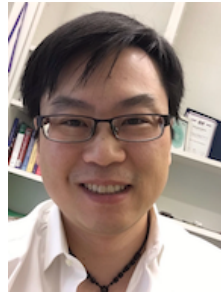


UNIVERSITY OF CHICAGO
DEPARTMENT OF COMPUTER SCIENCE
PRESENTS:

Interactive Systems for “Smart Things” with Better Sensing, UI, and Low Energy Consumption



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Abstract:

Interactive devices are an essential component of any computing system. However, those that are widely used today (e.g., a touchscreen) do not fit well with the new forms of computing in the era of “Smart Things” and beyond, where computing is no longer restricted to a square machine or flat surface, but is instead carried out on smart everyday “things” (curved or flat, soft or rigid) that are at home, at a workspace, or worn on the body. As such new interactive devices and software systems need to be developed to allow a wide adoption of this technology for significant societal benefits.

In this talk, I will present three projects to exemplify our efforts in this space by demonstrating our approaches to overcome some of the major challenges we are facing in hardware (e.g., sensing), software (e.g., user interface), and energy consumption. For sensing, I will present a soft sensor, developed for contextual interactions on interactive fabrics based on the precise detection and recognition of conductive objects that are commonly found in households and workplaces. For user interface, I will introduce an on-fingertip keyboard, optimized for eyes-free typing using micro finger gestures. For energy consumption, I will present a self-powered module for gesture recognition that utilizes solar cells for both energy harvesting and gesture sensing. I will also describe the visions behind these three lines of research.

Bio

Xing-Dong Yang is an Assistant Professor of Computer Science at Dartmouth College. His research is broadly in Human-Computer Interaction (HCI), where he investigates future interactive systems and brings interactivity to everyday objects for social good. Xing-Dong’s work is recognized through Best Paper award at ACM UIST 2019 and Honorable Mention awards at ACM CHI 2019, 2018, 2016, 2010 and ACM MobileHCI 2009. Aside from academic publications, Xing-Dong’s work attracts major public interest via news coverage from a variety of media outlets with different mediums, including TV (e.g., Discovery Daily Planet), print (e.g., The Wall Street Journal, Forbes), and Internet News (e.g., MIT Technology Review, New Scientist).

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3:30 pm

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Host: Blase Ur