COM S 413/513 Survey

Learning Objectives

1. Learn how to search for program analysis literature
2. Gain some experience of reading papers
3. Learn to develop ideas and critiques for the papers in program analysis and software engineering
4. Practice technical writing skills
5. Get more familiar with the concepts in program analysis
6. Get an in-depth understandings on a subject of program analysis/software engineering of your interest
7. Gain experience of collaboration and work in the team

Description

The purpose of doing a survey is to teach you how to find, read and present the important state-of-the-art work in program analysis and get you familiar with program analysis literature.

Here are a list of steps to follow:

By 9/6 in class

1. Find a team with a total of 3 students, using Piaza as needed
2. Select a topic of interest from the following list:
   - finding bugs
   - automatic test input generation
   - debugging and repair
   - specification and inference
   - analyzing software changes and versions
   - AI for code
   - analyzing and testing AI software and models
3. Paper selection: each undergraduate student finds 2 papers, and each graduate student finds 3 papers through the relevant conferences ICSE/FSE/ASE/ISSTA and in the recent 5 years publications. You are encouraged to work in the group to select those papers.

> You are required to find new papers instead of using the papers you have read/discussed in other classes or meetings. (2 pt, due 9/6 in class, see grading criteria).

4. In-class mentoring: I will talk to each group to make sure the papers selected are at the proper level and are relevant to the topic of your interest

By 9/19 11:59pm

5. Paper reading: each undergraduate student reads 2 papers and each graduate student reads 3 papers)
6. Paper report: each student write a report for the papers they have read (8 pt, due 9/19 in canvas, see grading criteria)
7. Group discussions for the papers

By 9/26 11:59pm

8. Write up the survey (10 pt, due 9/26 in canvas, see grading criteria)

Deliverables

1. Paper titles, each group submits a copy (due 9/6 in-class)
2. Paper report, each student submits one report (due 9/19 canvas)
3. Survey, each group submits one copy, 6 pages maximum with references. (due 9/26 canvas)

Grading Criteria

Paper titles (2 pt)

Everybody in the group received 2 pt if you have a list of papers ready. The papers should be from the relevant conferences specified above, and they are relevant to the topics.

Paper report (8 pt)

Each paper should consist of two parts in the report:

Part I: summary, recommending to use 4 sentences: (1) what is the problem (or their goal), (2) what is their approach, (3) what are their results, and (4) who can benefit from their work – this should not be directly copied from the paper

Part II: ideas, questions and critiques you may have for the paper

The 8 points are listed below:

- Completeness - the report consists of two parts and all ingredients specified above: 2 pt
- Clarity - the report is understandable: 2 pt
- Concise - the report is to the point and does not have much repetitions. We do not recommend to write a very long report: 2 pt
- Interesting - the report contains interesting ideas, critiques, comments and questions: 2 pt

Survey (10 pt)

Survey is a group effort and each group member will have the same scores. So make sure that everybody contributes equally.

1. The survey presented all the papers (3 pt)
2. The survey used a good approach to group and analyze the papers, and has a good structure (2 pt)
3. The presentation of the survey is clear and no grammar mistakes (2 pt)
4. The survey contains interesting technical ideas, insights, comments, future work discussions and questions (3 pt)