Fridge: 160W

Microwave: 5W

Blender: 293W

Coffee:150W

Stove/Oven: 3kW

Dishwasher: 3.6kW

KEYNOTE: WIRE LESS SENSORS

http://nilmworkshop.org/2018/

ABOUT NILM 2018

The 4th International Workshop on Non-Intrusive Load Monitoring (NILM) will be held at the University of Texas, Austin, in **Austin, Texas** on **March 7 to 8, 2018**. The exact date is still being confirmed, and will be announced on our website at the end of November 2017. As in 2014, this workshop will be co-located with the Pecan Street Annual Research Conference. Last workshop was held June/2014 at Simon Fraser University in Vancouver, Canada.

ABSTRACT

When did it become normal for unprecedented quantities of data about you to automatically become the property of others? Why have we returned to a "server" model of information exchange for so many of our data services, reminiscent in ways of the early days of mainframe computing, where "someone else" is responsible for data security and service availability?

We are considering approaches for developing nonintrusive sensors that are relatively easy to install. These sensors offer several potential advantages. They can be installed at a central location and used to monitor the aggregate behavior of a collection of devices, reducing installation costs.   Signal processing techniques can be used to disaggregate the behavior of individual devices influencing the aggregate stream. Data from these nonintrusive sensors is inherently collated. This talk will review three different examples of nonintrusive sensors: the Electronic Stethoscope, WaterWolf, and VAMPIRE.   These three sensor systems permit nonintrusive monitoring of electric power consumption, water or fluid consumption, and electromechanical system performance including vibration monitoring, respectively. This talk will examine approaches for deploying and coordinating the operation of these sensors to secure data, minimize the need for communication bandwidth, and ensure the presentation of actionable information for enhancing system operation.

SPEAKER BIOGRAPHIES

Steven B. Leeb received his doctoral degree from the Massachusetts Institute of Technology in 1993. He has served as a commissioned officer in the USAF reserves, and he has been a member of the M.I.T. faculty in the Department of Electrical Engineering and Computer Science since 1993. He also holds a joint appointment in MIT's Department of Mechanical Engineering. He currently serves as MacVicar Fellow and Professor of Electrical Engineering and Computer Science in the Laboratory for Electromagnetic and Electronic Systems. In his capacity as a Professor at M.I.T, he is concerned with the design, development, and maintenance processes for all kinds of machinery with electrical actuators, sensors, or power electronic drives. A major thrust in his current research is the development of power electronic drives and supplies for servomechanical and industrial applications, including medical drug delivery devices, battery chargers, motion controllers and fluorescent lamp ballasts. Another research interest related to power quality issues and on-line machine diagnostics involves the development of a Nonintrusive Load Monitor (NILM). The NILM determines the operating schedule of the major electrical loads in a commercial or industrial building from measurements made solely at the electrical utility service entry. He is currently working to develop the NILM into a virtually sensorless platform to determine power quality, perform critical load diagnostics, and monitor manufacturing processes and actuator performance on ships, aircraft, automobiles, and satellites. He is the author or co-author of over 150 publications and 20 US Patents in the fields of electromechanics and power electronics.

John S. Donnal received his Ph.D. from MIT in the Electromechanical Systems Group in 2016. Prior to graduate school at MIT, he served as a US Army Signal Corps officer, deployed in Iraq. He is an expert in the application and design of embedded systems and power electronics, and has developed patented technology for identifying and characterizing the operation and health of electric loads on Coast Guard vessels, military bases, schools, and homes. He is a Martin Fellow and a co-winner of the 2016 MIT Clean Energy Prize. He currently serves as a faculty member at the US Naval Academy.