ARIZONA STATE UNIVERSITY

CSE 534 SLN 98070 — **Advanced Computer Networks** — Fall 2022

Instructor: Dr. Violet R. Syrotiuk

The Project

The goal of this project is to provide the opportunity for you to pose a question, design a framework in which to answer the question, and write up your experience and results.

The key characteristics of this project should be:

1. The work can reasonably be completed in about six weeks.
2. You have access to the required hardware and software. I prefer that your project use a testbed, such as FABRIC, and/or the clouds (Chameleon or CloudLab), or any of the PAWR projects.
3. The question you investigate has something to do with computer networks. Topic ideas will be posted under `Modules/The Project`.
4. The project is structured in such a way that you can have tangible results.
5. You will learn something from undertaking this project.

Projects may be undertaken individually, or in appropriately sized teams (typically two or three students). A team is expected to accomplish more than an individual. I encourage you to meet with me and brainstorm your project ideas as often as you like.

Project Deadlines

These dates are subject to change. The amount of time needed for presentations may depend on the number of teams formed.

- Project Proposal (15%): due before 11:59pm, Thursday, 09/29/2022
- First Draft of Report (30%): due before 11:59pm, Sunday, 11/13/2022
- Peer Reviews of First Drafts (5%): due before 11:59pm, Sunday, 11/20/2022
- In-class Presentations and Peer Reviews of Presentations (10%): 11/22/2022–12/01/2022
- Final Project Report (40%): at final exam time, 9:20pm on Thursday, 12/08/2022

You must write your project proposal, the first draft of your report, and the final project report using the standard IEEE conference format. The templates are available in MS Word and in LaTeX.

Project Deliverables

There are five deliverables for this project.

1. **Project Proposal** (15%): The project proposal should contain all the parts of the report format (except for the abstract and conclusions) in about a page. You might consider structuring your project in phases. The more detail you include regarding your experimental set-up and expected results, the more able I will be to give useful feedback.

2. **First Draft** (30%): This is the version of the report that will be reviewed. The draft should contain all the parts of the paper, although it may have only preliminary results and may be missing some results. It should contain a complete introduction, background, description of your research, related work, and (preliminary) conclusions. It should contain the entire structure of the results section, even if there are still some missing results. The better and more complete this first draft, the more valuable the input that I and your classmates can give you.

3. **Peer Reviews of First Drafts** (5%): You will be assigned some number of first drafts to review following a typical conference review format. (The number will depend upon the total number of projects.) A template for the review format for papers will be provided.

4. **In-class Presentation and Peer Reviews of Presentations** (10%): Each individual/team will present a short talk on their project during class, on dates to be decided. You should plan a short presentation with time for questions. You will not have time to present all the subtleties of your work, but you should be able to motivate the audience and explain the important (preliminary) results of your work.

   You will also review each presentation for time control, clarity, and content. A template for the review format for presentations will be provided.

5. **Final Report** (40%): I expect that your final report will be approximately 3-5 pages long in IEEE conference format including graphs, tables, diagrams, and references. *Part of your final report grade will be based upon how well you address comments raised by the peer reviews.*

Report Format

The following sections are expected in all reports:

1. **Title and Author(s):** Give your project a meaningful title and list the author(s).

2. **Abstract:** Summarize your project in 100-250 words. (Not required for your project proposal.)

3. **Introduction and Motivation:** The introduction should describe your project idea. You should clearly state the question you are investigating. Provide an explanation about why you think this is an interesting question and why others might be interested in your (anticipated) results, *i.e.*, provide some motivation for your work.

4. **Related Work:** Related work falls in two categories. *Background readings* are those that are required for you to understand the area and problem you are tackling.

   The other category of related work is *contextual work*. This includes prior work upon which you may be building, the work of others who may be solving the same problem you are but doing so in different ways, and work in adjacent areas that influences what you plan to do or have done. The purpose of this part of the related work section is to help a reader place your work in context, in order to understand your results.

   While you need not have conducted a full literature search by the time that you submit your proposal, you should be aware of some work that is out there and in what areas you need to be looking.

5. **Experimental Set-up:** For the proposal, what experiment(s) do you plan to conduct and why? What question is each experiment designed to answer? What do you hope to learn from each experiment? What equipment, software, or tools do you need? What tests will you conduct conditionally? (For example, if we learn X from experiment 1 then we must do A otherwise we'll do B.) What problems do you expect?

   For the first draft and final project report, update this section to describe the status of your experimentation. Did you have to make any changes to your experimental strategy? If so, why?

6. **Results:** For the proposal, what sorts of results do you expect to observe? Obviously, you do not know what the results are in advance, but you should know the format of those results. For example, if you are comparing two systems, you would expect to be able to say things like, "System A outperforms system B in these circumstances." After you have completed the experimentation, it would be nice if you are also be able to explain why.

7. **Summary, Conclusions, and Future Work:** Provide an honest summary of your work and the conclusions you can draw from it. State any shortcomings, and discuss follow-on work.