

Systems Engineering

Rouse, Iftode, Kamboj, Kimbrel,
Meyer, Schrader, Shmoys, Work

Framing Discussion

- Types of Systems
 - Engineered Physical Systems
 - Cyber-Physical Systems
 - Socio-Technical Systems
- Engineering Decisions
 - Design Decisions
 - Policies, Regulations, Incentives

Design Issues

- Conceptual Modeling of Systems
- Multi-Scale Modeling of Systems
- Robust Systems
 - Flexible, Adaptive Design (Modularity & Sensing)
 - Versus Time to Market/Deployment
- Failure Strategies
 - Redundancy, Distributed Control, Fail Safe Modes
- Security From Attacks

Data Issues

- Mining Data from Large-Scale Repositories
- Sharing Data and Repositories
- Leveraging Social Networks
- Utilizing Online Environments

Sustainability

- Sustainability of Interconnected Systems
 - Framing “the system”
- Leveraging Large Peer-to-Peer Networks
 - Direct vs. GPS enabled
- Success Depends on Usability of Solutions
- Sustainability of Researchers
 - Funding (ICES) and publication outlets