Simulation and Performance Evaluation

Final simulation projects rules

and some proposals (not «assignments»)

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Your final project

- Consists in a performance evaluation project tackling some interesting problem
  - Does not have to be simulation, performance evaluation can involve real hardware, devices, etc.
- I will present some ideas, but these are by no means "assignments": you should try to be original
- Delivery:
  - Code
  - Presentation
  - A short report to be formatted according to the IEEE template
- The project can be tied to other work that you have been carrying out so far (e.g., a research project, your thesis…)

- Counts for 50% of your final mark, regardless of whether you delivered homeworks or not

Template for the delivery

Conference Paper Title*

*Note: Sub-titles are not captured in Xplore and should not be used

1st Given Name Surname
dept. name of organization (of Aff.)
name of organization (of Aff.)
City, Country
email address or ORCID

2nd Given Name Surname
dept. name of organization (of Aff.)
name of organization (of Aff.)
City, Country
email address or ORCID

3rd Given Name Surname
dept. name of organization (of Aff.)
name of organization (of Aff.)
City, Country
email address or ORCID

4th Given Name Surname
dept. name of organization (of Aff.)
name of organization (of Aff.)
City, Country
email address or ORCID

5th Given Name Surname
dept. name of organization (of Aff.)
name of organization (of Aff.)
City, Country
email address or ORCID

6th Given Name Surname
dept. name of organization (of Aff.)
name of organization (of Aff.)
City, Country
email address or ORCID

***Abstract*—This document is a model and instructions for LaTeX. This and the IEEEtran.cls file define the components of your paper [title, text, heads, etc.]. *CRITICAL: Do Not Use Symbols, Special Characters, Footnotes, or Math in Paper Title or Abstract.**

***Index Terms*—component, formatting, style, styling, insert**

I. Introduction

This document is a model and instructions for LaTeX. Please observe the conference page limits.

II. Ease of Use

A. Maintaining the Integrity of the Specifications

The IEEEtran class file is used to format your paper and style the text. All margins, column widths, line spaces, and text fonts are prescribed; please do not alter them. You may note peculiarities. For example, the head margin measures proportionately more than is customary. This measurement and others are deliberate, using specifications that anticipate your paper as one part of the entire proceedings, and not as an independent document. Please do not revise any of the current designations.

III. Prepare Your Paper Before Styling

Before you begin to format your paper, first write and save the content as a separate text file. Complete all content and organizational editing before formatting. Please note sections III-A–III-E below for more information on proofreading, spelling and grammar.

Keep your text and graphic files separate until after the text has been formatted and styled. Do not number text heads—LaTeX will do that for you.

Identify applicable funding agency here. If none, delete this.

A. Abbreviations and Acronyms

Define abbreviations and acronyms the first time they are used in the text, even after they have been defined in the abstract. Abbreviations such as IEEE, SI, MKS, CGS, ac, dc, and rms do not have to be defined. Do not use abbreviations in the title or heads unless they are unavoidable.

B. Units

- Use either SI (MKS) or CGS as primary units. (SI units are encouraged.) English units may be used as secondary units (in parentheses). An exception would be the use of English units as identifiers in trade, such as "3.5-inch disk drive".
- Avoid combining SI and CGS units, such as current in amperes and magnetic field in oersteds. This often leads to confusion because equations do not balance dimensionally. If you must use mixed units, clearly state the units for each quantity that you use in an equation.
- Do not mix complete spellings and abbreviations of units: "Wb/m^2" or "webers per square meter", not "webers/m^2". Spell out units when they appear in text: ". . . a few henries", not ". . . a few H".
- Use a zero before decimal points: "0.25", not ".25". Use "cm^3", not "cc".)

C. Equations

Number equations consecutively. To make your equations more compact, you may use the solidus (/), the exp function, or appropriate exponents. Italicize Roman symbols for quantities and variables, but not Greek symbols. Use a long dash rather than a hyphen for a minus sign. Punctuate equations with commas or periods when they are part of a sentence, as in:

$$a + b = \gamma \qquad (1)$$

Be sure that the symbols in your equation have been defined before or immediately following the equation. Use "(1)", not

- IEEE 2-column paper format
- Online on Overleaf
  - https://www.overleaf.com/gallery/tagged/ieee-official
- Also on other resources:
  - https://ctan.org/pkg/ieeetran?lang=en
  - https://www.ieee.org/conferences/publishing/templates.html

General structure of your report

- The structure of your report should be paper-like
- E.g., it could have the following typical contents
  1. Abstract
     - Summarize the paper and your most important results: ~10 lines
  2. Introduction
     - Introduce your work: explain the context of your work, why the problem is important, what you do that is novel and distinctive
  3. Related work
     - List and describe a few references that did similar work, or works/protocols that you wish to compare against
  4. Problem definition / system setup
  5. Results
  6. Conclusions

General structure of your report

- The structure of your report should be paper-like
- E.g., it could have the following typical contents

4. Problem definition / system setup
   - Thoroughly define what you are doing: explain and discuss your assumptions, the way you model your system, and why; include any reasoning that helps the reader put your work in context, but be crisp
5. Results
   - Present your results orderly, showing graphs, tables and/or any other tools that makes the reader understand your outcomes
   - Pay lots of attention to readability: put labels and legends in all graphs (and/or other kinds of annotations), check that numbers and labels are readable, do not exceed the number of decimal digits if you write numbers down
   - **→→→ Try to tell a story ←←←**
6. Conclusions
   - Draw concluding remarks that summarize your work and its most important results

Delivery

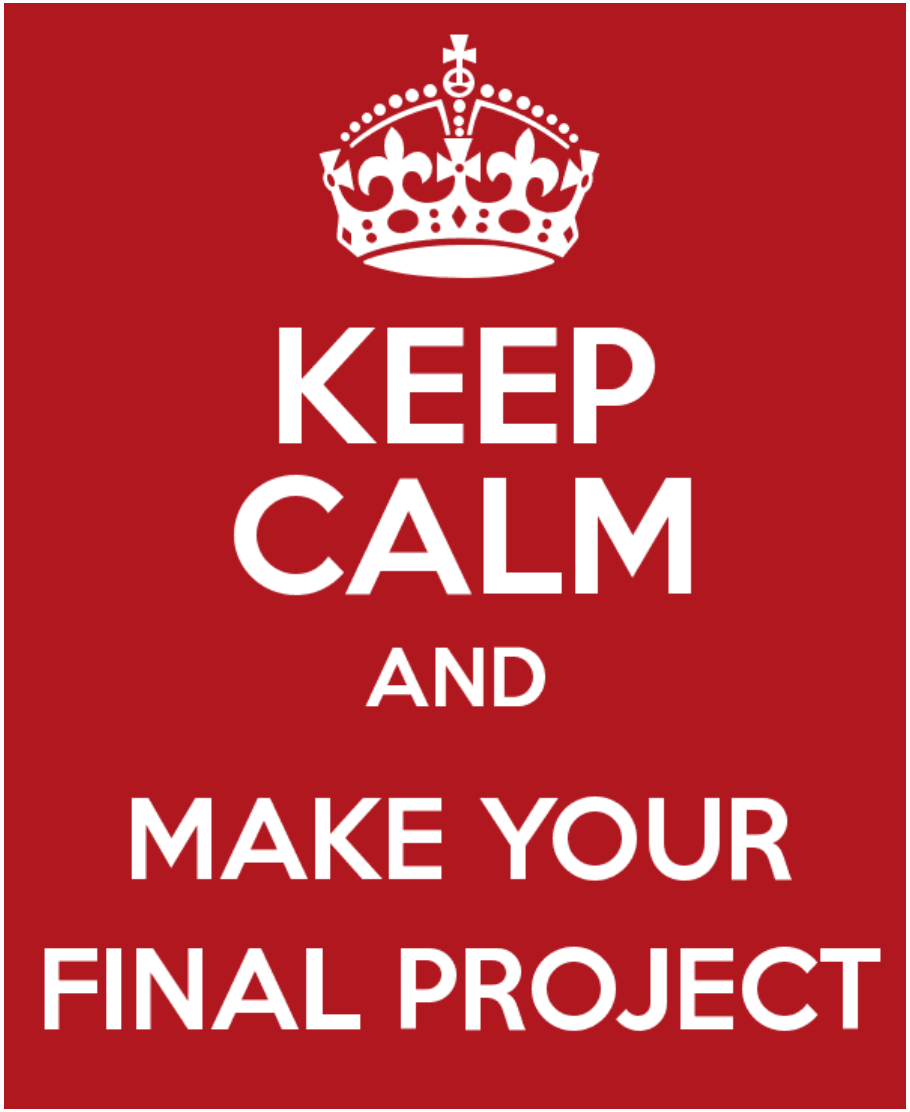
- No «delivery deadline»
  - The delivery can be any time, as soon as you are ready to present your project
- Please prepare a 15-minute presentation
- All members of the same group should present the project at the same time

- Expect feedback and questions during and after the presentation, including on code/setup

Examples

- Simulate access control, routing or transport protocols for wireless networks
- Evaluate the performance of localization algorithms
- Evaluate the accuracy of some machine learning system (for vision, classification, … you name it)
- Evaluate the suitability of some control system for autonomous agents
- Evaluate some hardware component or embedded system (e.g., energy consumption, lifetime) in given conditions
- Simulate and test load balancing algorithms

From now on



- Last homework #4
- 2x seminars
- Homework/project discussion & improvement meetings during class hours (but you can really contact me any time)