ETH zürich

Center for Digital Health Interventions
CSS Health Lab | Health IS Lab

Institute of Technology Management
University of St.Gallen

Guest Lecture

Varun Mishra

Detecting Stress from Physiological Signals

Thursday, February 6, 2020, 3:00pm - 4:00pm

ETH Zürich, Main Building, Rämistrasse 101, HG F 26.1

www.c4dhi.org

About Varun Mishra

Varun Mishra is a Ph.D. candidate in the Department of Computer Science at Dartmouth College, working with Prof. David Kotz in the domain of mHealth sensing and intervention. He is affiliated with the Center of Technology and Behavioral Health (CTBH) at Dartmouth. His current research interest broadly focuses on the development of novel mobile sensing and intervention systems for smartphones and wearable devices. He is particularly interested in sensing mental and behavioral health conditions, like stress and opioid use, and providing meaningful and impacting interventions.

About the Lecture

Timely detection of an individual's stress level has the potential to improve stress management, thereby reducing the risk of adverse health consequences that may arise due to mismanagement of stress. Recent advances in wearable sensing have resulted in multiple approaches to detect and monitor stress with varying levels of accuracy. The most accurate methods rely on clinical-grade sensors to measure physiological signals, including heart rate, respiration, and Galvanic Skin Response (GSR). However, two major challenges currently exist with detecting stress: (1) use of bulky, custom-made, and expensive devices to measure physiological signals which reduces reproducibility and large scale deployments; and (2) lack of verified generalizability, where researchers build their stress-detection models using data collected from participants belonging to a particular demographic, in a specific setting, using a particular device and hope that their methods will apply to a broader population.

In this talk, Varun will present his work on addressing the challenges above in detecting stress using physiological signals. He will start by highlighting the current methods for detecting physiological stress and discuss their approach of detecting stress with just a commodity device (Polar H7). Next, he will discuss their work in testing the efficacy of their approach with data collected from 5 independently conducted studies. He will also present several novel machine learning methods and techniques to advance the field of physiological stress detection. Finally, he will conclude by highlighting the challenges that still exist and discuss potential solutions.

We invite you to join this guest lecture. Registration is not required.

Prof. Dr. Tobias Kowatsch
Assistant Professor for Digital Health, University of St.Gallen (HSG)
Director, Center for Digital Health Interventions (CDHI), ETH Zürich & HSG

Prof. David Kotz, PhD
International Paper Professor, Dartmouth College
Visiting Professor CDHI, ETH Zürich

Prof. Dr. Elgar Fleisch
Professor of Information Management, ETH Zürich
Professor of Technology Management, HSG

Prof. Dr. Florian von Wangenheim
Professor of Technology Marketing, ETH Zürich