

## *The NIH mHealth Interest Group*

**Invites you to:**



### **Body Sensor Networks: An Application-Centric Approach**

John Lach, University of Virginia

July 20th at 3-4pm

Neuroscience Center, Room B1-B2

6001 Executive Blvd

Wireless body sensor networks (BSNs) have emerged in recent years to address a significant and persistent challenge in healthcare and medical research – the continuous, non-invasive, inexpensive collection of high-quality patient data. Longer battery lifetimes, smaller form factors, and higher manufacturing volumes have contributed to making BSN data collection more continuous, non-invasive, and inexpensive, respectively, but progress towards the demonstration of **high-quality** data is lacking. This presentation will discuss ongoing application-centric BSN research at the UVA Center for Wireless Health and partner institutions. The primary development system to be presented is TEMPO – a custom inertial BSN platform that provides six degrees-of-freedom wireless motion capture in a wristwatch form factor. Applications that will be discussed – all of which include human subject studies with TEMPO deployed on the target patient population – include fall risk assessment and fall prevention, agitation assessment in dementia patients, and orthopedic assessment for children with cerebral palsy. Advanced research leveraging this application experience includes strategies for dynamic power management and signal processing methods to extract medically relevant information from raw sensor data.

**John Lach** received his Ph.D. (2000) degrees in Electrical Engineering from UCLA. Since 2000, he has been a faculty member in the Charles L. Brown Department of Electrical and Computer Engineering at the University of Virginia. He is a Senior Member of the IEEE and is a former Associate Editor for the *IEEE Transactions on Computers* and the *IEEE Transactions on*

*Computer Aided Design of Integrated Circuits and Systems*. He is a Co-Founder and Steering Committee member for the *Wireless Health* conference series and is a Co-Founder and Co-Director of the UVA Center for Wireless Health. He has been the PI or co-PI on 29 grants and has published over 100 refereed papers, including two Best Paper Awards. His primary research interests include wireless health, body sensor networks, and digital system design methodologies.

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