CIS 400 Senior Design
Fall 2014

Prof. Insup Lee
lee@cis.upenn.edu

Goals and Objectives

- Define a project
- Conduct research
- Produce and execute a work plan
- Present your ideas and results

TAs

- Rado Ivanov, rivanov@seas.upenn.edu
- Ran Chen, ranchen@seas.upenn.edu: systems, hardware, networks,…
- Charu Jangid, jangidc@wharton.upenn.edu: online ad, web site,…
- Alex Roederer, roederer@seas.upenn.edu: data analytics, machine learning, user interface…

Course Schedule CIS 400

- Project Proposal (~25% of grade)
  - 4-5 pages
  - Due by Thursday Oct 2 by 5 pm
    - Electronic form – PDF to Dropbox
      AND hardcopy signed by your advisor
    - Must be in LaTeX
  - Proposal Meetings: Oct 3-7
  - Sign up later
- Progress Presentation and Report (~75% of grade)
  - 8-10 pages
  - Report Due by Friday, Dec 12 by 5 pm
  - Progress presentations in class: Nov 13-25

CIS 400 in-class meetings (tentative)

- Meet with your TA, 4:30 pm, Thursday, LRSM Auditorium
- Introduction to Latex, 4:30 pm, TBD, LRSM Auditorium
- Proposal writing tips/feedback, TBD
- Library/Research resource info session, TBD
- Presentation on “security precautions in the real world,” by Charles Buchholtz, TBD in Nov
- Presentation tips session, TBD
- Project presentations, Nov 13, 18, 20, 25

Tentative Course Schedule CIS 401

- Project progress presentations (in Feb/March)
- Poster presentation (in April)
- Judgment Day, late April
  - End of semester demo and poster presentation
  - Prizes awarded to outstanding projects
    - Panel of external judges
  - Top 3 goes to SEAS competition
- Final report

To Do in Fall Semester

- Select a topic
- Select a team of 4 members (3 or 5 allowed)
- Find a faculty project advisor
- Turn in Project Proposal by Oct 2
- Meet with me and TAs for Project Review
- Attend mandatory information resources sessions
- In-class Project Presentation in November
- Turn in Project Progress Report by Dec 12

Course Web Page

- www.seas.upenn.edu/~cis400
- Includes some project suggestions and links to past project descriptions
- Other helpful information:
  - http://www.seas.upenn.edu/~cse400/CSE400_2014_2015/spec_proposal/prop_spec.pdf
  - http://www.seas.upenn.edu/~cse400/CSE400_2014_2015/prelims/write_guide.pdf

Characteristics of a good project

- The problem is interesting
- The problem has a novel research component and/or can result in high-quality, innovative product
- You are aware of prior work and can explain why your project is better/different
- You have a clear idea of what your end result will be
- You understand what's required in terms of skills, personnel, equipment, tools, and time
- Grading rubric available online

Project Proposal Format

- **Title**
  - Project Name, participants, faculty advisor
- **Abstract**
  - 1-2 paragraph description of the project including a clear description of what your software system will eventually do

Project Proposal Format

- **Introduction**
  - Motivation, problem statement
- **Related Work (1 – 2 pages)**
  - Summarize related research, products and systems
  - Explain why the proposed system is better/different from what already exists
  - Multiple information sources:
    - Patents, Textbooks, Scholarly articles, tech reports, web sites
- **Proposed Work (2 pages approx)**
  - Explain how your system will work
  - Provide a block diagram of major components
  - Explain the principal technical challenges
  - Evaluation Criteria

Project Proposal Format

- **Milestones/Timetable**
  - List the major tasks that you will need to perform and when you expect to do them
  - Must indicate tangible deliverables to be demonstrated at the end of fall and spring semesters
  - Resources Required (if needed)
    - Which computers will you use, what hardware and software tools are required what new textbooks and reference material
- **References**
  - List the articles, textbooks, web sites, etc. that you cited in the body of your project proposal

Project Progress Report

- Similar format to Project Proposal but Technical approach section will be expanded
- Description of work done to date
- Results of prototype implementation
- Detailed plan for work to be done next semester

Grading Considerations

- Is it clear what the project is about?
- Have you done sufficient research to identify related projects, products and relevant resources?
- Do you have a plausible technical approach and a clear idea of the challenges?
- Do you have a clear idea of what it will take to get the project done, time, equipment tools personnel etc.?
- Is the project innovative?

Plagiarism Policy

- All reports and code turned in are expected to be original work.
  - If and when in question, ask the instructor
- Refer to the web site for a detailed plagiarism policy
  - http://www.vpul.upenn.edu/osl/acadint.html
- Violations of the policy will be viewed as a serious breach of Academic Ethics and may result in a trip to the OSC

CIS Faculty Research Areas

- **Graphics** (Badler, Gallier, Kavan, Lane)
- **Computational linguistics** (Callison-Burch, Marcus, Nenkova, Liberman)
- **Robotics/vision** (Daniilidis, Gallier, Mintz, Shi, Taylor)
- **Algorithms and Complexity Theory** (Alur, Guha, Kannan, Kearns, Khanna, Roth)
- **Computer Architecture** (Devietti, Martin, DeHon)
- **Databases** (Davidson, Guha, Khanna, Ives, Loo, Pierce, Tannen, Weinstein)
- **Embedded Systems** (Alur, Lee, Phan, Sokolsky, Mangharam)
- **Machine Learning** (Kearns, Ungar)
- **Networks and Distributed Systems** (Haeberlen, Loo, Smith)
- **Programming Languages** (Pierce, Weirich, Zdancewic)
- **Security, Privacy, Trust Management** (Blaze, Lee, Heninger, Smith, Sokolsky, Zdancewic)
- **Software Engineering** (Lee, Murphy)