Collaborative Writing and Publishing with \LaTeX\ on Overleaf

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What’s with the ducks?! 

Rubber Duck Debugging: https://www.overleaf.com/blog/274
Contents

1 Introduction to \LaTeX

2 Introduction to Overleaf

3 Getting More Out of Overleaf
Workshop Agenda

1. Introduction to \LaTeX

2. Introduction to Overleaf

3. Getting More Out of Overleaf
(I hope this doesn’t happen to anyone, really...)
Why \LaTeX? 

- It makes beautiful documents
  - *Structured, consistently formatted* documents
  - It’s easy to spot a \LaTeX document in a pile of Word docs
- It was created by scientists, for scientists
  - *Complex* documents (cross-references, citations, etc.)
  - A large and active community
- It’s powerful; you can extend it
  - Packages for papers, presentations, spreadsheets, …
  - (This deck was made with \LaTeX!)
Where do I get it from?

**Online**  
Overleaf 😊

**Windows**  
\textit{M}i\textit{k}T\textit{E}X, T\textit{E}X Live

**GNU/Linux**  
T\textit{E}X Live

**Mac**  
Mac\textit{T}E\textit{X} (based on T\textit{E}X Live)

**Editors**  
vi, emacs, Texmaker, TeXworks, Texstudio, TeXshop, TeXnicCenter, Sublime Text…
How do I use it?

- You write your document in plain text with commands that describe its structure and meaning.
- The LaTeX engine processes your text and commands to produce a beautifully formatted document.

The rain in Spain falls \textit{mainly} on the plain.

\textbf{LaTeX}

The rain in Spain falls \textit{mainly} on the plain.
Structured Documents
%% First LaTeX file!
%% (I'm just a comment)
\documentclass{article}

\title{Your Title}
\author{Your Name}

\begin{document}
\maketitle
\tableofcontents

\section{Section Title}
Hello World!
\end{document}

Contents
1 Section Title 1

1 Section Title
Hello World! This is some text to show how paragraphs work. This is some text to show how paragraphs work. This is some text to show how paragraphs work. This is some text to show how paragraphs work. This is some text to show how paragraphs work. This is some text to show how paragraphs work.
\section{Introduction}

This is the Introduction. We'll discuss some case studies in section \ref{sec:cases}.

\section{Background}

This is just some filler information.

\subsection{Case Studies}
\label{sec:cases}

Yep, what we've all been waiting for!

---

**Contents**

1 Introduction .................................................. 1

2 Background .................................................... 1
  2.1 Case Studies ............................................... 1

1 Introduction

This is the Introduction. We'll discuss some case studies in section 2.1.

2 Background

This is just some filler information.

2.1 Case Studies

Yep, what we've all been waiting for!
Text formatting
Font weights, styles, families, sizes

This is \textbf{bold}.

This is \emph{italic} and so is \textit{this}.

This is \textsf{sans serif}, this is \texttt{monospaced}.

This is \Large{Large}, this is \scriptsize{scriptsize}-d.

This is \textbf{bold}.
This is \textit{italic} and so is \textit{this}.
This is \textsf{sans serif}, this is \texttt{monospaced}.
This is \Large{Large}, this is \scriptsize{scriptsize}-d.
Itemized and Numbered Lists

\begin{itemize}
\item Bullet 1
\item Bullet 2
\end{itemize}

\begin{enumerate}
\item Number one
\item Number two
\end{enumerate}

▶ Bullet 1
▶ Bullet 2

1. Number one
2. Number two
Citations and Bibliography
A friend of \LaTeX\ for processing citations and references
Keep a reference database in a .bib file
Only entries that has been cited in a document will get listed in the references
Like EndNote (but more flexible, IMHO)
How does a .bib file look like?

@article{knuth:1984,
    author = {Donald E. Knuth},
    title = {Literate programming},
    journal = {The Computer Journal},
    year = {1984},
    volume = {27},
    number = {2},
    pages = {97--111},
    address = {Oxford, UK},
    publisher = {Oxford University Press}
}
I have to type all that?!

- You can use JabRef (http://jabref.sourceforge.net)
- Or grab the entries from Google Scholar
- Or export them from Mendeley/Zotero/EndNote...
\cite{latex:companion} is a useful book. Knuth introduced the literate programming paradigm while developing \TeX\cite{knuth:1984}.

\bibliographystyle{IEEEtran}
\bibliography{latex-related}

[1] is a useful book. Knuth introduced the literate programming paradigm while developing \TeX\cite{knuth:1984}.


Compiling...

1. pdflatex yourfile
2. bibtex yourfile
3. pdflatex yourfile
4. pdflatex yourfile
5. pdflatex yourfile

There are tools *(hint, hint)* to run these automatically!
Graphics, Figures and Tables
\usepackage{graphicx}
...
\includegraphics[width=.3\textwidth]{ntuMlogo}

- pdf\LaTeX embeds JPG, PNG and PDF graphic files
- (no file extension \Rightarrow automatically looks for .jpg, .png, .pdf)
- Other ways to specify the size:
  width=5cm, height=120mm, scale=1.1
Figures with captions

\begin{figure}[hbt!]\centering
\includegraphics[width=.3\textwidth]{NTU-logo}
\caption{NTU logo}
\label{fig:ntu:logo}
\end{figure}

Figure \ref{fig:ntu:logo} depicts NTU's logo.

\begin{figure}
\centering
\includegraphics[width=.3\textwidth]{NTU-logo}
\caption{NTU logo}
\end{figure}

Figure 2: NTU logo

Figure 2 depicts NTU’s logo.
\begin{tabular}{| l | c || r |}
\hline
one & two two & three three three
\hline
one one & two two two & three
\hline
one one one & two & three three
\hline
\hline
\multicolumn{3}{|l||}{In the end} & What?!
\hline
\end{tabular}

<table>
<thead>
<tr>
<th>one</th>
<th>two two</th>
<th>three three three</th>
</tr>
</thead>
<tbody>
<tr>
<td>one one</td>
<td>two two two</td>
<td>three</td>
</tr>
<tr>
<td>one one one</td>
<td>two</td>
<td>three three three</td>
</tr>
<tr>
<td>In the end</td>
<td></td>
<td>What?!</td>
</tr>
</tbody>
</table>

(Use http://www.tablesgenerator.com or other tools)
Tables with Captions

\begin{table}
\centering
\caption{Sample table}\label{tab:sample}
\begin{tabular}{|c|c|c|}
\hline
one & two & three three three \\
\hline
one one & two two & three \\
\hline
one one one & two & three three \\
\hline
In the end & & What?! \\
\hline
\end{tabular}
\end{table}

Table \ref{tab:sample} is a very simple example.
Mathematics
As we know $E = mc^2$ and so \ldots

As we know from Einstein (\ref{eq:einstein}):  

\begin{equation}
\label{eq:einstein}
E=mc^2
\end{equation}

As we know $E = mc^2$ and so ... 
As we know from Einstein (1):

\begin{equation}
E = mc^2 \quad \text{(1)}
\end{equation}
Another example

\[ \text{\eqref{eq:golden:ratio:fibonacci}} \] relates the golden ratio and the Fibonacci series. Recall that the golden ratio, $\phi = \frac{1}{2} (1 + \sqrt{5})$.

\begin{equation}
\label{eq:golden:ratio:fibonacci}
\phi = 1 + \sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{F_n F_{n+1}}
\end{equation}

(2) relates the golden ratio and the Fibonacci series. Recall that the golden ratio, $\phi = \frac{1}{2} (1 + \sqrt{5})$. 

$$\phi = 1 + \sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{F_n F_{n+1}}$$
Some helpful tools

https://www.codecogs.com/latex/eqneditor.php
Some helpful tools

http://detexify.kirelabs.org/classify.html
Some helpful tools

http://webdemo.myscript.com/views/math.html
\LaTeX{} is great for other fields, too!
We have our first glossing example ($\ref{basic}$)!

(1) An example formatted with expex

un exemple formaté avec expex

‘A free translation.’

We have our first glossing example (1)!
\begin{forest}
[VP
  [DP[John]]
  [V'
    [V[sent]]
    [DP[Mary]]
    [DP[D[a]][NP[letter]]]]
]
\end{forest}
\ce{SO_4^{2-} + Ba^{2+} \rightarrow BaSO_4 \downarrow}


SO$_4^{2-}$ + Ba$^{2+}$ $\rightarrow$ BaSO$_4$↓
SI units and values with siunitx

\SI{3.45d4}{\square\text{volt}\text{cubic}\text{lumen}\text{per}\text{farad}}

\SIlist[\text{per-mode=\text{symbol}}]{40;85;103}{\text{kilo}\text{metre}\text{per}\text{hour}}

\SIrange{20}{40}{\text{degreeCelsius}}

3.45 \times 10^4 \text{ V}^2 \text{ lm}^3 \text{ F}^{-1}

40 \text{ km/h}, 85 \text{ km/h} \text{ and} 103 \text{ km/h}

20 ^\circ \text{C} \text{ to} 40 ^\circ \text{C}
Aligning decimal values in tables with \texttt{siunitx}

\begin{tabular}{ S }
\hline
12.345 \& \\
6.78 \& \\
-88.8(9) \& \\
4.5e3 \& \\
\hline
\end{tabular}

\begin{tabular}{ S }
\hline
12.345 \\
6.78 \\
-88.8(9) \\
4.5 \times 10^3 \\
\hline
\end{tabular}
Coffee break!
# Workshop Agenda

1. Introduction to \LaTeX
2. Introduction to Overleaf
3. Getting More Out of Overleaf
The Internet is transforming research...
...but writing up is still painful
Some of the problems

- Long email chains passing files around
- Dealing with multiple versions of the same document
- Hours spent formatting and typesetting
Overleaf: an online collaborative writing platform
Overleaf: an online collaborative writing platform
A \LaTeX Editor in the Cloud
Make Working with \LaTeX{} Easier

- Cloud-based tools provide \LaTeX{} in your browser
- There’s nothing to download or install
- Access your projects from anywhere, any device
The Dashboard
The Editor

Adding files to a project in Overleaf:

- Select "Add files" from the toolbar.
- Choose the "files" tab in the project sidebar.
- Click "Add files" and select the desired files from your device.
- The files can be added in various formats such as PDF, BibTeX, and LaTeX source files.

Project sidebars:

- The "Files" sidebar lists all the files in the project.
- The "Source" tab allows you to edit the LaTeX code directly, while the "Rich Text" tab provides a user-friendly interface for editing text.

Project settings:

- Accessible via the "Project Settings" button, this is where you can customize project features like colors, themes, and font sizes.

PDF output:

- Clicking the "PDF" button generates a PDF version of your document.
- You can download the PDF or share it directly with others.

Overleaf as a collaborative tool:

- Real-time collaboration:
  - Multiple users can work on the same document simultaneously.
  - Changes are reflected in real-time across all users.

- Version control:
  - Each edit is saved as a separate version, allowing users to see the history of changes.
  - Users can revert to previous versions if needed.

- Commenting:
  - Users can leave comments on specific parts of the document.
  - Comments can be addressed to specific users for detailed feedback.

- Sharing and publishing:
  - Documents can be shared with others via a link.
  - Published documents can be accessed publicly or shared privately.

References:

- LaTeX and BibTeX are essential tools for managing citations and bibliographies in academic writing.
- Overleaf provides a seamless experience for collaborative writing and publishing.

- "A Primer on LaTeX" is a valuable resource for beginners.

- For more information, visit the Overleaf website at www.overleaf.com.
Is Multilingual!

3 Sanskrit

And here's some Sanskrit:

4 CJK

Here's some Chinese:

5 Greek

Here's some Greek:

6 Thai

Here's some Thai:
Modeling of Trap Induced Dispersion of Large Signal Dynamic Characteristics of GaN HEMTs

O. Jande, S. Laurent, P. Chatry, P. Nakkalis, A. Martin

Abstract

We propose here a non-linear GaN HEMT model for CAD including a trapping effects description consistent with both small signal and large signal operating modes. It takes into account the dynamics of the traps and thus allows to accurately model the modulated large signal characteristics that are encountered in telecommunication and radar signals. This model is elaborated through low-frequency S-parameter measurements complementary to more classical pulsed-I–V characterizations. A 6x7因为她大GaN HEMT model was designed and particularly validated in large signal pulsed RF operations. It is shown that thermal and trapping effects have opposite effects on the output conduction, this opening the way for separate characterizations of the two effects.

Introduction

Gallium Nitride (GaN) High Electron Mobility Transistors (HEMTs) are now recognized as good candidates for the development of a number of RF applications and notably Power Amplifiers (PA) for telecommunications and radars. Due to their high breakdown voltage, their high cut-off frequency as well as their high temperature capabilities. However, they are still subject to non-linearities such as thermal effects and especially trapping effects. One convenient way to identify the impact of trapping effects is to monitor the average drain current of the transistor across.

For co-authors who aren’t that comfortable with \LaTeX

Dr. Lim Lian Tze | Collaborative Writing & Publishing on Overleaf
Collaborative Authoring
Online collaborative editing tools provide...

- No need to email files – simply send the link
- One version of the document, accessible by all collaborators
Collaborate by sending the project link

Read & Edit Link:
https://www.overleaf.com/1922191hqgpns
Share this link with your co-authors. They can edit at the same time.

Read Only Link:
https://www.overleaf.com/read/ypmgjhhhygbng
Share this link with anyone. They can read, but they can't edit.

Clone With Git
https://git.overleaf.com/1922191hqgpns
You can git clone your project using the link displayed above.

More
Publish to the Overleaf Gallery to have your project featured on our site.
Make this a protected project
Leave comments for collaborators

Abstract
Your abstract.

{Introduction}
Your introduction gets reviewed and provides comments used commands and features, listed below, to help you get started. If you have a question, please use the help menu on the top bar to search for help or ask a question.

[Comments]
John Lees-Miller about 3 hours ago:
Do we have a reference for this?

John Hammersley replied about 2 hours ago:
Good point! Added.

John Lees-Miller closed this about an hour ago.
Overleaf Gallery: Templates, Examples, Articles
Choose from over 2000 Templates

https://www.overleaf.com/gallery
Submit your own templates or writings!

- Click on Journals & Services at top, then Overleaf Gallery
- Reports, presentations, theses, jottings, lecture notes/handouts
- Many users post their cvs/résumés!
Direct Submission to Journals
Submit to a partner journal from Overleaf

- Download a .zip for submission
- Or click on Submit to... link of partner journals
- Initial and re-submissions
## Partners

### Publishers, Journals and Repositories linked on Overleaf

<table>
<thead>
<tr>
<th>Publisher/Repository</th>
<th>Templates</th>
<th>Submission Type</th>
<th>Repositories</th>
<th>Journals</th>
</tr>
</thead>
<tbody>
<tr>
<td>@AMS American Math Society (AMS)</td>
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<td>Submission Type (Direct link)</td>
<td>Journals</td>
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<tr>
<td>arXiv</td>
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<td>Submission Type (Link to Portal)</td>
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<td>Submission Type (Link to Portal)</td>
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<tr>
<td>engrXiv</td>
<td>1</td>
<td>Submission Type (Direct link)</td>
<td>Repositories</td>
<td>1</td>
</tr>
<tr>
<td>ASCE American Society of Civil Engineers (ASCE)</td>
<td>1</td>
<td>Submission Type (Link to Portal)</td>
<td>Journals</td>
<td>35</td>
</tr>
<tr>
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<td>1</td>
<td>Submission Type (Link to Portal)</td>
<td>Journals</td>
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</tr>
<tr>
<td>bioRxiv</td>
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<td>Submission Type (Link to Portal)</td>
<td>Repositories</td>
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<tr>
<td>F1000Research</td>
<td>2</td>
<td>Submission Type (Direct link)</td>
<td>Journals</td>
<td>1</td>
</tr>
</tbody>
</table>

[https://www.overleaf.com/publishers](https://www.overleaf.com/publishers)
Workshop Agenda

1. Introduction to \LaTeX

2. Introduction to Overleaf

3. Getting More Out of Overleaf
Import Zotero/Mendeley/CiteULike Libraries
Import from bibliography services

Add Bibliography

CiteULike is a free service for managing and discovering scholarly references.

Add CiteULike bibliography

Zotero is a free, easy-to-use tool to help you collect, organize, cite, and share your research sources.

Add Zotero bibliography

Mendeley is a free reference manager and academic social network. Make your own searchable library in seconds.

Add Mendeley bibliography

You can upload a BibTeX (.bib) file that you maintain yourself or with another reference manager.

Upload a .bib file

Want to see more services here? Let us know which ones, and please do let them know, too!
Integration with Plot.ly
Importing your files from Plot.ly

Add plot from plot.ly

Plot.ly username:

SEARCH PLOTS

Name of the file in this project:
US Plastic Export.png

ADD FILE
Sync Offline Work with Git
Git link of your Overleaf Project

Read & Edit Link:
https://www.overleaf.com/1922191hqgprn
Share this link with your co-authors. They can edit at the same time.

Read Only Link:
https://www.overleaf.com/read/ypmgjhhgbygbng
Share this link with anyone. They can read, but they can't edit.

Clone With Git
https://git.overleaf.com/1922191hqgprn
You can git clone your project using the link displayed above.

More
- Publish to the Overleaf Gallery to have your project featured on our site.
- Make this a protected project
Clone the project to your local machine

$ git clone https://git.overleaf.com/192219hqgpnss my_paper

Make edits on your local machine

Commit local changes

$ git add *.tex *.png
$ git commit -m "Added new section and images"

Push changes to Overleaf project

$ git push origin master
Saving Versions & Accessing Full History
Save versions of your work

New! Browse the full history of this project (beta): Recent Activity / Timeline

- Fix italic fonts etc
  - saved by LianTze Lim 8 days ago
  - compare | restore | delete

- Referees and Publications
  - saved by LianTze Lim 6 months ago
  - compare | restore | delete

- Original gallery version
  - saved by LianTze Lim 8 months ago
  - compare | restore | delete

Overleaf automatically saves the latest version of your project.
You can also label and save versions here yourself for future reference.
**Inline comments and track changes for Review**

- **Introduction**: Your introduction goes here. Some examples of commonly used commands and features are listed below, to help you get started. If you have a question, please use the help menu (``?``) on the top bar to search for help or ask us a question.

- **John Lees-Miller** about 2 hours ago:
  
  Seems punchier. OK?

- **John Hammersley** replied about an hour ago:
  
  Yep.

- **John Lees-Miller** closed this about an hour ago.

- **Some LaTeX Examples**

  - **How to Include Figures**
    
    First you have to upload the image file (JPEG, PNG or PDF) from your computer to writeLaTeX using the upload link in the project menu. Then use the includegraphics command to include it in your document. Use the figure environment and the caption command to add a number and a caption to your figure. See the code for Figure \ref{fig:frog} in this section for an example.

  ```latex
  \begin{figure}
  \centering
  \includegraphics[width=0.3\textwidth]{frog.jpg}
  \caption{A figure in the document.}
  \end{figure}
  ```
Full history (beta)
Pro & Pro+ Users

Edited `igs2eannalsguide.tex`:

```latex
\bibliographystyle{igs} % imposes IGS bibliography style on output

% however, we are going to include `igs2eannalsguide.bbl` here:

% \begin{thebibliography}{10}
% % \providecommand{\natexlab}[1]{#1}
% \end{thebibliography}
```

Edited `igs2eannalsguide.tex`:

```latex
... 
\appendix
\section{Appendix}
... 
```

Edited `igs2eannalsguide.tex`:

```latex
... 
\end{figure}

% \subsection{Manual references}
% References should be complete and conform to the IGS reference style. Particular points to note are that author names...
\section{Acknowledgements}
We would like to thank Jason Amundson, Ed Bueler, Andrew Clifton, Gwenn-Flowers, Ralf Greve and Doug MacAyeal for their constructive...
```

Edited `igs2eannalsguide.tex`:

```latex
...
```
<table>
<thead>
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<th>Date</th>
<th>User</th>
<th>Characters</th>
<th>Files</th>
</tr>
</thead>
<tbody>
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<td>Sep 19, 2016</td>
<td>LiatZee Lim</td>
<td>3801 Additions, 17978 Deletions</td>
<td>No Change</td>
</tr>
<tr>
<td>Sep 18, 2016</td>
<td>LiatZee Lim</td>
<td>56 Additions, 9 Deletions</td>
<td>No Change</td>
</tr>
<tr>
<td>Sep 17, 2016</td>
<td>LiatZee Lim</td>
<td>24180 Additions, 27907 Deletions</td>
<td>2 Additions, 3 Deletions</td>
</tr>
<tr>
<td>Sep 9, 2016</td>
<td>LiatZee Lim</td>
<td>35794 Additions, 35965 Deletions</td>
<td>9 Additions, 2 Deletions</td>
</tr>
</tbody>
</table>
IEEE Collaboratec
Integration with IEEE Collaboratec

https://www.overleaf.com/blog/278
Integration with IEEE Collaboratec

https://www.overleaf.com/blog/278
More resources

- Overleaf’s online interactive \LaTeX \text{ } \text{ } \text{tutorial}
- The \LaTeX \text{ } \text{ } \text{Font Catalogue}
- Using TTF/OTF fonts on Overleaf with XeLaTeX
- Overleaf keyboard shortcuts
- Synchronising an Overleaf project with a Github repo
- Backup Overleaf to Dropbox to BitBucket with Git
- Subscribe to the Overleaf blog for latest announcements!
Questions?
Contact us: welcome@overleaf.com

Thank you!