

Data Intensive Mobile Sensornets: Killer Applications and Grand Deterrents

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Data Intensive Mobile Sensor Networks (DIMSNs) introduce a promising but still under-utilized technology. Meanwhile, there is a growing confidence that certain applications (*Killer Apps*) have a potential to create a sustained market for this technology. For example, a large team of cooperative mobile robots can be considered as a wireless sensornet composed of a number of mobile nodes most of which are power-constrained. Such mobile robots can be deployed in conjunction with stationary sensor nodes to acquire and process data for surveillance and tracking, environmental monitoring for highly sensitive areas, or execute search and rescue operations. This example illustrates conceptual attractiveness of the DIMSN systems that generates interesting and appealing research challenges (e.g., intelligent mobile agents, semantically enriched and context-aware wireless services, smart network monitoring infrastructures). However, while providing excellent funding opportunities, those challenges often underestimate *the GRAND DETERRENTS* that make moves towards practical data-intensive mobile sensornets extremely difficult.

Consider again the example of the collaborative mobile network for the environmental surveillance and tracking. A major issue here is that efficient collaboration within the mobile wireless team requires intensive exchange of multimedia data streams between the nodes. Wireless networks limitations for multimedia applications can lead to packet loss, delay and jitter. Packet losses can be greater due to the harsh wireless channel and increased collisions due to the presence of hidden terminals. Even constant bit rate traffic flows face significant variation in throughput and delay over the wireless link. With increase in the network scale and density of the nodes this problem becomes the *GRAND DETERRENT* for above application.

This panel is going to highlight and explore several potential *Killer Applications* in DIMSN environments. The panel will involve four panelists with quite diverse areas of expertise. Each of those areas will reflect a notable aspect of data management in mobile sensor networks. The panel chairs (with help of panelists) will identify several *Killer Applications* of the DIMSN technology. After that each panelist will be asked to specify a list of challenges that hold a progress towards creating a sustained market utilizing suggested *Killer Apps*. At the end of the discussion the panelists will be invited to vote on a final list of *really GRAND DETERRENTS* selected out of the specified challenges.

Panelists

The panelists, in alphabetical order, are:

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