

Invited Talk – *Jim Reich* – Palo Alto Research Center, <jreich@parc.com>

Collaborative Sensing and In-Network Processing of Sensor Network Data: I will discuss the challenges we have encountered and some of our solutions in implementing in-network processing on a sensor network for acoustic tracking of vehicles. Multisensor fusion for vehicle tracking in a centralized system is well-understood, but scales poorly in wireless networks with limited bandwidth and battery power. Performing the processing in-network, using local groups of collaborating sensors scales well, but presents a number of interesting algorithmic and protocol challenges. I will discuss these, with emphasis on sensor management: the selection of nodes to provide the best information available and the creation and maintenance of collaborative groups of nodes corresponding to specific physical phenomena.