

### Wed Feb 3:

#### **Event-based Trust Framework Model in Wireless Sensor Networks**

1. What is the difference between reputation and trust rating (expectation of one entity)?
2. What are the drawbacks of ETSN?
3. What is the purpose of the agent node? How is it different than a regular node?

#### **Wireless Sensor Networks for Habitat Monitoring**

4. List the advantages of using sensor networks for habitat monitoring?
5. List general requirements for habitat monitoring applications?
6. List three essential services required for a sensor network deployed in real-life habitat monitoring?
7. Rather than using a few high quality sensors with sophisticated signal processing, why is it advantageous to use small inexpensive sensors densely deployed in patches?

### Friday, February 5, 2010

#### **An analytical study of central and in-network data processing for wireless sensor networks**

8. Why is in-network processing in wireless sensor networks an acceptable processing model?
9. List and describe the algorithms for the centralized and in-networking computing paradigm.

#### **TinyOS: An Operating System for Sensor Networks**

10. As an OS for sensory networks, list four requirements that TinyOS tries to address
11. What is a "component" in the TinyOS? What are "command" and "event" of a component used for?

### Mon Feb 8:

#### **Dependable communication synthesis for distributed embedded systems**

12. Name three types of nodes found on an automotive real-time embedded distributed system.
13. Describe the central purpose of the algorithm described in "Dependable communication synthesis for distributed embedded systems".
14. Describe how the TDMA communication protocol works.

#### **Communication-Aware Allocation and Scheduling Framework for Stream-Oriented Multi-Processor Systems-on-Chip**

15. What types of applications benefit from using pipelined task-graphs?
16. What are three methods of optimization that are discussed to solve the allocation and scheduling problems described in this paper?

### Wed, Feb 10:

#### **Cellular Phones as Embedded Systems:**

17. What is a possible solution for supporting multiple radio systems in cellular phones?
18. How are mass memories implemented in cellular phones?
19. Why is there enhanced security in 2G mobile systems?
20. What are the two requirements/tendencies of current implementation of mobile devices?

#### **A Network Agent for Diagnosis and Analysis of Real-Time Ethernet Networks**

21. What are the basic requirements for a device to be used for network diagnostics in an Industrial Environment?
22. What are the advantages of using PROFINet Protocol in network diagnosis systems?
23. List the disadvantages of using standard NICs (Network Interface Cards) in Ethernet analyzers in the traditional approach?

**Fri Feb 12:**

**Addressing the System-on-a-Chip Interconnect Woes Through Communication-Based Design**

24. What is a system-on-chip technology?
25. List 4 challenges posed by next generation system-on-chip technology

**Route Packets, Not Wires: On-Chip Interconnection Networks**

26. Explain the Folded Torus Topology.
27. List 3 challenges for implementing an NoC.

**Mon Feb 15:**

**Dual-Core SoC Design to Support Inter-Satellite Communications:**

28. What are the challenges for a Distributed Satellite System (DSS) in Low Earth Orbit (LEO)?
29. What are the advantages/disadvantages of having on-chip memory for the System-on-Chip design in a Distributed Satellite System (DSS)?

**Distributed and Reconfigurable Architecture for Flight Control System:**

30. In the Airbus Flight Control Computers, what would happen if the control and monitoring units produce the same output?
31. In the Airbus Flight Control Computers, what would happen if the control and monitoring units did not produce the same output?
32. How do current flight control architectures achieve stringent safety and availability requirements?
33. What are the advantages of massive voting architecture in term of handling faults?

**Wed Feb 17:**

**High-Performance, Dependable Multiprocessor**

34. Why are COTS solutions important to aerospace applications?
35. Name two redundant hardware systems used in this application.
36. From the aerospace architecture development standpoint, what is an environmental hazard encountered in aerospace applications that is not often considered in designing general-purpose architectures?

**Complex Upset Mitigation Applied to a Re-Configurable Embedded Processor**

37. What are the 3 proposed methods of upset mitigation?
38. When the service FPGA scrubs one processor, will the other processor halt?

**Fri Feb 19:**

**Reconfigurable Network on Chip Architecture for Aerospace Applications**

39. List four cases in which a network can modify its architecture and switch from a star topology to a ring topology from star topology
40. What is the main disadvantage of a 2D mesh system in implementing aircraft control system?

### **Autonomous Agents for Air Traffic Deconfliction**

41. What is meant by an Autonomous Agent?
42. In what kind of situations is it useful to employ non-cooperative deconfliction rather than cooperative deconfliction?

### **Wed Feb 24:**

#### **Important Sampling to Evaluate Real-time System Reliability - A Case Study**

43. Why researchers use simulation rather than modeling in reliability evaluation of the real-time system?

#### **Pinwheel scheduling for power-aware real-time systems**

44. What is the main advantage of pinwheel scheduling in power aware real time systems?
45. What is slack time in a real time system?

### **Friday Feb 26**

#### **Minimizing Response Time Implication in DVS Scheduling for Low Power Embedded Systems**

46. What is dynamic voltage scaling? What are the advantages and disadvantages?
47. Explain the difference between a periodic task and an aperiodic task and give an example of each

#### **An OBSM method for Real Time Embedded Systems:**

48. Why are efficient patching mechanisms necessary for real time systems?

### **Mon March 1, 2010**

#### **Design and Implementation of a Reconfigurable, Embedded Real-Time Face Detection System**

49. List some of the applications of Face Detection systems.

#### **Intelligent Cameras and Embedded Reconfigurable Computing: A Case-Study on Motion Detection.**

50. Explain the "Opening" phase in Image processing?

### **Wed March 3**

#### **Reconfigurable hardware for high-security/high-performance embedded systems: the SAFES perspective**

51. What are the advantages to use reconfigurable architecture in security embedded system?

#### **Runtime FPGA Partial Reconfiguration**

52. What are some of the advantages of PR over general reconfigurable computing?
53. Name three of the parameters that affect PR speed?

### **Fri March 5**

#### **Overview of the Scalable Video Coding Extension of the H.264/AVC Standard**

54. Why is scalable video coding (SVC) useful?

## **Video Coding for Streaming Media Delivery on the Internet**

55. Which of live or on-demand streaming can handle more complex encoding algorithm, and why?