Course #34 Syllabus

MORNING SESSION: **"Designing Shared VE Systems"**

8:30a :25 Capps

Introduction
- Defining Shared VE systems
- Motivations for Sharing Worlds
- Distributed vs. Multi-User
- Designing to Requirements
- Introduction of Presenters

8:55a :30 Zyda

History of Shared VR systems
- Prehistory : 1980's
  - SIMNET, NPSNET
  - DIS protocol IEEE standard
- Second Generation Systems : early 1990's
  - Collaborative Virtual Environments
  - networked games

9:25a :45 Watsen

Software Architectures
- Architecture Design
  - standalone, hard-coded solutions
  - modularity and reuse
- Extensibilty
- System Composability
- Platform factors

10:10a :15 **BREAK**

10:25a :20 Capps

Network Architectures
- Requirement: fitting client technology
- Topologies:
  - Broadcasting Peers
  - Multicast
  - Centralized Server
  - Server Hierarchies

10:45a :40 Greenhalgh

Interest Management
- Taxonomy of Techniques
- Architectural dependence
- Granularity of Filtering
- Filtering Models

11:25a	:35	Singhal	**Managing Dynamic Shared State** • Consistency / Throughput Tradeoff • Sharing Repositories • Reduction of Coupling through Broadcast • Dead Reckoning • Behaviors and Methods
12:00p - 1:30p		**LUNCH BREAK**	
AFTERNOON SESSION:			**"Implementing Shared VE Systems"**
1:30p	:15	Capps	**Introduction to afternoon session**
1:45p	:35	Greenhalgh	**MASSIVE / DIVE** • Central Server Architecture • Persistent Universes • Foundation for Collaboration • VR teleconferencing • COMIC Aura Awareness model
2:20p	:35	Abrams & Watsen	**Bamboo** • Dynamic Extensibility • Dynamic Protocols • Portability • Serverless/Multicast Architecture
2:55p	:15	**BREAK**	
3:10p	:35	Morse	**HLA and Government Systems** • Standard for distributed simulation • Run-Time Infrastructure • System Interoperability
3:45p	:30	Singhal	**Internet Deployment and Language Choice** • InVerse / TSpaces • Platform-independent design • Java vs C++ for Shared VE development • Multi-user game development
4:15p	:30	Anderson	**OpenCommunity / SPLINE** • Distributed servers architecture • Schmoozer interactive world editor
4:45p	:15	Capps	**Conclusion** • "Crystal Ball"

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MORNING SESSION: "Designing Shared VE Systems"

AFTERNOON SESSION: "Implementing Shared VE Systems"

7 Capps **Introduction to Afternoon Session**
- Slides
- Paper, by Michael Meehan: 'Survey of Multi-User Distributed Virtual Environments"

8 Greenhalgh **MASSIVE / DIVE**
- Slides
- Paper, "VR Toolkits: DIVE and MASSIVE: Examples, Glossary, and Supporting References"
- CD only: Examples from Tutorial

9 Abrams & Watsen **Bamboo**
- Slides

10 Morse **HLA and Government Systems**
- Slides
- Paper, "HLA Module 1, Part 1: Introduction to the High Level Architecture"
- Paper, "HLA Module 1, Part 2: Introduction to a Fundamental Set of RTI Interfaces"

11 Singhal **Internet Deployment and Language Choice**
- Slides

12 Anderson **OpenCommunity / SPLINE**
- Slides