

CSE 549 Project Guideline

Project grading policy:

You will be required to propose and execute a final project based on the contents we will learn in class. The final project are strongly recommended by not limited to topics in computational biology, but will require you to apply methods and ideas that have been discussed in class. (proposal 10% + report 35% + presentation 5% = 50%)

Project Requirements

- ✗ Project Type
 - + Implementation (encouraged)
 - + Theory
 - + Survey (not recommended – should be a very good one if you do this)
- ✗ Project subject can be anything related to Computational Biology and/or Machine Learning methods we looked at
 - + Plan to come meet me (or e-mail) to verify that your topic is adequate before **Oct. 5th**.

Proposal

- ✗ Written proposal (3 – 5) pages, excluding references,
 - + 12 points; 1.5 spaced; Times New Roman.
 - + Due date: date: **10/19** in class (two sided copy)
- ✗ Purpose of the proposal:
 - + Allows the student to clarify 1) what it is he/she wants to do, 2) why and how he/she wants to do it.
 - + Provides time to look over existing works related to what he/she wants to do.
 - + Presents what she/he wants to do in 1) the manner and 2) timeframe proposed
 - + Once approved, provides a written contract between the student and the supervisor

Final report & presentation

- ✗ Written report (8 – 10) pages, excluding references,
 - + 12 points; 1.5 spaced; Times New Roman.
 - + Due date: date: **12/9** in class (double sided copy)
- ✗ 20 min presentation of your proposal (practice timing)
 - + Presentation date: **12/9**

Proposal & Project Report Structure

1. **Title**
 - + The title of the project is very significant. The title must be clear, appropriate for the topic, and not too long (keep it less than 45 characters)
2. **Abstract** (1 or 2 paragraphs)
 - + Abstract is a self-contained piece of writing that can be understood independently from the essay or project.
 - + It should be one to two paragraph; no figures & reference
 - + Content of the abstract should contain: 1. Problem/Motivation/Objective 2. A statement of the problem and objectives 3. Methods or Approach you (will) use; 4. (Expected) Summary results 6. The significance of the proposed topic should become clear 7. Conclusions and comments 8. Broader impact
3. **Introduction** (2~3 pages)
 - + The Introduction to the project provides a general introduction to the phenomena or issue of

- interest, and is usually contained in 2 pages.
 - + Provides answers to these questions:
 - What is the project all about? (Problem Definition and Goal): The issue or problem under investigation is described,
 - Why is the project important or worthwhile? (Motivation):
 - What is new compared to existing publications related to the topic? (Short Survey): Background and/or context for understanding the nature of the issue is provided.
 - + (Final report only): The Introduction will also typically conclude with a brief description of the structure of the remainder of the document.
 - + (Proposal only): Specify also at the end of introduction: 1. Why you are fit to do this project (List your skills, 2~3 sentences) and 2. What will you learn by doing this project? (2~3 sentences)
4. **Methods** (1~2 pages)
- + (*This section must make sense within the context of the document and be linked with the sections preceding it.*)
 - + In this section provide a clear, explicit and thorough description of how you will complete your project (proposal) or how you have executed the project (final report).
 - + It is the writer's responsibility to ensure that the proposal is clear about what is being proposed, with whom, where and when. (WHY should already have been explained.) Diagrams and figures are useful if appropriate.
- <Methods Contents>
- + *Architecture and Environment*: (2-3 paragraphs + figures)
 - Project environment (OS, software, hardware, languages, organizations, etc)
 - + *Expected Deliverables* (Proposal only)
 - What will the project produce? (program, report, etc.)
 - Describe in relative detail the features of each of the project's products.
 - Emphasize what your project contributes or achieves!
 - + *Expected Implementation Issues and Challenges*
 - What (will) be the most difficult issues and challenges in the implementation?
 - How (will) you use or extend current tools/systems/algorithms for your problem?
 - + *Evaluation Criterion*
 - Strategy to measure the success of your project
 - Explanation of the criteria used to measure the success
 - + *Timetable* (Proposal only)
 - Steps needed to complete the project.
 - Provide an estimated timeline of project deliverables and important dates.
5. **Results (Final report only):**
- + Describe the product of your project.
 - + Evaluate your project according to the "evaluation criterion" you have specified.
6. **Discussion (Final report only):**
- + Make overall summary
 - + Summarize the success of your project
 - + Describe shortcomings and discuss possible improvement
7. **References**
- + Use IEEE citation style
(IEEE Citation Reference: <http://www.ieee.org/documents/ieeecitationref.pdf>)
 - + Latex users: get the IEEE citation style package from the web.
 - + MS Word users: Using (free) citation manager program (+ plug in for word) is an easier way.
 - Suggestions: Mendeley Desktop.

<Example:>

in paragraph [1]

- [1] Y. Huang and S. Du, "Weighted support vector machine for classification with uneven training class sizes," in *Machine Learning and Cybernetics*, 2005, no. August, pp. 18–21.