Working on your Thesis/Project

WS 2023/24

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1 Introduction

Theses and projects are a fundamental part of a student's educational program. They give you not only the chance to apply theory in practice, but also allow you to dig deeper into a topic and gain a set of skills that will be valuable in your future career. Such skills encompass problem-solving and critical thinking, the ability to present findings (in both oral and written form), time management, as well as the capability to work autonomously and independently.

Learning these skills requires motivation, commitment, and also resilience on your end (it is common for students to experience ups and downs throughout their thesis/project work). While some tasks might be challenging, the successful completion of a thesis/project is typically very rewarding and might even lead to a scientific publication, allowing students to travel to international conferences/workshops to present their work.

This document is intended to be a starting point for students who carry out their Bachelor (BSc) or Master (MSc) thesis/project in our research group (LENS = Low-power Embedded Networked Systems). It summarizes the most important information about the process of doing a thesis/project with us and contains useful tips for scientific working[1].

We have created this guide specifically for you, so please *read it carefully*! :)

2 Carrying out a thesis/project within LENS

2.1 What constitutes a thesis/project?

In LENS, we perform *experimental and application-driven research* and thus also the theses/projects carried out in our group are typically very practice-oriented. This means that students do not just perform literature surveys, but they apply their knowledge in concrete HW/SW projects. In general, a thesis/project consists of the following parts:

- **Literature research.** You should make yourself familiar with the topic by studying related literature and existing solutions.
- **Practical work.** A large part of your work is hands-on, i.e., a HW/SW project. For example, this can be the design, implementation, and evaluation of a solution/prototype, or an experimental campaign aimed at answering specific questions.
- **Written report.** Your solution/findings have to be properly documented in the form of a written report or BSc/MSc thesis.
- **Oral presentation.** In the end, you will give a talk about the outcome of your thesis/project work in front of our research group, followed by a Q&A session.

[1] Note that this is not an exhaustive guide and that it does not cover all important aspects of scientific working such as "how to find a topic" or "how to perform a literature review". More information can always be found in the Web or in the collection of useful links in Appendix A.

Table 1: Thesis/Project Overview

Type	Credits[1]	Written pages	Presentations
Master thesis	30 ECTS	~ 70 net[2]	Mid-term: ~12 min + Q&A Final: 25 min.+ Q&A
Bachelor thesis	see curr.[3]	~ 40-50 net[2]	Final: 20 min + Q&A
Master project Seminar project	see curr.[3]	~ 10-12 (double column)	Mid-term: ~12 min + Q&A Final: 25 min.+Q&A

[1] 1 ECTS corresponds to roughly 25 hours
[2] net = excluding preamble and appendix; Introduction starts at page 1
[3] curr. = curriculum

Overall requirements. Table 1 gives an overview of the formal requirements (i.e., mandatory reports and presentations) to complete a certain type of thesis/project. More detailed information follows in the next sections. Note that the number of ECTS hours is typically a very rough guideline, and the actual duration of a thesis can vary significantly. Please also check the official requirements in your curriculum, since we cannot cover them all in this guide.

2.2 What can you expect from us?

Each thesis or project is guided by a *supervisory team* that is typically composed of a *formal supervisor* and one (or more) *technical advisor(s)*. The formal supervisor (commonly Prof. Boano) ensures the suitability/quality of the work and signs off your grade at the end. The technical advisor will help you throughout your work and is your main contact person. It may also be the case that the formal supervisor and the technical advisor are the same person.

During your thesis/project we provide you with the following:

- Continuous **support and advice** (for both scientific and technical questions) to help you tackling your thesis/project. To this end, you will meet your advisor regularly (e.g., every two weeks). Status updates with your formal supervisor typically take place less often.
- We provide you with the necessary **software and hardware** (e.g., boards, measurement equipment) and can grant you access to our workshop if required.
- There is also the possibility to assign you a **working place** (i.e., a desk with monitors, keyboard, and mouse) in our student's lab during the course of your thesis/project.

2.3 What do we expect from you?

While working on your thesis/project, you should demonstrate that you are able to work on scientific topics independently and in a justifiable manner in terms of content and methodology. Therefore, the following aspects are considered in the final grade of your thesis/project:

- **Knowledge & skills.** You should acquire a certain level of knowledge in the field of your project/thesis, and prove that you are able to master a scholarly research endeavor.

- **Independence.** You should acquire new knowledge alone and work independently (i.e., define, plan, and complete the tasks related to your thesis/project on your own).
- **Scientific working and writing.** You have to work according to scientific principles[2] and write down your findings and results in the final report in a scientific manner.
  - Note that for a *Master's thesis*, the requirements on scientific methodology and relevance of the work are in general higher than for a Bachelor's thesis.
  - If you are working on a thesis/project in cooperation with an *industry partner*, please note that companies are often only interested in a working implementation. However, you also have to make sure to cover scientific aspects in your work (e.g., having a proper evaluation, written report, etc.) to receive a positive grade.
- **Presentation of results.** At the end of your thesis/project, we will also assess your ability to present your topic and results to other people, i.e., you should be able to present your work in such a way that it can be understood by non-experts.
- **Interest & motivation.** A key prerequisite for mastering the previous points is that you are really interested in the topic, and that you show motivation and commitment for your work: it is much easier to stay motivated when you like what you do.

Trial Period. Since your interest in a topic and personal motivation are so important for successfully completing a thesis/project, we introduced in our research group the so-called *trial period*. It is a probation time of about 4-6 weeks, during which you can find out if the topic really sparks your interest and if the supervision meets your expectations. After the trial period, you and your supervisory team will evaluate progress and discuss whether to continue the thesis/project or not (more in Sec. 3.3). Note that an interruption of the thesis/project does not lead to any formal consequence for the student (i.e., no official forms have been completed until this point, and no negative grade will be signed).

3 Getting started with your thesis/project

We are assuming that, at this stage, you have agreed on a preliminary *topic*, you know your formal *supervisor*, and – if applicable – your technical *advisor(s)*.

3.1 Checking out earlier theses/projects

Before starting, it is a good practice to check examples of BSc/MSc theses and project reports. You can find several examples of theses and project reports produced in the LENS group here.

Browsing through these examples should give a rough idea about what is commonly expected. Both theses and reports have a *scientific character* and follow certain conventions (e.g., related to structure, format, citation, design, voice, etc.). You will find a book and several tips about scientific writing in Appendix C, as well as advice on how to tackle your final report in Sec. 5.

[2] Some of the basic scientific principles are respect for the integrity of knowledge, honesty, and objectivity. For more details on responsible conduct in science, you can refer to the free book "On Being a Scientist".

3.2 Starting to work with the provided material

Once you agreed on a preliminary topic for your thesis/project, your supervisory team will:

- send you a document containing a **summary of the envisioned goals**, as well as a number of pointers/tasks to get you acquainted with the topic.
- set up a dedicated **Discord group**: this should be used as primary means of communication (e.g., for questions, setting up meetings, and reporting results).
- create a **Git repository**: you should use this to store all your documentation, related literature, source code, experimental data[3], as well as your presentation(s).

Start working with the provided material, get acquainted with the topic, and reach out to the supervisory team if any organizational or technical aspect is still largely unclear.

3.3 Completing the trial period

The first weeks are the chance for you to dive into your topic and decide – together with the supervisory team – whether you want to continue working on it or not. For this "trial period", whose duration is around 4-6 weeks, we expect from you the following course of action:

- Start working with the provided material and **demonstrate commitment** by:
  - working independently,
  - doing (literature) research yourself,
  - showing up to meetings and giving updates to your supervisor/advisor regularly.
- Derive a rough **timeline** for your thesis/project:
  - Think about a *realistic* time budget: how many hours per week can you use?
  - Make sure to consider external factors in your time budget (e.g., holidays, preparation time for upcoming exams, side jobs and other commitments).
  - Discuss with your supervisory team if the timeline is realistic.
- Once you got acquainted with the topic, derive a **thesis/project proposal**
  - Re-work the provided material and derive a written document that summarizes *in your own words* the work's *motivation, goals, and planned milestones*.
  - Discuss it with your supervisory team, and consolidate its content: this process will ensure that you clearly understood what your thesis/project entails, and will later also simplify the write-up of the final report.
  - Submit your proposal to your supervisor.
- If your supervisor accepts your proposal, you can **officially register** your thesis/project.

[3] If you have very large amounts of data, please ask your supervisory team for a separate repository!

  - For MSc theses, register at your faculty[4] using the corresponding form[5].
  - For BSc theses and project, register for the corresponding course on TUGonline.

But, what if... ? If you find out that **you do *not* like the topic**, we can try to find something that you enjoy working on more, or we agree to not continue the thesis/project. Again, it is better to tell us early on than working on a topic you do not like and procrastinate.
If it turns out that **you are not able to dedicate sufficient time** for your thesis/project at the moment, please let us know as well. Because, in the unfortunate case that a student is not showing commitment during the trial period (e.g., he/she no longer shows up/responds to messages or does not deliver a sufficient thesis/project proposal without good reasons), *we also allow ourselves to stop the supervision.* So make sure to talk to us regularly!

4 Executing your thesis/project work

In this section, we briefly summarize the most important aspects of successfully executing your thesis/project with us. Please read these tips carefully and apply them right from the beginning (already during the trial period).

4.1 Scheduling regular update meetings

- **Meet your supervisor/advisor regularly!**
  - Meetings should typically happen every two weeks; it is not recommended to meet less often.
  - It is fine to cancel a meeting once in a while (e.g., due to exams, vacation, etc.), but please let your supervisor/advisor know well in advance.
- **Prepare for the meeting** to make it as useful as possible.
- During each meeting, you should check and **update your proposed timeline** to see if you are still on track or if things get unexpectedly delayed. Also, *take notes* during the discussion and **derive clear action points** with your supervisor/advisor.
- Write a **meaningful summary** about the discussed items and next steps *after the meeting*, and share it with your supervisory team: you and your supervisor/advisor should be able to understand what you have discussed and what the outcome was.

4.2 Documenting your work

- Make sure to **take detailed notes during your work** (e.g., when reading literature or evaluating results), it will help you remember things and make your life easier when writing up your thesis/report.

[4] ETIT faculty or CSBME faculty
[5] Note that this registration must be completed at least 4 months before submitting the final thesis.

- Start drafting the **thesis/report structure** early, and remember that your thesis/project proposal is meant as a starting point for your written report. Take the information from the proposal and let it continuously grow to become your final report.

4.3 Designing and implementing your solution

- Before you start implementing your work, **check out existing work or reference implementations** and try to *understand* and describe their advantages and limitations.
  - This is important to ensure the novelty of your work (avoid duplication) and will help you motivate your approach later in the thesis/report.
- When **designing your own system/setup**, always think about the problem or system requirements and on whether your design choices meet these requirements.
  - Make sure that you can *justify* each of your design decisions (e.g., using experimental data, references to related work, or solid argumentation).
- Try to **implement your solution** in a *clean and organized* manner:
  - Push your progress to the Git repository regularly.
  - Comment your code: make sure it is well understandable and documented (i.e., provide a good `README`).
  - If you spot a problem/challenge, don't try to bypass it but solve it, as it will pop up later on again.

4.4 Evaluating your solution / performing experiments

- First of all, start by asking yourself **what you want an experiment to show** and whether this answers the question(s) you originally defined in your thesis/project.
  - To do so, you can manually draw the *envisioned chart/plot*, with its axes and how you expect the results to look like.
  - Always think back about the specified problem statements/requirements, and whether the planned evaluation (i.e., your envisioned chart/plot) closes the loop.
- If you are not sure how to perform an experiment: just ask.
- **Validate your setup** before you start with the evaluation/experimental campaign. This can point you to obvious flaws and save you from a lot of trouble!
- **Ensure reproducibility** by properly describing the setup in your report and also take notes about your observations while performing the evaluation/experiments.
  - Repeat measurements several times (if possible also under different conditions)!
- Tips for the **data collection**:

  - If you are not sure if something is worth collecting... do it anyways. You might need it in hindsight and you will be glad to have recorded everything.
  - Try to think of a good naming scheme before you start any kind of data collection. The name should be clear and easy to parse by code to avoid complications.

5 Writing your thesis/project report

Before writing the final thesis/report, double-check (again) some examples (Section 3.1) and the typical format/number of pages (Table 1) and use the provided LaTeX template for your written report.

5.1 LaTeX templates

- We expressly request students to **use LaTeX**, because it allows you to create a professional-looking thesis/report without much effort, especially if you use our LaTeX templates. If you are not familiar with LaTeX, you can find some tips in Appendix D.
- You can download the LaTeX **templates** here.

5.2 Writing and feedback process

Deriving the report's structure. First, check out Appendix C on how to properly write and structure scientific texts. Based on that, derive a *tentative structure* and discuss it with your supervisor/advisor. A table of contents with sections, subsections, and subsubsections with a few notes on their content is sufficient.

The Write-Up. Once you have agreed on the structure, you can start writing the remaining report. Do not write the report all at once, but submit it *chapter-by-chapter* to your advisor/supervisor and follow these steps:

- Write the **Introduction** chapter using the thesis/project proposal as a starting point.
  - When you think it is in good form and you proofread it, submit it to your supervisor/advisor.
  - After that, you will receive early feedback. This is good for identifying common mistakes (e.g., improper citation, active/passive sentences, wrong structuring) right from the beginning so that you can avoid them when writing the next chapters.
- Afterwards, continue with writing the **Background and Related Work** chapters: this ensures that you describe all relevant information upfront and do not miss important literature (doing this at the end typically results in unpleasant surprises).
- Only then, continue to write the other chapters in detail.

Asking for and receiving feedback. For each chapter, you will receive (detailed) comments from your advisor/supervisor. *Make sure that you really understand each comment* (ideally, discuss the comments by voice), and revise your report accordingly. Pay *serious effort* in

addressing the comments: please ask if anything is unclear or does not make sense to you. This process is only effective if you apply all the feedback for the next chapters already. Beware: do not expect us to proof-read the document for you – do not forget that you also get evaluated for what you deliver (it is a course with continuous assessment).

Disclaimer: Writing may take some iterations in the beginning, this is normal and should not frustrate you. Scientific writing is a learning process that we will teach you!

Use AI tools with care! While you are free to use any tool that helps checking grammar and improving your formulations (e.g., DeepL), it is not acceptable if you use AI tools rephrasing someone else's text, generating sentences, paragraphs and sections (e.g., related work) – unless an exception has been explicitly made by your advisor/supervisor. Note that you are fully responsible for the entire content of your report, including all text and figures: therefore, you must ensure that all text is original, and are expected to understand and explain its content.

6 Presenting your thesis/project work

Depending on the type of your work, you will have to present your work once or twice in front of our working group: see overview in Table 1.

- Talk to your supervisor to **define the date** for your presentation early on. Typically, they are scheduled on Mondays at 10:00 during the LENS group meeting.
- Make sure that you **know what is expected from you**, i.e., that you know what the presentation should contain. Ask your advisor if you are unsure.
  - Please check out Appendix E on how to properly prepare scientific presentations.
- Send the slides (16:9 format) to your supervisor/advisor **at least 10 working days** before the presentation. This helps to ensure that there is enough time for your supervisor/advisor to give you feedback and for you to *apply the feedback*.
- **Rehearse and prepare** for your presentation carefully:
  - Make sure to prepare the presentation exactly for the specified time (see Table 1): giving a shorter or longer presentation is both not good.
  - Prepare for questions.
  - Everyone's time is valuable, so please take the presentation seriously. It also contributes to the grade.

MSc thesis presentation. If you write a Master's thesis, this presentation is also the *rehearsal for your final exam*. This gives you the opportunity to receive valuable feedback from us, which you can use to improve your presentation for your final defense.

Your presentation is *the* opportunity to show us the great things you have achieved. So make sure it is nicely prepared and understandable by everyone (your target audience should be your study colleagues).

7 Completing your thesis/project work

Congratulations for finishing your thesis/project with us!
Before we can give you your grade, please take care of the following steps:

- Return the borrowed hardware.
- Push everything (source code, LaTeX code, ...) to the Git repository and clean it up.

Additional steps for MSc thesis. If you write your Master's thesis, additional steps (e.g., plagiarism check, registering for your final exam, etc.) are required to finish your studies and certain deadlines need to be considered. Please refer to your dean's office for details.

Feedback. After your grade is finalized, we would like to ask you for your feedback. What did you like? What can we do better? As we aim to continuously improve our supervision, please take your time to provide us with detailed feedback. Your supervisory team will approach you with more information.

Note that this must not be the end: If you're interested in making your work a publication or want to proceed to work on similar topics, discuss it with your supervisor. He/She will be happy to help you with that :)

Appendices

A Useful links

- **Examples** of BSc/MSc theses and project reports carried out at LENS: https://cloud.tugraz.at/index.php/s/qdYtSex8gbB8ey8
- Thesis and presentation **templates**: https://www.tugraz.at/en/institutes/iti/teaching/templates
- TU Graz students can use **Overleaf Professional** for free: https://www.overleaf.com/org/tugraz
- LENS group **Webpage**: https://www.tugraz.at/en/institutes/iti/lens

B Common pitfalls

This section lists common pitfalls that we encountered while supervising former BSc and MSc students, i.e., this list contains things that you should **not** do:

- **Choosing a topic you do not like.** The project/thesis work gives you the chance to dig deeper into a specific topic. It is important that this topic aligns with your *interests*, because you will need to spend several months on it, and working on a topic you do not like often leads to unhappiness and procrastination. It is also important that the topic you choose aligns with your *career goals*, as you ought to specialize on a field in which you wish to work in the future (to gain the relevant expertise to rock the job interview).
- **Improper time management.** Your work is not only about "doing/implementing" something. Do not underestimate the time needed to read the related work, getting familiar with your topic, and writing the final report. Give yourself enough time and do it properly from the start to save yourself a lot of time and trouble.
- **Leaving the write-up of the report at the end.** You will only start noticing inconsistencies and missing information when writing the final report. Use the report as a step to step guide that you need to fill in and include your notes there from the start. It is easier to re-write your notes into text than writing from scratch. This will also help you to keep an overview and not get lost in your work.
- **Underestimating the power of writing.** Remember that writing helps you better understanding what you do: when you arrange and rearrange the results of your research, you discover new implications, connections, and complications. Writing also helps your testing your thinking: you cannot know how good your ideas are, until you separate them from the swift and muddy flow of thought and fix them in an organized form (document) that you and others can read. Therefore, start writing straight away!

- **Misconduct.** Do not plagiarise, lie, or fabricate/alter data. If something goes wrong or seems odd during your work, simply talk to your supervisor/advisor and find a solution together. Everyone (especially you) benefits from a correct and truthful report. In the end, you want to be proud of your work and of what you have achieved.
- **Expecting your supervisor/advisor to know everything and do things for you.** Many projects/theses embed a research component, in which you are supposed to search and explore new possibilities. This means that your supervisor/advisor might not know the answer to all your questions, that some of your investigations might not give the expected results, or that some of your experimental evaluation might fail. It is your task to autonomously navigate this unknown terrain and tackle the obstacles on the way. Remember that your final grade is also based on your autonomy and independence.
- **Being afraid to acknowledge mistakes/problems/dead ends.** Mistakes are part of the process and one can actually learn a lot from them, as long as one acknowledges them. Do not hesitate to re-do parts of your work or to talk to your supervisor/advisor in case of bigger issues. A common mistake is also to "silently ignore" a problem or rather find a quick fix without addressing it in its full depth: the problem might in fact come back at a later stage and may cause you to re-think your entire work.
- **Unresponsiveness.** It is advisable to keep in contact with your supervisor/advisor. It will help you to stay on track and to not lose time exploring potential dead ends. From experience, we know that unresponsive students can often get frustrated and are prone to procrastination, which does not benefit anyone.
- **Being overambitious and planning unrealistic milestones.** Being motivated and enthusiastic is great, but do not forget that you also want to finish your project/thesis in a timely fashion. Speak with your supervisor/advisor to discuss and plan realistic goals, which will also avoid frustration in the long run.

C Scientific writing

This section provides you with common writing tips to help you get started and some general information on the structure of a thesis/report.

Writing tips

It is strongly advisable to read (good) scientific papers on the topic of your project/thesis, one book on scientific writing, and to take a detailed look at earlier projects/theses carried out in our group. This link points to a folder containing some examples of good thesis and projects carried out within LENS. It also points to the PDF of the book *"The Elements of Style"* by Strunk and White: an easy read that we recommend to all our students before they write-up their work. For additional writing tips on **English punctuation**, please refer to this link.

We also devised a small list with common tips for scientific writing:

- Write in present tense.
- Use active voice rather than passive voice.
- Be precise and concise, i.e., avoid redundancy and keep things simple.
- Avoid vague statements like "x is better than y". Use concrete numbers or references instead.
- Choose the right level of detail for the section.
- One paragraph - "one idea": look-up Web references for "sandwich paragraph" for more information.
- Write self-explanatory captions for figures and tables. As an example, take a look at the captions of the evaluation figures in this paper.
- Define unfamiliar terms/abbreviations when first introduced (LaTeX packages can help to automatically find the first occurrence – see Appendix D).
- Incorporate examples and analogies to help conveying a message.
- Be consistent: a word/term should be written the same throughout the document! For example, avoid this: wifi, wi-fi, Wi-Fi, WIFI, Wi-fi, ...
- Take good care about your citations: especially keep a common format for all conference and journal articles. We suggest:
  - Journal articles: Authors, "Title", <journal name>, Volume, Number, Pages, Month, Year, Publisher.
  - Conference papers: Authors, "Title", Proceedings of <full conference name (acronym of conference)>, Pages, Month, Year, Publisher.
  - Books: Authors, "Title", Edition, Month, Year, Publisher.
  - Online resources: Author/Organization, "Title", [Online] <Link>, Last accessed: <date>.

Thesis/Report structure

Please note that, although each thesis/project is unique, the overall structure of the report follows some common rules, e.g., the presence of an introduction with a clear statement of the problem(s) being tackled and the ultimate goal(s), the presence of a literature review and bibliography, etc. Table 2 lists the typical structure of a thesis or project report, and the content of each section.

Table 2: Typical thesis/report structure.

Section	Content
Abstract	Problem addressed, proposed solution, relevance/impact of the achieved results. Make sure to write concrete numbers to quantify the performance of your solution or the outcome of your work in light of existing literature.
Introduction	Context, motivation, exemplary use cases, problem description, limitations of existing work, key idea(s) behind the proposed approach, enumeration of your work's contributions, outline of the thesis/report.
Background and Related Work	Introduction to the topics, terminology, notation, and key aspects that are necessary to understand the rest of the work. It may include the considered models and assumptions. Related work should comprise state of the art, how the work advances it, key main differences with respect to existing work. The background should be written such that a fellow student taking your same study program (but not familiar with the topic of your thesis/project) can understand the contents of your report. Background and related work are often two separate sections.
Design & Implementation	Detailed description of the proposed solution (e.g., method, algorithm, system, ...), including proofs of formal properties. It should provide a high-level overview, an explanation of the design rationale, a detailed description of all components, and implementation details. It is very important that, at the end of the section, it is clear to the reader *why* your solution has been designed this way.
Evaluation / Experimental Results	Description of *how well* the proposed solution works. Typically describing experiments or formal tests on the proposed solution aimed at showing its performance (e.g., reliability, efficiency, average complexity, ...); behaviour as a function of various inputs. The evaluation should close the loop with respect to the motivation and problems stated in the introduction.
Discussion	Summarize and discuss your results and findings, explaining which conclusions can be drawn upon, and explicitly mentioning any limitations.
Conclusion and Future Work	Short summary of the work (including the main results and their implications) and future work (possible improvements to what was done, and aspects that were not investigated/considered in this work).
References / Bibliography	A list of papers used to build the work or to compare with.

D LaTeX tips

If you are not familiar with LaTeX at all, you should start by reading a **beginner's guide** such as this one, for example:
https://www.overleaf.com/learn/latex/Learn_LaTeX_in_30_minutes

Having a **LaTeX Cheat Sheet** at hand may also be helpful:
https://quickref.me/latex.html

The following list contains tips and tricks that we find useful:

- Put "\," between the <value> (e.g., 5) and the <unit> (e.g., m). It reduces the whitespace (5\,m → 5 m) and look better: 5 m vs. 5 m
- Put "~" between words that should stick together (e.g., Raspberry~Pi and IEEE~802.15.4)
- Put "~" in front of citations and references (e.g. `~\cite{...}` and `~\ref{...}`)
- To avoid hyphenation of a word, use the `\mbox{}` command
- To avoid inconsistent terms, you can define a dedicated LaTeX command:

  ```
  \usepackage{xspace}
  \newcommand{\wifi}{\mbox{Wi-Fi}\xspace}
  \newcommand{\wifisix}{\mbox{Wi-Fi\,6}\xspace}
  ```

  LaTeX will then interpret `\wifi` as Wi-Fi and `\wifisix` as Wi-Fi 6
- To avoid mixing abbreviations/acronyms and their first definition, use:

  ```
  \usepackage{acronym}
  \begin{acronym}
  \acro{SI}{Speaker Identification}
  \end{acronym}
  ```

  LaTeX will automatically determine the first use of your acronym when using `\ac{SI}` and replace it with *Speaker Identification (SI)*.

E Scientific presentations

In this section, you will find a number of tips that help you preparing a good presentation. We also recommend you to watch this video by Jean-luc Doumont.

- Presentation $\neq$ final report: you are neither expected to show everything you have done, nor to follow the same structure of your report. Remember that the goal of your presentation is to convey the *key aspects* of your work, *not to explain all the details*.
- Your presentation should not only be *interesting*: it should be *understandable* by the audience. Therefore, always ask yourself:
  - Does the audience have a background like yours? What can you give for granted?
  - Can you jump right into the subject? How much motivation is needed?
  - Which level of detail is suitable?
- Avoid cramming your slides with text: use figures whenever possible.
- When adding figures to your slides, make sure you have the right to use them.
- Stay in time: aim for roughly 1 slide per minute.
- Make sure that the font is sufficiently large – also in figures and tables.
- Use animations only when strictly necessary: they tend to distract the audience.
- Rehearse your talk!
- Pay attention to your body language:
  - Do not be motionless (e.g., do not stare at your laptop or at the ceiling/floor).
  - Do not give your back to the audience (e.g., while reading what is being projected).
  - Show that you are excited about what you present: if you are not, how can others be?
  - Do not keep your hands in the pockets: use hands & fingers to emphasize concepts.
- Prepare for questions:
  - What if you do not know the answer?
    Know *when* to say "I don't know" and *how* to say "I don't know".
  - If you do not know the answer, do not just stand there uncomfortably in an awkward silence!
  - Do not talk down to the audience!