Spring 2017

Distributed Multimedia Service

470410-1
Spring 2016
3/2/2017
Kyoung Shin Park
Multimedia Engineering
Dankook University

Course Information

- Course
  - Distributed Multimedia Service (470410-1)
  - Spring 2017, 3 credits, 3 hours
  - Course hour: Thursday 9:30-12:30
  - http://dis.dankook.ac.kr/lectures/dms17/
- Instructor
  - Kyoung Shin Park
  - kpark@dankook.ac.kr
  - 010-8636-1960 (mobile)
  - The Third Science Hall, Room 417
  - Office hour: TBA
- Prerequisites
  - Multimedia systems, Internet protocols, Multimedia network programming, and Graphics programming

Purpose

- This course covers the design and implementation of network and software architectures for distributed systems and networked applications.
- Topics include distributed systems, architectures, processes, networking, communication architectures, synchronization, consistency and replication, fault tolerance, distributed file systems, cloud computing.
- Students will read and present research papers on specific areas, study existing tools for building distributed systems and networked applications and work in teams to develop a term project.

Text Book

- Reference Book
  - Distributed Systems: Principles and Paradigms, Second Edition
  Andrew S. Tanenbaum and Marten Van Steen

  Prentice Hall

https://vowi.fsinf.at/images/b/bc/TU_Wien
-Verteilte_Systeme_VO_(G%C3%B6schka)_-
_Tannenbaum-
distributed_systems_principles_and_paradi
gms_2nd_edition.pdf
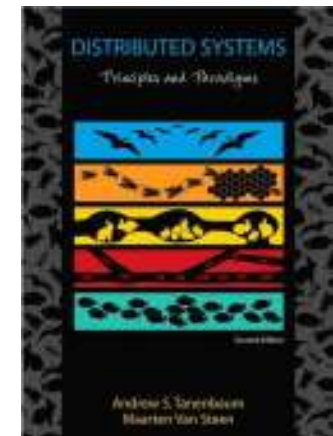
Text Book

- Reference Book
  - Distributed Systems: Concepts and Design, Fifth Edition

  George Coulouris, Jean Dollimore, Tim Kindberg and Gordon Blair

  Addison Wesley

http://www.cdk5.net/wp/

Text Book

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

Evaluation

- Attendance: 20%
- Midterm Exam: 20 %
  - There will be a midterm exam that covers all the subjects discussed in the classroom.
- Individual Assignment: 40%
  - Individual class assignment 10%
  - Paper presentation 10%
  - Paper reading & summary report 10%
- Term Project: 20 %
  - Proposal 5%
  - Midterm progress report & presentation 10%
  - Implementation 5%
  - Final report & presentation 10%
- Class Participation & Attitude: extra 10 %

Topics

- Overview
- Distributed systems
- Process
- Communication
- Synchronization
- Consistency and replication
- Fault Tolerance
- Cloud computing

Schedule

- 3/02 :   Course Overview
- 3/09 :   Introduction to Distributed Systems
  Term Project Introduction
- 3/16 :   Networking & Socket Programming
  Term Project Proposal Presentation
- 3/23 :   Communication
- 3/30 :   Process
- 4/06 :   Synchronization
- 4/13 :   Consistency
- 4/20 :   Midterm Exam

Schedule

- 4/27 :   Term Project Midterm Progress Presentation
- 5/04 :   Replication
- 5/11 :   Fault Tolerance
- 5/18 :   Paper Presentation
- 5/25 :   Paper Presentation
- 6/01 :   Paper Presentation
- 6/08 :   Term Project Final Presentation

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)

Term Project

- Students are developing a distributed system 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.

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 (6/08)
  - 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

- Networked game
- Shared Whiteboard
-

Paper Presentation Schedule

- 5/18 –
- 5/25 –
- 6/01 –

CAVE2

CAVE2
https://youtu.be/H89ByPI2v7w?list=PL40
71582316A3714C

Google Data Center

Google Data Center
https://youtu.be/XZmGGAbHqa0

Internet

- Underlies many distributed systems.
- A vast interconnected collection of computer networks of many types.
- **Intranets** – subnetworks operated by companies and organizations. Intranets contain subnets and LANs.
- **WAN** – wide area networks, consists of LANs
- **ISP**s – companies that provide modem links and other types of connections to users.
- Intranets (actually the ISPs' core routers) are linked by **backbones** – network links of large bandwidth, such as satellite connections, fiber optic cables, and other high-bandwidth circuits.

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/

Announcement

- Term project proposal & presentation on March 16th
- Class blog: http://dis.dankook.ac.kr/lectures/dms17/