Syllabus

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Syllabus

CS527 (Topics in Software Engineering) is a topics course whose content varies from one offering to another.

This semester, the topics will be on dynamic and static program analysis for finding software faults, with an emphasis on systematic software testing and analysis. A 2002 NIST report estimates that software faults cost the U.S. economy $59.5 billion annually and that improving testing infrastructure could save $22.2 billion. We will discuss a number of techniques and tools that could reduce this cost. The focus will be on analysis of code, but we may also cover analysis of other types of software artifacts and their use in testing.

Similar courses were offered in Fall 2014, Fall 2013, Fall 2011, Fall 2010, Fall 2008, Fall 2007, Fall 2005, and Spring 2005.

Course Organization

Students will get familiar with the technical results as well as with the process of doing research in software testing and analysis. The aim is to involve students in projects in this field. For students who choose to work on research projects, the aim is to help students start research in this field or apply its results in their ongoing research projects. For students who choose to work on more engineering-oriented projects (e.g., some I2CS students), the aim is to have them try out some latest techniques and tools from research. The course readings will include classic papers and current state-of-the-art work. Students will read papers ahead of time, write review reports on papers, participate in discussions, present at least once during the course, and do a project in small teams or individually. Students will also write a paper describing their project and present their work at the end of the course. There will be some homework assignments to help students with the projects.

Prerequisites

Students should have basic knowledge of software engineering and programming languages. If you are not sure whether you can attend this course, please consult the instructor.

Textbook

No textbook is required or used in this course.

Grading

Grades will be based on the final project report, presentation, participation (review reports and discussion), and homework assignment(s):

- Final Project Report [45%]
- Presentation (talks by students) [15%]
- Participation (reports and discussion) [15%]; for on-campus students, class discussion/attendance [3%] and submitted paper reviews [12%]. For off-campus students, submitted paper reviews [15%]. Additional points to be awarded for active participation on Piazza.
- Homework assignment(s) [25%], including HW0 [2%], HW1 [2%], HW2 [4%], HW3 [4%], HW4 (i.e., project proposal) [4%], progress report [9%].

Homework

Homework will be submitted through SVN.

Homework Assignments

Homework assignments will not be accepted late without special permission.

Communication

Please use your @illinois.edu email addresses for all course communication. Do **not** send (big) attachments. Instead send links to the files (e.g., to PDF for papers, or to Box links for your draft presentations).

Paper Review Reports

When multiple papers are discussed per meeting/lecture, each student needs to read only one paper and to write only one report. You can choose any of the papers listed for that meeting/lecture. Moreover, if you are presenting in a given meeting/lecture, you need not write a review report for any of the other papers allocated for that meeting/lecture.

Each report should provide **brief and to the point** text for the following four items:

1. Choose one good point in either problem, solution, or evaluation and describe **why** you find it good. (Is the problem important? Is the solution interesting? Is the evaluation convincing?)
2. Choose one bad point in either problem, solution, or evaluation and describe **why** you find it bad. (Is the problem unimportant? Is the solution trivial? Is the evaluation weak?)
3. List one question for discussion.
    a. Before the submission deadline, if you additionally send your question to the presenter of the paper before 11pm the night before the lecture, your question may appear on the slides; even after you send in your question along with other items in your report to the TA and the paper presenter, you can still send an updated version of your report to the TA and the paper presenter as along as the email sending time is before the submission deadline.
    b. On-campus students may be asked to discuss their questions in class. Off-campus students may be asked to discuss their questions on Piazza.)
4. [Optional] Describe how reading the paper benefits your course project. (Can the same problem have a different solution? Can the same solution be applied to a different problem? Would a bigger evaluation be appropriate? ...)

After the required items, you can **optionally add "Notes"** where you expand on the first four items, write a few points about your understanding of the paper, and/or describe how the paper can be improved.

Handing in Review Reports

Review reports should be emailed to the TA and the student who will present the paper as ASCII (no rich text, no PDF, etc.), with the file name given in the end of the entry for each paper (e.g., "loadtest" for the first paper to be presented) listed on the Home page. Review report policies:

- Students are welcome to discuss the papers (among a group of students/people in class or outside of the class) or study any third-party materials even before writing the review report, but review reports should be written individually. CS527 uses the standard code for CS courses.
- If your review reports include information that other students/people or third-party materials contribute in some way or your own exploration, please make sure to acknowledge the source of the information in your review reports.
- Review reports are **due by 6:59:59am (Champaign time) on the day the paper will be presented/discussed.** If you submit by 10pm the day before, your questions/comments may be discussed during the lecture.
- You cannot have any review report late, but you can omit up to two review reports altogether. If you need an extension (e.g., due to research conference travel), please let us know well in advance of a report being due, and you may be assigned a make-up paper.

Please visit here for Guidelines for Student's Presentations and Feedback

No labels