, power optimization, data analytics, and algorithm design for networked embedded systems with a primary emphasis on applications in healthcare and wellness. His research spans the areas of embedded systems, computer architecture, signal processing, and machine learning, where he has published more than 70 technical papers on the subject including some of the earliest works in the field that address fundamental challenges of next generation biomedical systems.

Hassan is currently leading several research projects funded by NSF, NIH, and industry, is an investigator on several funded proposals, and is a technology lead on six clinical studies. In 2011, he was honored as the Faculty of the Year for his contributions to advancing teaching and research within the Biomedical Informatics program at SDSU. Hassan was the Founding Chair of the Computer Science Department at Azad University, Damavand Branch, Iran, between 2003 and 2006. In the past, he has received several awards including a best poster award at ACM HotMobile 2009, and a best paper award at the IEEE RTAS 2011. He received his Ph.D. degree in Computer Engineering from the University of Texas at Dallas in 2010, and spent the academic year 2010-2011 as a Postdoctoral Fellow at the West Health Institute. He received his M.S. degree in Computer Engineering from University of Tehran, Tehran, Iran, in 2001 and his B.S. degree in Computer Engineering from Sharif University of Technology, Tehran, Iran in 1998.