Computer Integrated Surgery II
600.446/646/452

Spring 2013

Russell H. Taylor

Tu, Th 1:30-2:45

Engineering Research Center for Computer Integrated Surgical Systems and Technology

Course concept

- Combination:
  - Lectures on computer-integrated surgery and related subjects by instructor, guests
  - Projects
  - Seminar on current research
- Similar material to 600.445, but with greater implementation & project focus
- Prerequisite: 600.445 or my consent

Course Numbers and Credits

- 600.446 (3 credits)
  - Full course (lecture/seminar + project)
  - Advanced undergrads or grad students
- 600.646 (3 credits)
  - Same as 600.446 but intended for grad students doing more advanced projects
- 600.452 (1 credit)
  - Seminar only

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Contact Information

- Course web site:
  - https://ciis.lcsr.jhu.edu/dokuwiki/doku.php?id=courses:446

- TA = Nishikant   Deshmukh
  - Email: nishikant@jhu.edu
  - Office Address: Hackerman 137
  - TA office Hours = TBD

- My office hours
  - By appointment (see Alison in CSEB 117)
  - Will usually try to be in office 12-1 on class days

- My lab meeting is Mon. 12:00-13:00 (may change)
- ERC/LCSR Seminars Wed. 12-1:00

Grades

- ## 600.446/646
    - 25 % seminar presentation/writeup
    - 15 % project plan
    - 10 % project checkpoint presentation
    - 10 % project final presentation (poster presentation)
    - 40 % project implementation & final report
    - Attendance can affect your seminar / presentation grades, so see me if you have special situation or needs

- ## 600.452
    - Letter grade or Pass/Fail
    - Grade based on seminar presentation & critical summary of pertinent research papers

Date conflicts

- I will be out of town occasionally
  - No specific dates yet, but sure to arise
  - Will arrange for guest speakers

- We may need to find make-up dates
  - Pick an evening (e.g., 5-7pm) or dawn (7-8am)
  - Evenings preferred

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Seminar Presentations

- Select a single important paper or series of papers (2-5) relevant to your project or other interest

- Give short (typically, 20 minutes) talk
  - Critical summary of what paper says & its significance

- Bring hard copy of presentation materials to class to be put in your notebook

- Also, <u>write a short (3-5 page) critical review</u>
  - Due day before talk (give to my secretary for copying and distribution)
  - Will be flexible on due date for the first talks

- Copy of paper will go into your notebook & one to me

- Will be critiqued in class (in a friendly way)

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Typical Outline (modify as appropriate)

- 1 slide statement of your project
- Paper selection and why
- Summary of problem & key result
- Significance of key result
- Necessary background
- Description of what the author(s) actually did
  - Theory, experiment, etc.
- Your assessment
  - Importance, relevance to you, good & bad points, etc.
  - Possible next steps for this work
- Conclusions

Rough Calendar

- 1/29, 1/31, 2/5, 2/7 (if need): Discuss possible projects in class
- Pick project & seminar topics by 2/12 (preferably sooner)
- Approved project proposals by 2/19
- Project plan presentations 2/12 through early march
- Paper seminars March through April
- Project checkpoints mid-March through mid-April
- Project poster session on final exam day
- Project final reports on final exam day

Projects

- Typically will involve some substantial implementation/ experimentation component
- Require a "mentor"
  - Me, colleague, or an end user
- Require funding/equipment support
  - Can come from me or end user
- Require a defined plan and budget
- Team projects encouraged

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Project Web Sites

- **The course web site is a Wiki**
    - http://ciis.lcsr.jhu.edu/dokuwiki/doku.php?id=courses:446
    - Access to students-only pages is controlled
    - I need your JHED ids as soon as possible; send to me and the TA.

- **Each group should maintain a project web site as a wiki page under the course web site**
    - Will contain project descriptions and also PDF copies of all reports and presentations.
    - May contain media and other material as well.
    - Format and template guidelines on the web site
    - Each group will have permissions to write own site, read others in course
    - Each group should indicate if their web site may be viewed outside of course
    - Please respect the rules for where things can be put
    - Please keep them up-to-date. The TA and I will be spot-checking them.

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Confidentiality and Projects

- Some of the projects may involve potentially patentable or otherwise confidential material
  - Premature disclosure can compromise patentability
  - Student inventors can get patents and licensing income
  - Some projects (e.g., those using ISI API data) may require students to sign a non-disclosure agreement with the company.
  - You need to close the loop with me on projects involving 3rd party confidential data, to be sure that something is publishable. Usually, this has not been a problem, but should be addressed early
- Web sites for these projects will be only accessible by me, the TA, the students involved, and the mentors
- To permit free discussion in class, we can <u>consider</u> this plan
  - The whole class can sign a non-disclosure agreement to cover in-class presentations and discussion (JHTT has promised a template)
  - If <u>any</u> student is uncomfortable with this, please speak up. In that case, we will not have such a blanket agreement.

Project Proposals

- "Closed" plan by 2/17 or before
- Approximately 3 page summary containing
  - Stated topic and goal
  - Team members, mentor
  - **Short** statement of relevance/importance
  - **Short** technical summary of approach
  - List of "deliverables" (min, expected, max)
  - Key dates & assigned responsibilities
  - List of dependencies & plan for resolving
  - Management Plan
  - Reading list
- Project plan presentations in late Feb, early March
  - Cover similar material to written proposals

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Project Checkpoint Presentation

- Approximately 20 minutes talk

- Given in late March, early April

- Summarize/update plan material

- Present work to date

- Present problems, exposures, dependencies

- Bring hard copy of presentation materials to class to be put in your notebook

- Will be critiqued in class (in a friendly way)

Project Final Presentation (Poster)

- Currently planned for date of final exam, but may move to last day of class

- Standard format

- Project should be done or nearly so

- Present/demo results

- Discuss work remaining to be done

- Discuss significance of work

- Discuss lessons learned

- Prizes awarded in various categories

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Project Final Report

- Technical summary
  - Similar to a short conference paper
  - Explain background, problem, approach, results, significance, etc.
- Management summary (1 page)
  - Who did what
  - Discuss what was accomplished *vs* planned
  - Discuss what might be next
  - What you learned
- Technical appendices
  - Code, user's manual, etc. (may be on the Wiki)