Memphis-led team awarded $13.8 million to develop mPerf mobile sensor technology for workplace assessment

July 26, 2017 - Many of us use mobile sensors to monitor our health and wellness. These sensors can now also be used to help us improve our work performance and productivity. Toward that end, a University of Memphis-led, six-university team will develop and test a system of mobile sensors and software, called mPerf, that can be used to objectively assess everyday job performance. The mPerf project is sponsored by the Intelligence Advanced Research Projects Activity (IARPA)'s Multimodal Objective Sensing to Assess Individuals with Context (MOSAIC) program.

Such current workforce evaluation tools as interviews, cognitive assessments and questionnaires do not always capture how an individual performs on a day-to-day basis. mPerf will address this challenge by building upon an open-source software platform developed by the NIH-supported Center of Excellence for Mobile Sensor Data-to-Knowledge (MD2K), also headquartered at the University of Memphis. This platform allows researchers to gather, analyze and store high-frequency mobile sensor data to discover and validate mHealth biomarkers. mPerf will extend this platform to model and predict work performance based on passively collected sensor-based markers of activity, behavior and context.

University of Memphis Professor Santosh Kumar, Lillian and Morrie Moss Chair of Excellence in Computer Science, will direct the project. Widely regarded as one of the nation's leading scientists in mobile health, Dr. Kumar will lead a team that includes some of the nation's top researchers in work performance (Deniz Ones, Minnesota), interpersonal communications (Eugene Buder, Memphis), stress (Mustafa al'Absi, Minnesota), sensor design and signal processing (Emre Ertin, Ohio State), mobile sensing (Tanzeem Choudhury, Cornell), mobile computing (Deepak Ganesan, UMass Amherst and Mani Srivastava, UCLA), and machine learning (Benjamin Marlin, UMass Amherst).

"Through MD2K, we have already developed many novel ways to monitor health and wellness using mobile sensors," Kumar said. "The mPerf project allows us to expand MD2K's offerings to help assess work performance and productivity using the same mobile sensors."

The mPerf team will collect data from 600 employees at five to 10 different organizations in the U.S. and abroad to develop and evaluate its models. mPerf researchers will leverage their decade-long experience in this field to develop unique sensor-based markers. They will then apply novel sensor data analytics to create a library of...
sensor-based indicators to measure work performance. "This project further establishes Memphis as a national leader in mobile sensor research," said Dr. M. David Rudd, UofM President. "Dr. Kumar and his impressive team of collaborators are again poised to make seminal contributions in this impactful area of research. It is quite an honor to be recognized at this level."

Find out more about the mPerf project here: mperf.md2k.org (http://mperf.md2k.org).

About IARPA's MOSAIC program:
MOSAIC is a new program looking at new ways to measure and predict individual job performance using unobtrusive, passive and persistent sensor-based measurements. Its goal is to improve the Intelligence Community's capabilities to evaluate its workforce throughout their careers. For more information, go to https://www.iarpa.gov/index.php/research-programs/mosaic (https://www.iarpa.gov/index.php/research-programs/mosaic).

About MD2K:
The MD2K Center at the University of Memphis is one of 13 national Big Data Centers of Excellence awarded by the National Institutes of Health as part of its Big Data-to-Knowledge initiatives. MD2K's goal is to generate generalizable theory, methods, tools and software to address major barriers to processing complex mobile sensor data. MD2K brings together top minds in computer science, engineering, medicine, behavioral science and statistics, drawn from 13 universities (Cornell Tech, Georgia Tech, Harvard, Northwestern, Ohio State, UCLA, UC San Diego, UC San Francisco, the University of Massachusetts Amherst, the University of Memphis, the University of Michigan, the University of Utah and West Virginia University). To learn more about MD2K, go to https://md2k.org (https://md2k.org).

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