# **The LaTeX Template Generator**

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https://github.com/koppor/

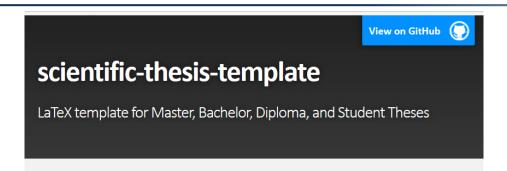


#### **About Me**



- LaTeX since beginning of 2000
- JabRef developer since 2011
- Maintainer of JabRef
- Maintainer of LaTeX templates

#### **Scientific Thesis Template**



#### **LaTeX Template for Scientific Theses**

This template is a general template for scientific theses. Currently, it is the unofficial LaTeX template for Master, Bachelor, Diploma, and Student Theses at following institutions:

- University of Stuttgart, Computer Science
  - English example
  - German example
  - German example with minted and PlantUML
- Paderborn University, Computer Science to be confirmed.
  - English example
  - German example

#### Characteristics of the template

- Most recent packages and package configuration based on long-time experience.
- lualatex to enable proper typeset ligatures. For older systems, pdflatex is still supported.
- Open for contributions.
- latexmk Reasoning available at https://tex.stackexchange.com/a/249243/9075.
- biblatex+biber instead of plain bibtex, because biblatex fully supports UTF-8 and commands such as \citeauthor{...} work out of the box. See also https://tex.stackexchange.com /q/8411/9075.
- Automatic adjustment of wrong ligatures using the selnolig package
- Full Unicode (UTF-8) support
- Optional: Render listings using minted, which provides better output than listings, but requires pygments to be installed.
- Optional: Direct inclusion of PlantUML diagram.s

Even though AuToLaTeX is more powerful than latexmk, it is not included in MiKTeX and therefore it is not used here.

### **LNCS Template**

## **Simplified LNCS Template**



Quick start for modern LaTeXing with LNCS.

#### **Features**

- Support for German documents (without broken headers): Contains a fix to increase compatibility with Babel. See https://tex.stackexchange.com/a/441701/9075 for details.
- Provides a skeletal paper.tex file.
- Generated PDF allows for copy and paste of text without getting words with ligatures such as "workflow" destroyed. This is enabled by glyphtounicode, which encodes ligatures (such as fl) using unicode characters.
- Automatic setting of "Fig." and "Section"/"Sect." according to the LNCS style. Just use \Cref{sec:xy} at the beginning of a sentence and \cref{sec:xy} in the middle of a sentence. Thank to cleveref.
- Support of hyperlinked references without extra color thanx to hyperref.
- Better breaking of long URLs.
- Sharper font (still compatible with Springer's requirements).
- Support for \powerset command.
- Support todos as pdf annotations. This is enabled by the pdfcomment package.
- microtypographic extensions for a better look of the paper.
- Adds modern packages such as microtype, cleveref, csquotes, paralist, hyperref, hypcap, upquote, natbib, booktabs, cfr-lm.
- Optional: Support for minted package. Uncomment \usepackage[newfloat]{minted} to get started.
- Optional: Compile with lualatex instead of pdflatex .
- Ready-to-go configuration for latexindent.

#### **IEEE**

## **Simplified IEEE Template**

circleci passing

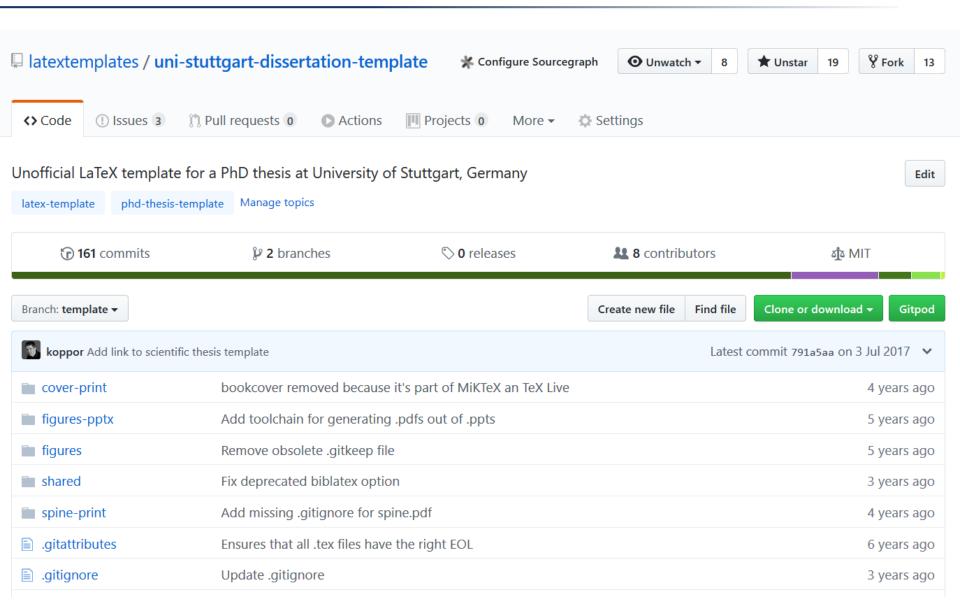
Quick start for modern LaTeXing for an IEEE conference, based on the Manuscript Template for Conference Proceedings.

The official template is distributed via CTAN as the IEEEtran package, which is actively maintained. However, de-facto configurations (hyperref) and modern features of latex (microtype) are not configured. This page does it.

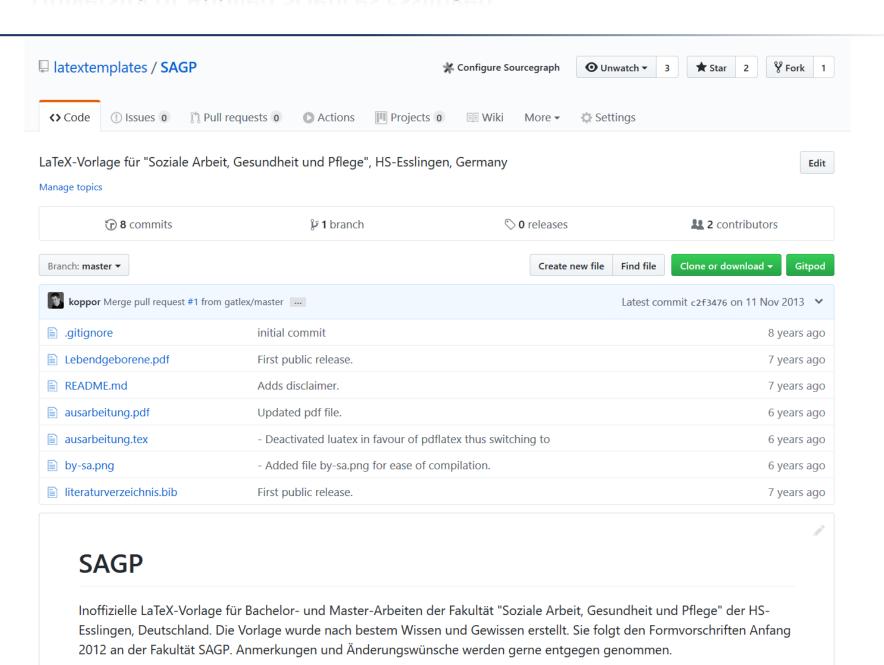
#### **Features**

- Provides skeletal paper-conference.tex and paper-conference-compsoc.tex files.
- Generated PDF allows for copy and paste of text without getting words with ligatures such as "workflow" destroyed. This is enabled by the cmap package, which encodes ligatures (such as fl) using unicode characters.
- Support of hyperlinked references without extra color thanx to hyperref.
- Better breaking of long URLs.
- Support for \powerset command.
- Support todos as pdf annotations. This is enabled by the pdfcomment package.
- microtypographic extensions for a better look of the paper.
- Adds modern packages such as microtype, cleveref, csquotes, booktabs, paralist, hyperref, hypcap, upquote.
- Shows how IEEE copyright notice can be added.
- Optional: Support for minted package. Prepared in paper-conference-minted.tex .
- Ready-to-go configuration for latexindent.

### **University of Stuttgart Dissertation Template**



### **University of Applied Sciences Esslingen**



#### **Template Confusion**

#### Best before end?

LaTeX moves on every day. Does code have a *best before end* life span? What happens to unmaintained code? How can a community assure that code is up to date?

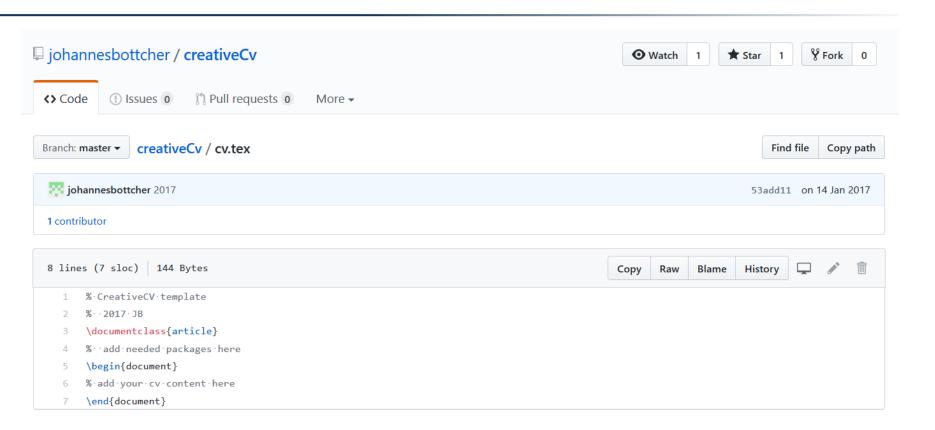
#### Who supports a template? Who maintains it?

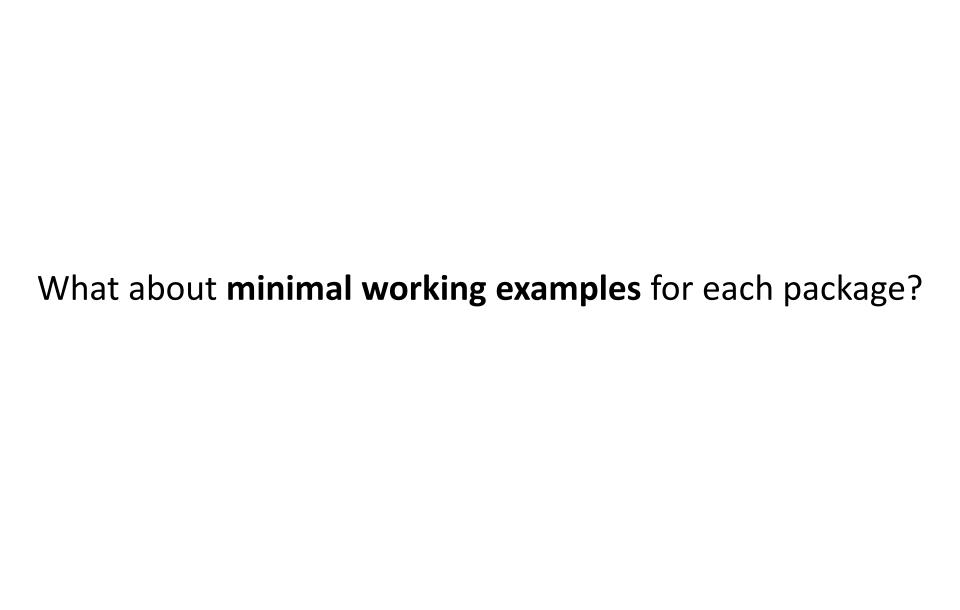
Overleaf and ShareLaTeX have a little comments section, where some support is done. Many users drop in to TeX.Stackexchange. The support for LaTeX-templates is done in collaboration with LaTeX-community, though not everybody finds the right button and many users seek help at TeX.SX. Some *templates* do development and support on gitHub, some may know cleanthesis. A few thoughts about maintainership and support (along with license issues) can be found in the Deedy Das CV template example.

As part of one of the best communities of the world ;-) i think we can work together to establish some common standards of *best practice* (What does that even mean?) to improve the initial state of future templates and improve the current situation.

https://github.com/johannesbottcher/templateConfusion

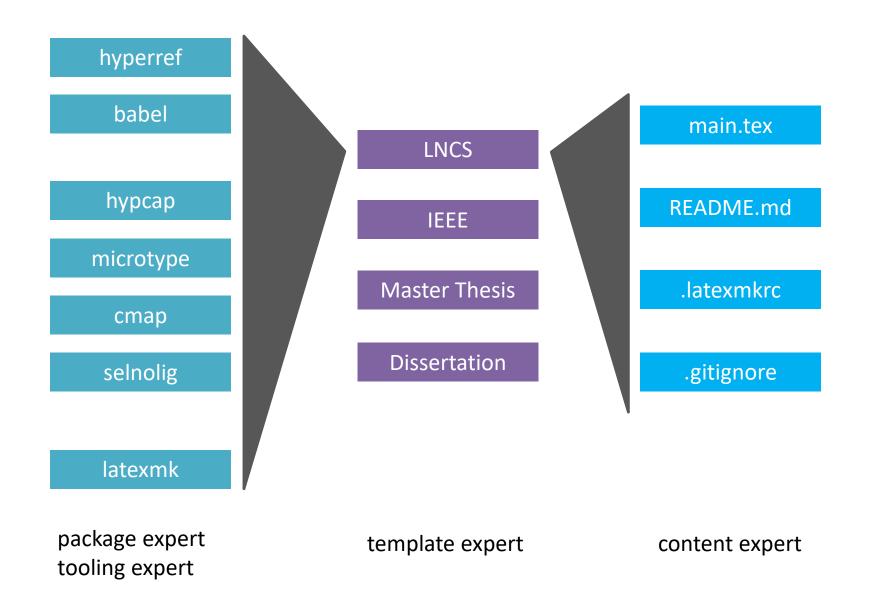
### **Creative CV Template**





# **Proposed Solution**

### **Roles and Artifacts of Proposed Solution**



**User Experience** 

#### **Installation**

- Install NodeJS
  - Windows with Chocolatey: choco install nodejs
- npm install -g yo generator-latex-template

#### **User experience: Start generator**

```
yo latex-template
                       Welcome to the
                       latex-template
                         generator!
Which template should be generated? (Use arrow keys)
scientific-thesis
1ncs
ieee
```

#### **User experience: Choice of LaTeX Compiler**

```
> yo latex-template
                        Welcome to the
                        latex-template
                          generator!
 Which template should be generated? scientific-thesis
 Which latex compiler should be used? (Use arrow keys)
 pdflatex
 lualatex
```

#### **User experience: Choice of BibTeX tool**

```
yo latex-template
                      Welcome to the
                      latex-template
                        generator!
Which template should be generated? scientific-thesis
Which latex compiler should be used? pdflatex
Which BibTeX tool should be used? (Use arrow keys)
bibtex
biblatex
```

#### **User experience: Document language**

```
> yo latex-template
                        Welcome to the
                        latex-template
                          generator!
 Which template should be generated? scientific-thesis
 Which latex compiler should be used? pdflatex
 Which BibTeX tool should be used? biblatex
 Which language should the document be? (Use arrow keys)
 english
 german
```

#### **User experience: Use Cleveref?**

```
yo latex-template
                       Welcome to the
                       latex-template
                         generator!
Which template should be generated? scientific-thesis
Which latex compiler should be used? pdflatex
Which BibTeX tool should be used? biblatex
Which language should the document be? english
Use cleveref? (Y/n)
```

#### User experience: File generation

```
yo latex-template
                        Welcome to the
                        latex-template
                          generator!
 Which template should be generated? scientific-thesis
 Which latex compiler should be used? pdflatex
 Which BibTeX tool should be used? biblatex
 Which language should the document be? english
 Use cleveref? Yes
identical .gitignore
identical .latexmkrc
identical README.md
  create main.tex
```

### **LaTeX Compilation**

#### 1 LaTeX Hints

One sentence per line. This rule is important for the usage of version control systems. A new line is generated with a blank line. As you would do in Word: New paragraphs are generated by pressing enter. In LaTeX, this does not lead to a new paragraph as LaTeX joins subsequent lines. In case you want a new paragraph, just press enter twice (!). This leads to an empty line. In word, there is the functionality to press shift and enter. This leads to a hard line break. The text starts at the beginning of a new line. In LaTeX, you can do that by using two backslashes (\\). This is rarely used.

Please do *not* use two backslashes for new paragraphs. For instance, this sentence belongs to the same paragraph, whereas the last one started a new one. A long motivation for that is provided at http://loopspace.mathforge.org/HowDidIDoThat/TeX/VCS/#section.3.

#### 1.1 Figures

Figure 1.1 shows something interesting.

Place your figure here

Figure 1.1: The example figure.

Implementation How to Contriute?

#### **Technical Details: Use Yeoman As Template Generator**

#### **Context and Problem Statement**

We want to generate the template automatically











#### **Considered Options**

- <u>Yeoman</u> proposed by <u>@miwurster</u>. Currently in use in different projects
  - Andi-Lo/generator-latex
  - <u>LeoColomb/generator-latex</u>
- <u>Jinja2</u> recommended by <u>@mfa</u>, also because of <a href="http://eosrei.net/articles/2015/11/latex-templates-python-and-jinja2-generate-pdfs">http://eosrei.net/articles/2015/11/latex-templates-python-and-jinja2-generate-pdfs</a>
- <u>Cheetah</u> recommended at <u>tex.stackexchange.com/q/41875/9075</u>
- Apache Velocity recommended by <a href="http://tex-talk.net/2012/03/generating-latex-code-with-a-template-engine">http://tex-talk.net/2012/03/generating-latex-code-with-a-template-engine</a>
- <u>lualatex</u> recommended by <u>@Stefan-Kottwitz</u> at <u>http://tex-</u> talk.net/2012/03/generating-latex-code-with-a-template-engine/#comment-231

#### **Decision Outcome**

Chosen option: "Yeoman", because it seems to be the most easy to use generator.

### **Templates for README.md**

```
# LaTeX Dokument
# LaTeX Document
                                               Kompiliere es mittels
Compile it using
                                               <% if (latexcompiler === "pdflatex") { %>
<% if (latexcompiler === "pdflatex") { %>
                                                   pdflatex main
    pdflatex main
                                               <%
<%
} else {
                                               } else {
%>
                                               %>
                                                   lualatex main
    lualatex main
<%
                                               <%
%>
                                               %>
```

README.en.md

README.de.md

Template syntax:



https://ejs.co/

#### **Template for main.tex**

```
% !TeX spellcheck = en-US
% !TeX encoding = utf8
% !TeX program = <%= latexcompiler %>
% !BIB program = <%= bibtextool %>
% -*- coding:utf-8 mod:LaTeX -*-
<% if (documentclass === 'scientific-thesis') { -%>
% EN: The following package allows \\ at the title page
      For more information see https://github.com/latextemplates/scientific-thesis-cover/issues/4
\RequirePackage{kvoptions-patch}
<% } -%>
\documentclass[
]{scrbook}
<%- include('microtype.en.preamble.tex', this); %>
<%- include('babel.preamble.tex', this); %>
<%- include('url.en.preamble.tex', this); %>
<%- include('hyperref.en.preamble.tex', this); %>
<% if (cleveref) { %><%- include('cleveref.en.preamble.tex', this); %><% } -%>
\begin{document}
\<%= heading1 %>{LaTeX Hints}
\label{chap:latexhints}
<%- include('figure.en.example.tex', this); %>
\end{document}
```

#### **Template: cleveref.en.preamble.tex**

```
% Extensions for references inside the document (\cref{fig:sample}, ...)
\usepackage[capitalise,nameinlink,noabbrev]{cleveref}
\crefname{listing}{\lstlistingname}{\lstlistingname}
\Crefname{listing}{Listing}{Listings}
```

#### Template: figure.en.example.tex

```
\<%= heading2 %>{Figures}
\begin{figure}
  \centering
  Place your figure here
  \caption{The example figure.}
  \label{fig:label}
\\end{figure}
<% if (cleveref) { -%>
\Cref{fig:label} <% } else { -%>
Figure~\ref{fig:label}
<% } -%>
shows something interesting.
```

## **Questions: Listed in index.js**

```
{
    type: 'list',
    name: 'language',
    message: 'Which language should the document be?',
    choices: ["english", "german"],
    default: "english"
},

{
    type: 'confirm',
    name: 'cleveref',
    message: 'Use cleveref?',
    default: true
}
```

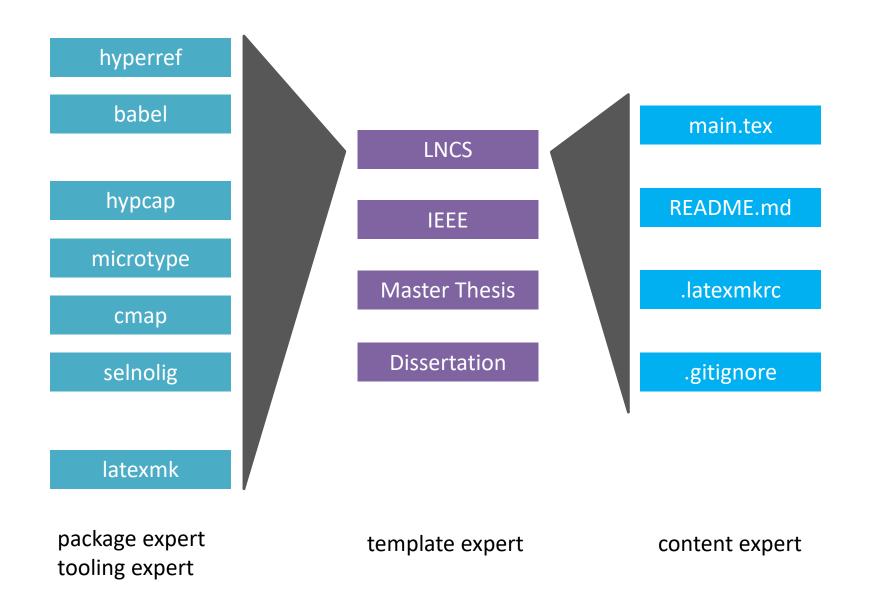
#### **Result:** main.tex

```
1  %!TeX spellcheck = en-US
2  %!TeX encoding = utf8
3  %!TeX program = pdflatex
4  %!BIB program = biblatex
5  % -*- coding:utf-8 mod:LaTeX -*-
6
7  % EN: The following package allows \\ at the title page
8  % For more information see <a href="https://github.com/latextemplates/scientific-thesis-cover/issues/4">https://github.com/latextemplates/scientific-thesis-cover/issues/4</a>
9  \RequirePackage{kvoptions-patch}
10
11  \documentclass[
```

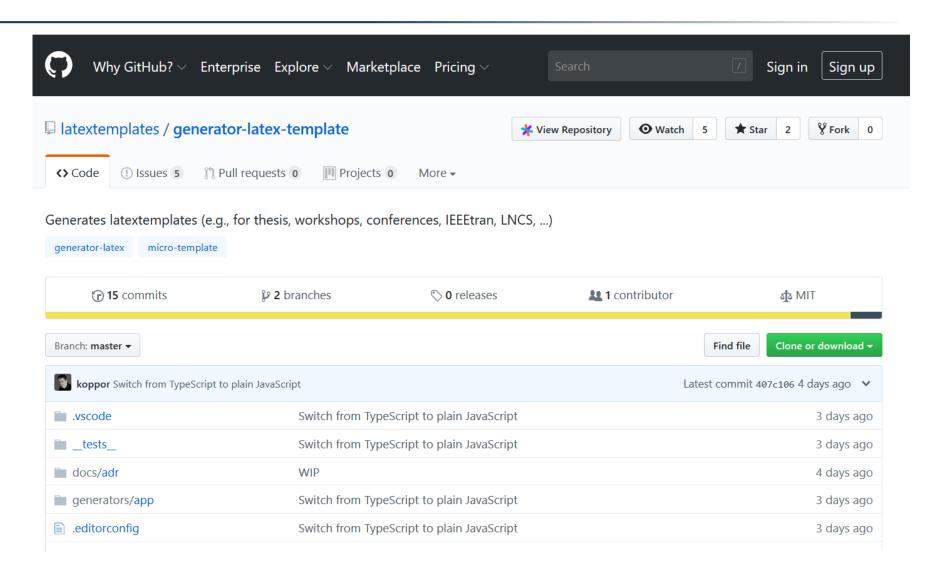
```
\section{Figures}
135
136
       \begin{figure}
138
         \centering
        Place your figure here
139
         \caption{The example figure.}
         \label{fig:label}
       \end{figure}
144
       \Cref{fig:label} shows something interesting.
145
146
147
       \end{document}
```

# Summary and Outlook

### **Roles and Artifacts of Proposed Solution**



### **Summary and Outlook**



### **Summary and Outlook**

