IST Faculty Candidate Lecture

Mobile and Connected Health:

Towards a Proactive and Patient-centered Healthcare System Using Wearable Sensors and Networks

Wednesday, March 23
11:10 a.m.
202 IST Building

Sunghoon Ivan Lee

Sunghoon Ivan Lee is currently a postdoctoral research fellow in the Department of Physical Medicine and Rehabilitation at Harvard Medical School. His primary research goal is to study and develop innovative methods that would support the transformation of healthcare from reactive and hospital-centered to a proactive, preventive, and patient-centered care system. With a primary focus on evolution, his research interests lie in 1) developing novel body sensors and remote monitoring systems; 2) analyzing the obtained data to quantify patients' conditions; and 3)validating the systems' efficacy through clinical trials.

Sunghoon received his Ph.D. in computer science from UCLA in 2014 with the Outstanding Doctoral Research Award. He received his M.S. degrees in electrical engineering and computer science from UCLA in 2010 and 2012, respectively. Sunghoon published seven journal papers, 14 peer-reviewed conference papers, and 12 abstracts and demos.
His work received several paper awards including the Best Demo Award from the ACM MobiSys, the Best Demo Honorable Mention at IEEE SECON, and a Featured Article of the Issue at IEEE JBHI. Sunghoon is highly interested in the commercialization of his work to translate his research findings into meaningful health outcomes for patients, and he holds a pending US patent and an international patent on a mobile exergaming for upper-limb rehabilitation. Sunghoon is a recipient of the UCLA Computer Science Department Fellowship from 2011 to 2014.

Abstract:

The health care systems of many industrialized nations, including the US, are facing daunting challenges such as a clear trend towards an aging of the population. This large elderly population having complex health conditions is beginning to severely stress the Medicare system. Researchers, health service providers and government leaders are seeking technological solutions to this problem in order to expand the capabilities of the healthcare system.

This talk will introduce research in mobile and connected health, an interdisciplinary research field that brings together experts in engineering, data science, and healthcare in order to support the much needed transformation of healthcare from reactive and hospital-centered to a proactive, evidence-based, and personalized care system. More specifically, this talk will discuss an end-to-end research methodology for 1) developing novel body sensors and remote monitoring systems that are motivated by practical medical needs; 2) analyzing the obtained data to quantify patients' conditions; and 3) validating the systems' efficacy through clinical trials. Some ongoing research projects targeting knee osteoarthritis,stroke, and traumatic brain injury patients will be presented.

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