

Panel

■ Challenges and Research Directions in Resilient Cyber-Physical Systems

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Presentations Wrap up - Challenges

- Integration, interoperation of multiple and heterogenous devices
- Real-time filtering and fusion of data streams from multiple devices
 - Accuracy, dynamic adaptation to patient-specific diagnostic needs
- Need Robust/adaptive /safe controllers for the networked control system
- Hazard identification and analysis
- Modeling and simulation
 - Context-aware patient models, user-system interactions, mental models
 - Easy to understand, executable models
 - Hybrid (continuous + discrete) of systems of systems
 - Integrated analysis of models from different disciplines
 - Diverse cultures, formalisms, abstractions, scalability
 - Formal verification and analysis
- Runtime monitoring of user-systems interactions and deviation analysis
- Certification and assurance
 - Certification based on abstract interfaces, composition
- Security
 - self adapting human-secure design, high-assurance adaptable sec.architectures

Next Steps

- Make this workshop a regular forum at DSN to discuss:
 - Multidisciplinary approaches integrating **technological concerns** including physical system dynamics and ICT aspects, **but also social and human related aspects**
 - **Resilient Human-aware self-adapting approaches** to autonomously adapt to dynamic changes in system behavior, environment or threats
 - **Integrated and scalable design and assessment techniques** for optimal trade-offs during system engineering phases and at runtime
- See you at DSN-2013 for the 2nd edition!!