CS 521/621
Literature Review

Due: **Tuesday, March 21, 2017, 9:00 AM EDT** via [Moodle](). Late assignments will not be accepted without **prior** permission. **Only those students doing a project** should complete this assignment!

Overview

This is a group assignment. Each project group is to submit one literature review. Every member of the group is expected to put in equal effort. The entire group will share the same grade; however, if members identify others who have not contributed (or have contributed above and beyond), the grades can be varied accordingly.

The goal of a literature review is to place your work in the context of other related literature and identify **your** project's research contribution. After reading the literature review, the reader should understand the state of the art around your project topic, what related research questions have already been answered, and how the **new** research question(s) you will answer will advance the state of the art.

The purpose of a literature review **is neither** to create an original argument **nor** to support your position with scholarly research. Instead, a literature review places your work among the related work and identifies how your contribution is novel.

Literature reviews direct the formation of new research questions and are routinely included in the opening sections of scholarly research reports.

Deliverables

- A single write up, per group. There is no right length minimum or maximum: you should write enough to describe the state of the art and how your work fits within it. Three pages is probably not enough to cover the subject in sufficient depth. More than six pages probably means you are not being direct enough in your discussion. You should aim for discussing at least ten related papers, but every project is different.

What's in a literature review?

Your literature review should contain:

1. A one to two paragraph statement of **your research project**. State the question you are trying to answer, and what methods you plan on using to answer it. Assume the reader has never spoken to you, has not seen your earlier presentation, and has not read your idea proposal.

2. A summary of the related work as a whole. Tell us if there are multiple fields you will describe. For example, your work may be related to both mutation testing and automated bug removal. State the fields and (at a very high level) how they relate to your work.

3. For each field, describe if there are any subfields. For example, you may say that related automated bug removal literature can be classified into two types of approaches: genetic-algorithms-based approaches and developer-history-based approaches.

4. For each paper in each subfield, write one to two paragraphs describing (i) the research question the paper answers, (ii) the summary of the technique it uses, and (iii) how your work **compares with and differs from** this paper. For example, you may be answering a related but different question, or you may be answering the same question but in a different setting (such as they answered it only for C and you are answering it for a broader set of languages).

5. Ensure you properly cite all the papers you discuss in your submission. You do not need to cite papers you look at but do not discuss in your literature review.

Use sections and subsections to organize your discussion of the fields and subfields.

How to get started

To get started, you should take a paper or two (Prof. Brun can suggest a good starting point). Familiarize yourself with these papers and generate a list of potential related papers by (1) looking at the papers these papers cite, and (2) looking at other papers that cite these papers (you can find this information on http://scholar.google.com and http://dl.acm.org, among other places). You can also search for keywords related to your work. Your list should have at least 20 papers.

Read the abstracts of the papers on your list. For some papers, you may have to dive a little deeper than the abstract, but do not spend too much time reading the entire paper. Your goal is to identify which of the papers are actually relevant enough to be included in your review. Discuss the papers and narrow down the list to the papers you will discuss.

Now, read each paper on this shorter list in more detail. It is possible that you will discover other papers these papers cite that may be relevant to add to your list. The goal is not to understand every detail of every paper, but rather to understand what these papers accomplish. *You are not trying to understand so much that you can repeat this work; you just want to know what they did.*