Abstract:
Pervasive sensing can enhance our understanding of the world around us and enables a wide range of context-aware applications. Applications that rely on such data should be provided with an understanding of the quality of information acquired from remote sensors. In the first part of my talk, I will describe our self-assessing query protocols, which report the fidelity achieved during distributed execution over a wireless sensor network. In the second part of my talk, I will describe how the vast mobile sensor network of people with smartphones can be used to collect, analyze, and share data about the surrounding environment and human experiences at an unprecedented scale, without requiring the purchase of specialized sensors or the installation, administration, and maintenance of a wireless sensor network infrastructure. This introduction of humans into the pervasive sensing loop brings new research challenges. I will address the issues of characterizing the quality of information received from people in crowdsensing campaigns and motivating users to contribute data that meets quality of information requirements.

Bio:
Jamie Payton is an Associate Professor of Computer Science at the University of North Carolina at Charlotte, where she is the co-director of the Wireless Networking and Sensing (WiNS) Lab. She received her D.Sc. in Computer Science at Washington University in St. Louis in 2006. Her research interests include crowdsensing, smart and connected health, and software engineering for pervasive computing environments. Dr. Payton is also committed to broadening participation in computing and advancing computer science education. She is the Director of the STARS Computing Corps, an NSF-funded alliance of 53 colleges and universities that aims to broaden participation in computing, and the co-founder of the International Conference for Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT).