

Spring 2009

Multimedia Service Design

448430
Spring 2009
3/2/2009
Kyoung Shin Park
Multimedia Engineering
Dankook University

Course Information

- Course
 - Multimedia Service Design (448430)
 - Spring 2009, 3 credits, 3 hours
 - Course hour: Monday 9:20-12:10
 - <http://dis.dankook.ac.kr/lectures/msd09/>
- Instructor
 - Kyoung Shin Park
 - kpark@dankook.ac.kr
 - 010-8636-1960 (mobile)
 - The Third Science Hall, Room 417
 - Office hour: Tuesday 1:00-2:00
- Prerequisites
 - Multimedia systems, Internet protocols, Multimedia network programming, and Graphics programming

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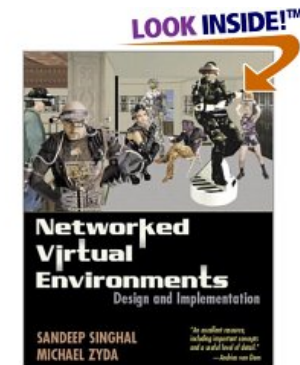
Purpose

- This course covers the design and implementation of network and software architectures for real-time, multi-user immersive 3D applications.
- Topics include a taxonomy for networked virtual environments, distributed interactive simulation protocols (DIS and HLA), virtual reality modeling language (VRML), networking protocols, commercial and open-source toolkits for NVE, HCI implications on NVE, and software architectures.
- Students will read and present research papers on specific areas, study existing tools for building NVE's and work in teams to construct elements of NVE.

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Text Book

- "Networked Virtual Environments: Design and Implementation"
 - S. Singhal and M. Zyda
 - Addison-Wesley Professional



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Text Book

□ Reference Book

- Understanding Virtual Reality: Interface, Application, and Design, W. Sherman and A. Crag, Morgan Kaufmann
- Open Scene Graph Quick Start Guide, P. Martz
- Open Scene Graph Reference Manual, B. Kuehne and P. Martz



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Evaluation

- Attendance: 20%
- Midterm Exam: 20 %
 - There will be a midterm exam that covers all the subjects discussed in the classroom.
- Individual Assignment: 30%
 - Individual class assignment 10%
 - Paper presentation 10%
 - Paper reading & summary report 10%
- Term Project: 30 %
 - Proposal 5%
 - Midterm progress report & presentation 10%
 - Implementation 5%
 - Final report & presentation 10%
- **Class Participation & Attitude: extra 10 %**

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Topics

- Overview
- History of networked virtual environment
- NVE applications
- Data transfer and protocols
- Communication architectures
- Managing dynamic shared state
- System design
- Resource management
- Quanta networking library
- OSG(Open Scene Graph) graphics library

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Schedule

- 3/2 : Course Overview
- 3/9 : Introduction to NVE
 - **Term Project Group Formation**
- 3/16 : Online Game & Origins of NVE
 - **Term Project Proposal Presentation**
- 3/23 : Networking & Socket Programming
- 3/30 : Communication Architectures
- 4/6 : Dynamic Shared State & Dead Reckoning
- 4/13 : Introduction to Scene Graph & OSG Tutorial
- 4/20 : **Term Project Midterm Progress Presentation**

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Schedule

- 4/27 : System Design Issues & Collision Detection
- 5/4 : Resource Management
- 5/11 : Social Interactions in NVE
Presence in Shared Virtual Environments
- 5/18 : [Midterm Exam](#)
- 5/25 : Paper Presentation
- 6/1 : Paper Presentation
- 6/8 : Paper Presentation
- 6/15 : [Term Project Final Presentation](#)

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Paper Presentation

- The paper presentations will be done individually
- 20 minutes for presentation & 10 minutes for questions at the end
- Every student is expected to read the paper before coming to class - Submit the 1-page long paper summary report at the beginning of the class
- Every Student bring at least one question so that we can have a good discussion on the material
- Depending on the classroom size, students will present 1~2 papers
- You can find a paper of your interest from the reading list (which will be provided later)

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Term Project

- Students are developing a new networked game, or a table-top tiled display or a tiled display application.
- Students will work on a semester-long project that will comprise a major part of the class grade.
- Students are encouraged to work on a project related to your own area of interest.
- Projects can be done as groups of two or three.
- Also, the project report should indicate to which portions of the project each member contributed.
- You group project blog will also help monitor your steady progress across the semester.
- Also, the final project report should indicate to which portions of the project each member contributed.

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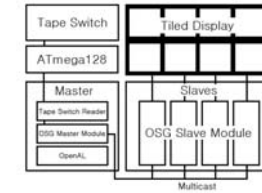
Term Project

- Project proposal & 5-min presentation (3/16)
 - Project groups will form (3~5 students in each group)
 - Once a group is form, send me email
 - 2-page long report of single-spaced, 10-point font (5%)
- Project progress report & presentation (4/20)
 - 10 minutes presentation (5%)
 - 4-page long progress report for the project (5%)
- Project implementation
 - Groups will develop the tabletop tiled display app, necessary on your chosen topic. (5%)
- Project final report (6/15)
 - 10-20 minutes in-class presentation & demo (5%)
 - 10-page long final report for the project will be in the style of a technical conference paper (5%)

Term Project



Term Project



Term Project Groups

- 김미애, 이지윤, 나연주,육성진, 송승훈
- 이준철, 공영식, 권병길, 박희찬, 박기범
- 조휘준, 이승재, 전진, 임종윤, 진훈범

Paper Presentation Schedule

- 5/25 - 김미애, 나연주, 이지윤, 박희찬, 전진
- 6/1 - 이준철, 공영식, 권병길, 조휘준, 이승재
- 6/8 - 육성진, 송승훈, 박기범, 임종윤, 진훈범

Online Resources

- ❑ Open Scene Graph <http://www.openscenegraph.org/>
- ❑ QUANTA <http://www.evl.uic.edu/cavern/quanta/>
- ❑ ACM SIGGRAPH <http://www.siggraph.org/>
- ❑ IEEE Visualization <http://vis.computer.org/vis2007/>

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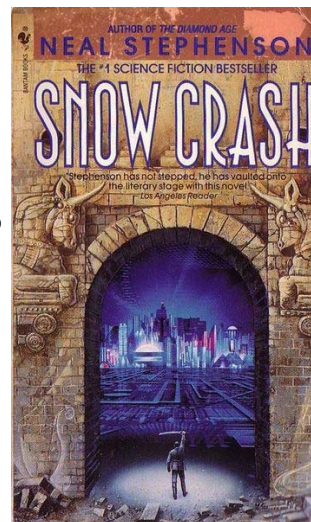
Lawnmower Man

- ❑ *The Lawnmower Man* is a 1992 film which uses elements from the writings of Stephen King, most notably the short story of the same name.
- ❑ Dr. Lawrence Angelo works for Virtual Space Industries. His part in "Project 5" involves increasing the intelligence of chimpanzees using drugs and virtual reality. One of the experiment's chimps escapes using the warfare technology he was being trained to use. <from wikipedia>



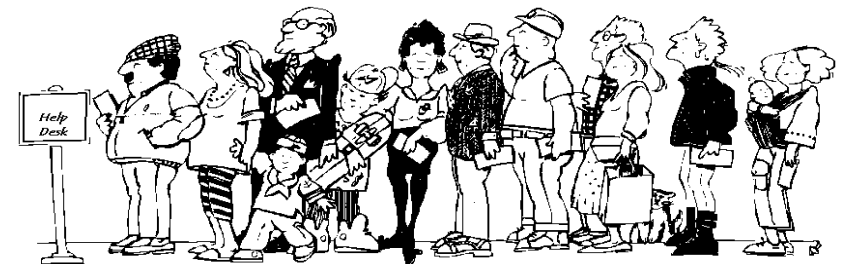
Metaverse

- ❑ Neal Stephenson's best selling science fiction novel, published in 1992. *Snow Crash*, details a highly compelling conception of the "Metaverse" - a networked hyper-realistic virtual universe. The term "avatar" was extensively referred to describe one's representation in a virtual world.



Announcement

- ❑ Reading "Metaverse Roadmap: Pathways to the 3D Web" & 2-page summary report due by March 9th
- ❑ Group formation on March 9th
- ❑ Group project proposal & presentation on March 16th
- ❑ Class blog: <http://dis.dankook.ac.kr/lectures/msd09/>



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