Computer Science
Seminar

Multimodal Analysis of Healthcare Data Using Wearable Sensors and EHR

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Abstract: In this talk, we will discuss two ongoing NIH funded projects that employ machine learning techniques to address chronic healthcare conditions. In the first project, we use wearable sensor data to measure the sleep quality in caregivers of persons with dementia as a means to assess caregiver burnout. In the second, we leverage EHR (electronic health records) notes, as well as wearable sensor data to detect pain in patients with sickle cell disease. I will discuss some of the technical challenges and contributions from these studies that focus on feature extraction, robust feature selection, and data summarization. ¡br¿¡br¿ Biography: Dr. Banerjee is an Associate Professor in the Department of Computer Science and Engineering, with a secondary appointment at the Department of Geriatrics, Boonshoft School of Medicine at Wright State University. Her research interest lies in using technology to solve healthcare challenges specifically to manage chronic conditions. Using mobile technology, she employs machine learning and signal processing techniques to assess patient symptoms remotely as well as unobtrusively. Her current research within the geriatric population includes using fitness devices for stress assessment in caregivers of patients with dementia (featured in local media sources, Alzheimers Association, as well as in the Research Features special issue of Women in Science, 2018). Dr. Banerjee has been awarded the NIH K01 and an additional R01 supplement (as PI) to support her work with caregiver stress in dementia patients, and is also a co-PI on two R01 projects for asthma management in children (completed), and pain assessment in patients with sickle cell disease, respectively. She is currently an associate editor for the journal IEEE Transactions on Fuzzy Systems, and serves on the program committees of workshops and conferences. Most recently, she is a moderator for TechRxiv (arXiv for IEEE Technical manuscripts) and has served on the program committee of AAAI, IEEE Big Data and reviewed for IEEE EMBC (Engineering in Medicine and Biology) and AMIA.

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