Technical Writing and Speaking in English
Class 3: writing research methodology

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Class Schedule

1. Discussion of Chapter 4 of the textbook
2. Notions on how to organize scientific concepts (methodology) in text
3. Hands-on Exercise

Optional exercise for those who are waiting

Exercise: meeting invitation

Write a short email to the research team where you are doing an internship and invite them to a meeting where you shortly present yourself and your internship subject.

Instructions:

- include the time and location of the meeting
- be polite, but not too distant
- mention shortly who you are
- mention the format of the meeting (the length)
- include the title of your internship and a few keywords to motivate the participants to come
- bonus: a touch of creativity

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  - Results of the test, results of experiments with the algorithm/framework
  - The meaning of the results (interpretation)
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  - **Methods for testing research questions, methods to construct an algorithm/framework/proof, etc. This class!**
  - Results of the test, results of experiments with the algorithm/framework
  - The meaning of the results (interpretation)
- These are often subsections of the "middle"

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- How to organize the presentation of your work?
  - **Chronological** organization: for timeline processes or cyclic processes
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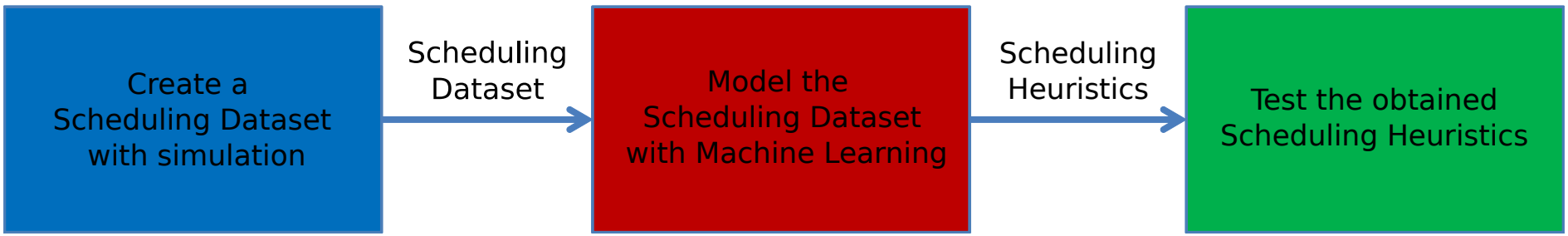
    - Things that have "stages" or "phases"
  - **Spatial** organization: for "objects"
    - Computer Science example: Software
  - Other organizations exist: Classification, division, etc.

Methodology organization

An example

Real paper example: Obtaining scheduling heuristics with simulation and Machine Learning[1]



[1] Method source: **Obtaining dynamic scheduling policies with simulation and machine learning**. Danilo Carastan-Santos, and Raphael Y. Camargo. In Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis, SC, Denver, USA 2017. `https://inria.hal.science/hal-01618940/file/paper-hal.pdf`

Methodology organization

Descriptive headings (i.e., LaTeX subsections)

It's not descriptive ☹

3 - Method
3.1 – Phase 1
3.2 – Phase 2
3.3 – Phase 3

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Now it describes the content better ☺

3 - Obtaining scheduling heuristics with simulation and Machine Learning
3.1 – Simulation Scheme
3.2 – Machine Learning Scheme

3.3 – Testing Scheme

An even better better example ☺

3 - Obtaining scheduling heuristics with simulation and Machine Learning
3.1 – Creating a Scheduling Datasets
3.2 – Modeling the Scheduling Dataset as Scheduling Heuristics

3.3 – Testing the created Scheduling Heuristics

Presenting the Method

A paragraph introducing the content of the methods section ☺

3 - Obtaining scheduling heuristics with simulation and Machine Learning

We designed our method into three schemes. The first scheme uses simulation to observe the scheduling patterns under distinct conditions and creates a scheduling dataset. The second scheme feeds this scheduling dataset into machine learning algorithms to create task sorting heuristics that model the observed patterns. Finally, the third scheme tests the created heuristics as task schedulers, which choose the next task to execute from a waiting queue. The sections below describe each of these schemes in detail.

3.1 – Creating a Scheduling Datasets