Computational Screening and Surveillance: the Vision, Roadmap, and Technologies

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DATE 22 Mar, 2023 (Wed)
TIME 10:00 AM - 11:00 AM
VENUE B5-309, 5/F., Blue Zone, Yeung Kin Man Academic Building, City University of Hong Kong, 83 Tat Chee Avenue, Kowloon Tong, Hong Kong

ABSTRACT

Screening is the early detection of present or imminent diseases while surveillance is the continuous monitoring of progression of existing diseases. Current medical practice of screening and surveillance relies on mostly interval clinical visits, which are incomplete, untimely and unsustainable. They may miss significant portions of health related events, detect much later after their occurrences, and cannot keep up with the aging population with a reduced healthcare workforce. Computational Screening and Surveillance (CSS) uses sensing devices deployed on premises to collect continuous, multi-modality physiologic and physical data, edge servers and cloud to run analytics to analyze such data for actionable knowledge, insights for early detection, preemptive intervention in the diagnosis, treatment and management of a wide range of health conditions. In this talk, we will present the vision of CSS, including the concept, benefits; the roadmap to achieve this vision; and a few critical technologies on robust vital sign sensing, near zero configuration indoor trajectory tracking. At the end we will describe ongoing activities and future directions.

BIOGRAPHY

Fan Ye is an Associate Professor in the ECE department of Stony Brook University. His research interests include sensing platforms, systems and applications, computational screening and surveillance for health care, smart aging, data-centric wireless communication, edge computing, Internet-of-Things, and location based services. He has published over 130 papers and 30+ granted/pending patents/applications with 14,000+ citations according to Google Scholar. He has received NSF CAREER award, Google Faculty Research Award, IBM Research Division Award, five IBM Invention Achievement Plateau awards, three Stony Brook CEAS Dean's Millionaires' Club Awards, Best Paper Awards for IEEE ICCP, ACM BCB, IEEE ICHI. He has been a panelist for NSF, NIH and Canada, Hong Kong government funding agencies, on program/organizing committees for conferences including IEEE Infocom, IEEE ICDCS, ACM Mobicom, ACM Sensys, ACM/IEEE IWQoS.

All are welcome!

In case of questions, please contact Prof Jianping Wang at jianwang@cityu.edu.hk, or visit the CS Departmental Seminar Web at https://www.cs.cityu.edu.hk/events/cs-seminars/recent-cs-colloquiums.