Sensor Informatics Participants

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Sensor Informatics

A person walks into a bar…
…is brought to the hospital on time.

Unique aspects:
- Collection of devices, configured to serve a common goal (capturing snapshots of reality)
- Operational/functional constraints
- Unreliability and uncertainty
- Semi-infinite streams
- …
Sensor Informatics: Challenges

- Strong space and time component
- Adaptive systems
  - Failure management
  - Acquisitional query processing
  - Reconfiguration capability
  - Localized / distributed processing
- Query interfaces (declarative?)
- Computation in the presence of uncertainty in data and topology.
- Quality of service and resource trade-off (managing precision and resources)
Sensor Informatics: Challenges

- Context awareness (units part of network)
- Timely dissemination and processing
- Summarization / Integration
- Seamless integration of data with traditional data sources
- Learn, model, predict, monitor, repeat ad infinitum
- Uncertainty (the only certain thing)
  - Estimate and communicate
  - Model and tolerate
  - Latency
Interaction: HSNI

- Pervasive computing
- Active vs. passive networks
- Query interface
- Seamless integration with existing interfaces

Socioeconomic Issues

- Privacy, privacy, privacy
- Security
- Ability for large scale deployment
- Living with sensors, living without
Sensor Informatics Take-Aways

- **Unique characteristics:**
  - Unreliability
  - Adaptability
  - Constraints
  - Signal-based vs. Symbol-based processing

- **Input / Output Fora:**
  - NSF funding: from cutting to cross-cutting (ITR funding?)
  - Community building: Sensor Informatics Conference?