COM S/CPR E 513x Survey

Learning Objectives

1. Get further familiar with the terminologies we taught in class
2. Learn where and how to find the literature of program analysis
3. Get in-depth understandings on a subject of program analysis of your interest (meet me during office hours to get help for the materials you are not able to understand)
4. Practice presentation, teaching and writing skills

Description

The purpose of doing a survey is to teach you how to find, read and present the literature of program analysis. To demonstrate your learning outcomes, you will teach a mini-tutorial in class that summarizes what you have read and also write a 2-page survey (including the references) on the relevant topic.

You can select a topic of interest from the following list:

1. finding bugs, an example sub-topic “bugs in machine learning software”
2. automatic test input generation
3. debugging
4. specification inference
5. analyzing software changes and versions, an example sub-topic ”software compatibility”
6. big code analysis
7. advanced topics: certifying and explaining AI software, program repair and synthesis

For each topic, you will need to decide a sub-topic, and then select 5 papers relevant to the sub-topic. The papers should be selected from the top conferences or journals of software engineering and programming languages published in recent 3 years. The conferences you should search for such papers include ICSE/FSE/PLDI/ASE/ISSTA. The journals are TOSEM, TSE, TOPLAS. Special papers and topics may be permitted upon the instructor’s approval.

The survey will be assigned at the first week of the class when you will be asked to select a topic of interest from the above list. The deliverables are due at the end of each topic. The specific dates for each topic will be announced in class. Note that the surveys for different topics are due at different dates.

Deliverables

1. 20 min in-class mini-tutorial that can summarize your 5 papers; the tutorial should be based on your survey paper.
2. 2-page survey (including the references), using acm conference latex package, no abstract is needed.

Please submit your slides of the tutorial as well as the 2-page survey (including both pdf and latex) to canvas under the “assignment 1: survey” column. All the deliverables should be zipped to one file.

Grading Criteria

Tutorial (3 pt)

The in-class tutorial will be peer reviewed, including me and the rest of the class. Here are the four questions that go to the evaluators:

1. Clarity (1 pt): are you able to understand all the content? most, not at all, somewhat
2. Completeness (1 pt): does the amount of materials cover all the 5 papers in-depth? do you learn *a lot of things* from the tutorial? yes, no, somewhat
3. Insightfulness (1 pt): is the material useful and interesting? Does the presenter use a novel way to summarize the work? Does the presenter have interesting comments about the work? yes, no, somewhat
4. Provide one feedback to the presenter to further improve his/her tutorial.

We will fill the questions right after your tutorial and compute an average score among all the evaluators as your tutorial scores.

Survey writing (5 pt)

Clarity, structure, technical writing (3 pt)

- Excellent: 3
- Good: 2
- Poor: 1
- Not finished: 0

Completeness (1 pt): you should provide a summary on what are the papers about? If possible, you should also provide a comparison on the ideas and results of these projects, and explain the relations of these projects.

Insightfulness (1 pt): what is your view about future work for this area of research? Do you like the current work or dislike the current work?

Note that you may not have sufficient time to cover everything in your tutorial presentation. So make sure your survey includes all your summaries, analyses and points for the papers you read.

Your evaluation for other tutorials (2)

You should be prepared to attend all the tutorials and also file the evaluation fairly. Absence and irresponsible evaluation will lead the 2 points reduced for your score.