Technical Writing and Speaking in English

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Outline

1. **Course presentation and practical information**
2. Tools for scientific writing (in Computer Science)

Course presentation and practical information

- You can find all information at the **course's GitHub page:** `https://github.com/danilo-carastan-santos/technical-writing/tree/main/sessions/2023-Grenoble`

Outline

1. Course presentation and practical information
2. **Tools for scientific writing (in Computer Science)**

Tools for Scientific Writing

"The" tool: LaTeX

Why?

- Write text as if it was code
- Nice to write equations and math
- (Very) nice citation features

Tools for Scientific Writing

"The" tool: LaTeX

Why?

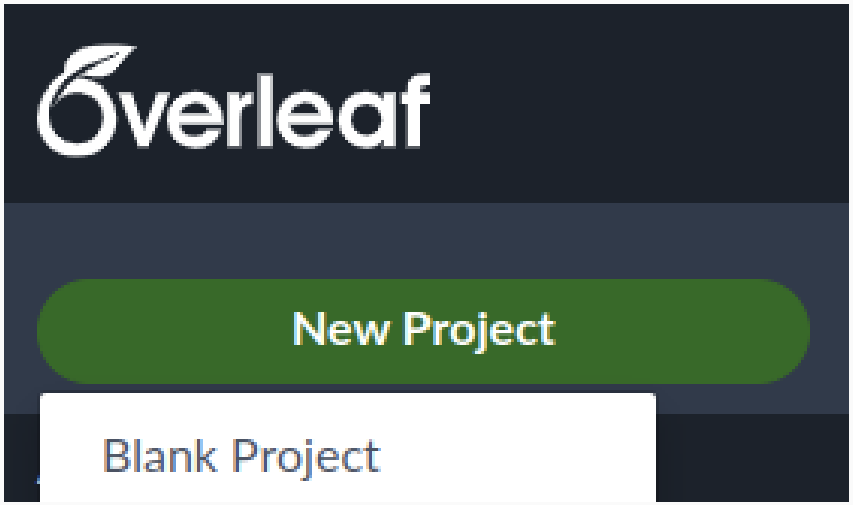
- Write text as if it was code
- Nice to write equations and math
- (Very) nice citation features

It it Hard?

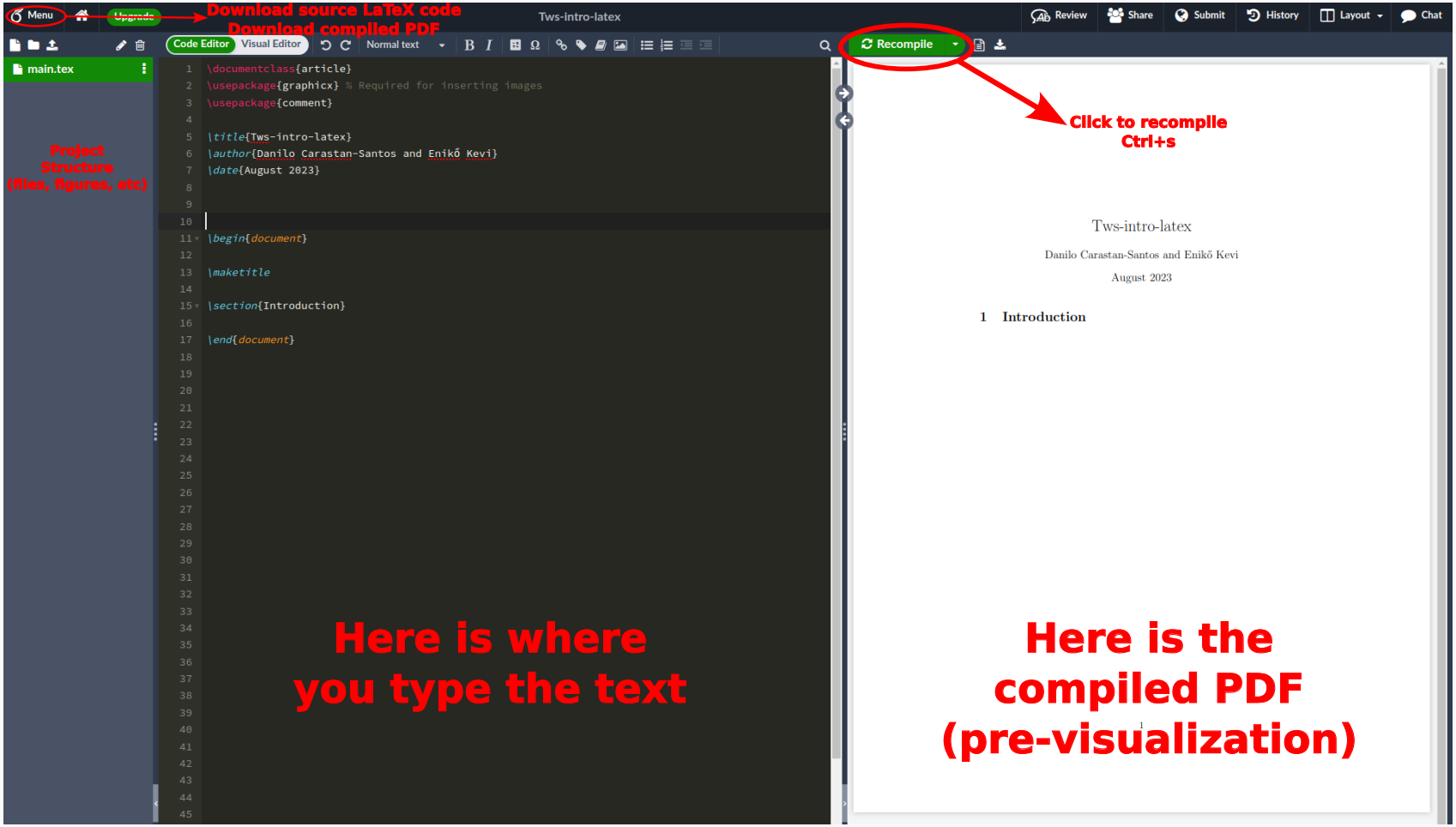
- Used to have a slow learning curve
- It can be hard to configure

Cloud-based services (Overleaf) and their tutorials alleviate this challenge.

1. Create an Overleaf account (if you don't have one): `https://www.overleaf.com/`
2. Click on "New Project", then in "Blank project"



Interface Overview



Preamble

```
\documentclass{article}
\usepackage{graphicx} % Required for inserting images

\title{Tws-intro-latex}
\author{dancarastan }
\date{August 2023}
```

- Overall configuration and metadata
  - “Import” packages (functionalities)
  - Add information for the title (authors, date, etc.)
  - Implement custom commands
  - Configure templates

Document body

```
\begin{document}

\maketitle

\section{Introduction}

\end{document}
```

- The body (content) of your document
  - Always inside the \begin{document} and \end{document}

Document body: Organizing the text into sections

```
\begin{document}

\section{Introduction}
This is section number one. The
     introduction.

\section{General Explanation}
This is the second section

\subsection{Subsection}
This is a subsection of Section 2

\subsubsection{Subsubsection}
This is a sub-subsection of Section 2

\end{document}
```

1 Introduction

This is section number one. The introduction.

2 General Explanation

This is the second section

2.1 Subsection

This is a subsection of Section 2

2.1.1 Subsubsection

This is a sub-subsection of Section 2

Document body: Cross referencing

```
\begin{document}

\section{General Explanation}
This is the second section
\subsection{Subsection}
This is a subsection of Section 2
\subsubsection{Subsubsection}
This is a sub-subsection of Section 2

\section{My other Section}
This is my other section.

\end{document}
```

1 General Explanation

This is the second section

1.1 Subsection

This is a subsection of Section 2

1.1.1 Subsubsection

This is a sub-subsection of Section 2

2 My other Section

This is my other session.

Document body: Cross referencing

```
\begin{document}

\section{General Explanation}
\label{sec:general-explanation}
This is the second section
\subsection{Subsection}
This is a subsection of Section~\ref{sec
    :general-explanation}
\subsubsection{Subsubsection}
This is a sub-subsection of Section~\ref
    {sec:general-explanation}

\section{My other Section}
This is my other section.

\end{document}
```

1 General Explanation

This is the second section

1.1 Subsection

This is a subsection of Section 1

1.1.1 Subsubsection

This is a sub-subsection of Section 1

2 My other Section

This is my other section.

Document body: Adding figures

```
\begin{document}

\begin{figure}
    \centering
    \includegraphics[width=.5\linewidth
        ]{Figures/DALL-E.png}
    \caption{Used prompt in DALL-E: A
        Realistic oil painting of a
        scholar writing in a book,
        inside a medieval chamber}
    \label{fig:dalle-figure}
\end{figure}

\section{About the figure}
The prompt used to generate Figure~\ref{
    fig:dalle-figure} is in its
    caption.


\end{document}
```

Figure 1: Used prompt in DALL-E: A Realistic oil painting of a scholar writing in a book, inside a medieval chamber

1 About the figure

The prompt used to generate Figure 1 is in its caption.

Document body: Adding equations and math[1]

```
\begin{document}

\section{First fundamental theorem of
     calculus}
Let $f$ be a continuous real-valued
     function defined on a closed
     interval $[a, b]$. Let $F$ be the
     function defined, for all $x \in [
     a, b]$, by

$$
F(x) = \int_{a}^{x} F(t) dt
$$

Then F is uniformly continuous on [a, b]
      and differentiable on the open
     interval (a, b), and Equation~\ref
     {eq:fund-thorem-calc} holds true.

\begin{equation}
    F'(x) = f(x)
    \label{eq:fund-thorem-calc}
\end{equation}

\end{document}
```

1 First fundamental theorem of calculus

Let f be a continuous real-valued function defined on a closed interval $[a, b]$. Let F be the function defined, for all $x \in [a, b]$, by

$$F(x) = \int_a^x F(t)dt$$

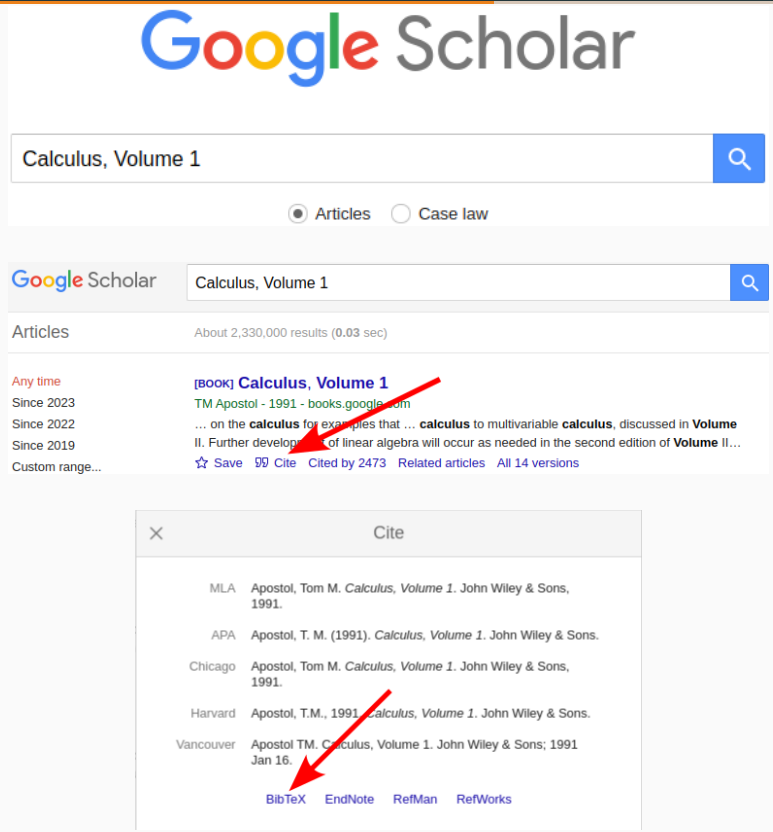
Then F is uniformly continuous on [a, b] and differentiable on the open interval (a, b), and Equation 1 holds true.

$$F'(x) = f(x) \tag{1}$$

[1] Cheat-Sheet on LaTeX math symbols: `http://tug.ctan.org/info/undergradmath/undergradmath.pdf`

Adding citations (the bibtex way): Part 1

1. Create a `.bib` file: Click "New file", and then name it as `references.bib`
2. Add a bibtex entry for your citation (see right)
   - Copy/paste the Google Scholar output




```
@book{apostol1991calculus,
  title={Calculus, Volume 1},
  author={Apostol, Tom M},
  year={1991},
  publisher={John Wiley \& Sons}
}
```

Adding citations (the bibtex way): Part 2

```
begin{document}
\section{First fundamental theorem of
      calculus}
Let $f$ be a continuous real-valued
      function defined on a closed
      interval $[a, b]$. Let $F$ be the
      function defined, for all $x \in [
      a, b]$, by

$$
F(x) = \int_{a}^{x} F(t) dt
$$

Then F is uniformly continuous on [a, b]
       and differentiable on the open
      interval (a, b), and Equation~\ref
      {eq:fund-thorem-calc} holds true.

\begin{equation}
    F'(x) = f(x)
    \label{eq:fund-thorem-calc}
\end{equation}

See reference~\cite{apostol1991calculus}
       for more information.

\bibliographystyle{plain}
\bibliography{references}
\end{document}
```

1 First fundamental theorem of calculus

Let f be a continuous real-valued function defined on a closed interval $[a, b]$. Let F be the function defined, for all $x \in [a, b]$, by

$$F(x) = \int_a^x F(t)dt$$

Then F is uniformly continuous on [a, b] and differentiable on the open interval (a, b), and Equation 1 holds true.

$$F'(x) = f(x) \tag{1}$$

See reference [1] for more information.

References

[1] Tom M Apostol. *Calculus, Volume 1.* John Wiley & Sons, 1991.

Online support material

1. Overleaf Tutorials:
   `https://www.overleaf.com/learn/latex/Tutorials`
2. Dr. Trefor Bazett Tutorials
   `https://youtube.com/playlist?list=PLHXZ9OQGMqxcWWkx2DMnQmj5os2X5ZR73&feature=shared`
3. Dr. Vincent Knight Tutorials (Short Examples)
   `https://youtube.com/playlist?list=PLnC5h3PY-znyDQKn3knfXfekZLgWyL7QW&feature=shared`
4. The examples explained above in Overleaf:
   `https://www.overleaf.com/read/nzxggfyscgdw`

Other useful tools

- Grammarly: check your grammar, find synonyms etc.
- QuillBot: paraphrasing tool
- ChatGPT: you know it

Other useful tools

- Grammarly: check your grammar, find synonyms etc.
- QuillBot: paraphrasing tool
- ChatGPT: you know it

- these tools are **not** always right
- try to develop skills that are independent of software
- (consider environmental impacts as well...)

Exercise & Homework

Exercise during class:

Read and observe `01-Exercise` and recreate it yourself.

Homework for the next course:

Read the document `01-Homework` available in the repository.