Washington University in St. Louis
SCHOOL OF ENGINEERING & APPLIED SCIENCE

Preston M. Green Department of Electrical & Systems Engineering

Seminar Announcement

Neal Patwari, Ph.D.
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Electrical & Computer Engineering
University of Utah

Friday, June 8, 2018
Green Hall, Room 0120
11:00 A.M.

RF Sensing: Improved Context Sensing for Future Cyber-Physical Systems

Abstract: Dr. Patwari will describe research in radio frequency (RF) sensing, the use of low cost commercial radio transceivers to sense the state of the environment, to locate people and other radio devices, to remotely monitor vital signs, to perform frequency and time synchronization, and to sense the spectrum. RF sensing has important features which make it a good fit to enabling future "smart" buildings and internet-of-things networks, and generally for automated systems which must be both self-aware and aware of the humans with whom they interact. This talk presents his team's work to develop a new low-cost platform for RF sensing designed to achieve high accuracy but using orders-of-magnitude lower bandwidth than existing platforms. He will also describe and address some particular estimation problems which arise in RF sensing systems. The talk will conclude by describing future educational and research challenges in this area.

Bio: Neal Patwari received the B.S. (1997) and M.S. (1999) degrees from Virginia Tech, and the Ph.D. from the University of Michigan, Ann Arbor (2005), all in Electrical Engineering. He was a research engineer in Motorola Labs, Florida, between 1999 and 2001. Since 2006, he has been at the University of Utah, where he is an Associate Professor in the Department of Electrical and Computer Engineering, with an adjunct appointment in the School of Computing and Department of Bioengineering. He directs the Sensing and Processing Across Networks (SPAN) Lab, which performs research at the intersection of statistical signal processing and wireless networking. Neal is Director of Research at Xandem Technology, which develops security sensors, and founder of Sixth Sensing LLC, which is developing a medical breathing monitor, both based on technologies spun out of the SPAN Lab. Neal received the NSF CAREER Award in 2008, the 2009 IEEE Signal Processing Society Best Magazine Paper Award, and the 2011 University of Utah Early Career Teaching Award. His is a co-author on two papers with Best Paper Awards, at IEEE SenseApp 2012 and IPSN 2014. He regularly serves on technical program committees for ACM and IEEE conferences IPSN, ESWN, SECON, and MobiCom.

Host: R Martin Arthur