

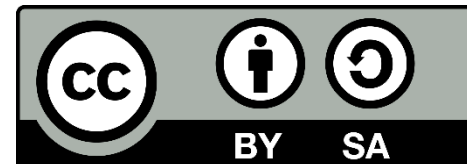
Der LaTeX Template Generator

Robuste erweiterte Templates dank GitHub Actions

DANTE Frühjahrstagung 2025

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Agenda

- 1** **Motivation**
- 2** **User-Erlebnis**
- 3** **Entwickler-Erlebnis**
- 4** **Ausblick**

Motivation: Viele Pakete, viele Templates, Wiederverwendung

Viele „coole“ Pakete und Tools

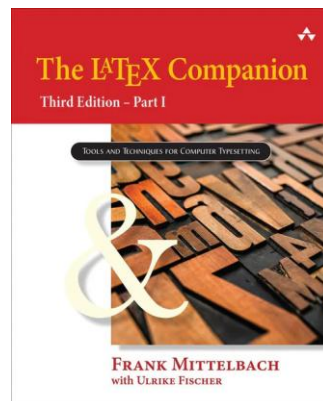
hyperref

microtype

...

.latexmkrc

.gitignore



Viele Templates

IEEE

LNCS

Master Thesis

PhD Thesis

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2 User-Erlebnis

2.1 Dokument

2.2 GitHub Actions

3 Entwickler-Erlebnis

4 Ausblick

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Schnellstart: Erzeugung eines Templates

```
$ yo latex-template
```

$$\frac{\left(\frac{1}{\frac{1}{A} + \frac{1}{B}} \right)}{\frac{1}{\frac{1}{A} + \frac{1}{B}} + \frac{1}{C}} = \frac{A \cdot B \cdot C}{A + B + C}$$

Welcome to the
latex-template
generator!

? Which template should be generated?

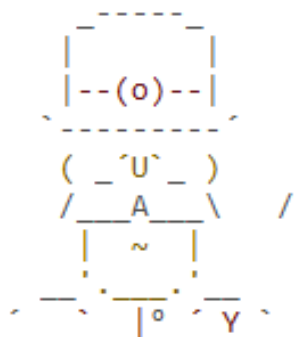
Scientific Thesis

Association for Computing Machinery (ACM)

> Institute of Electrical and Electronics Engineers (IEEE)

Springer's Lecture Notes in Computer Science (LNCS)

Detailfragen: Welche Variante, welche Pakete, ...



Welcome to the
latex-template
generator!

- ```
? Which template should be generated? Institute of Electrical and Electronics Engineers (IEEE)
? Which variant of IEEE paper? conference paper
? Which paper size to use? A4
? Overleaf compatibility? yes
? Which TeXLive compatibility? TeXLive 2023
? Should a Dockerfile be generated? yes (Reiztig)
? Which language should the document be? English
? Which package to typeset listings? minted (requires a working Python installation)
? Which package to use to "enquote" text? csquotes (\enquote{...} command)
? Enable hyphenation tweak (e.g., application="specific for app-lication-specific at a linebreak) or enable easy quotation (e.g.
"application"; not common in default latex setups)? Hyphenation tweak
? Which package to mark TODOs? pdfcomment
? Include hints on text (e.g., how to write an abstract)? Yes
? Include minimal LaTeX examples? Yes
```

# Ergebnis: Erstellte Dateien

---

```
create .gitignore
create .editorconfig
create paper.bib
create _latexmkrc
create localSettings.yaml
create LICENSE
create Makefile
create paper.tex
create README.md
create .dockerignore
create Dockerfile
create Texlivefile
create .github\workflows\check.yml
```



## Quick start for LaTeXing with IEEEtran.cls for IEEE Computer Society Conferences

First Author, Second Author  
University of Examples, Germany  
{lastname}@example.org

Third Author  
School of Electrical and  
Computer Examples  
Georgia Institute of Examples  
Atlanta, Georgia 30332-0250  
<http://www.example.org>

*Abstract*—Write an abstract for your work. Replace each of the points below with one sentence (two if you must) and you have your abstract. Write it when you finished your entire report.<sup>1</sup>

*Introduction.* In one sentence, what's the topic? Phrase it in a way that your reader will understand. If you're writing a PhD thesis, your readers are the examiners – assume they are familiar with the general field of research, so you need to tell them specifically what topic your thesis addresses. Same advice works for scientific papers – the readers are the peer reviewers, and eventually others in your field interested in your research, so again they know the background work, but want to know specifically what topic your paper covers.

*State the problem you tackle.* What's the key research question? Again, in one sentence. (Note: For a more general essay, I'd adjust this slightly to state the central question that you want to address) Remember, your first sentence introduced the overall topic, so now you can build on that, and focus on one key question within that topic. If you can't summarize your thesis/paper/essay in one key question, then you don't yet understand what you're trying to write about. Keep working at this step until you have a single, concise (and understandable) question.

*Summarize (in one sentence) why nobody else has adequately answered the research question yet.* For a PhD thesis, you'll have an entire chapter, covering what's been done previously in the literature. Here you have to boil that down to one sentence. But

'abstract' means a summary of the main ideas with most of the detail left out. So feel free to omit detail! (For those of you who got this far and are still insisting on writing an essay rather than signing up for a PhD, this sentence is really an elaboration of sentence 4 – explore the consequences of your new perspective).

*As a single sentence, what's the key impact of your research? Here we're not looking for the outcome of an experiment. We're looking for a summary of the implications. What's it all mean? Why should other people care? What can they do with your research.* (Essay folks: all the same questions apply: what conclusions did you draw, and why would anyone care about them?)

### I. INTRODUCTION

*Purpose and scope of your entire report.* The purpose of your entire report is to make a *scientific argument using the scientific method*. A scientific argument always has the following steps that all must come in this order.

- SM1 *Explicate the assumptions and state of the art* on which you are going to conduct your research to investigate your research problem/test the hypothesis.
- SM2 *Clearly and precisely formulate a research problem or hypothesis.*

# Ergebnis: Auszug aus dem PDF

## E. Typesetting Units

Numbers can be written plain text (such as 100), by using the `siunitx` package as follows:  $100 \frac{\text{km}}{\text{h}}$ , or by using plain  $\text{\LaTeX}$  (and math mode):  $100 \frac{\text{km}}{\text{h}}$ .

Corresponding  $\text{\LaTeX}$  code of `./paper-minted.tex`

```
595 Numbers can be written plain text (such as
 ↪ 100), by using the \href{https://ctan.org/}
 ↪ pkg/siunitx}{siunitx} package as follows:
596 \SI{100}{\km\per\hour}.
597 or by using plain \LaTeX{} (and math mode):
598 $100 \frac{\mathit{km}}{h}$.
```

5 % of 10 kg

Corresponding  $\text{\LaTeX}$  code of `./paper-minted.tex`

```
602 \SI{5}{\percent} of \SI{10}{kg}
```

Numbers are automatically grouped: 123 456.

Corresponding  $\text{\LaTeX}$  code of `./paper-minted.tex`

```
606 Numbers are automatically grouped:
 ↪ \num{123456}.
```

## F. Surrounding Text by Quotes

Please use the “enquote command” to quote something. Quoting with “quote” or “quote” also works.

Corresponding  $\text{\LaTeX}$  code of `./paper-minted.tex`

```
612 Please use the \enquote{enquote command} to
 ↪ quote something.
613 Quoting with “quote” or “quote” also works.
614
```

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# Workflow-Lauf-Ergebnisse

check.yml

on: push

- |                       |       |
|-----------------------|-------|
| ✓ pdf (latexmk paper) | 1m 7s |
| ✓ word-count          | 7s    |
| ✓ spell-check         | 5s    |
| ✓ indent              | 10s   |

Repository: <https://github.com/latextemplates/ieee-enhanced>

# GitHub-Automatisierungen: Fehler und Warnungen

## paper.tex

```

From file /home/runner/texlive/texmf-dist/tex/latex/ieeetran/IEEEtran.cls:
pg 1: LaTeX Font Warning: Font shape `TU/ptm/m/n' undefined
 (Font) using `TU/lmr/m/n' instead on input line 503.
pg 1: LaTeX Font Warning: Font shape `TU/ptm/bx/n' undefined
 (Font) using `TU/ptm/m/n' instead on input line 1090.
pg 1: LaTeX Font Warning: Font shape `TU/ptm/m/it' undefined
 (Font) using `TU/ptm/m/n' instead on input line 1090.
pg 1: LaTeX Font Warning: Font shape `TU/ptm/bx/it' undefined
 (Font) using `TU/ptm/bx/n' instead on input line 1090.

From file /home/runner/texlive/texmf-dist/tex/latex/lineno/lineno.sty:
pg 1: LaTeX Warning: Command \@parboxrestore has changed.
 Check if current package is valid.
```

Output generated using [texlogsieve](#)

# GitHub-Automatisierungen: Wort-Zählung

---

Sum of files: paper.tex

File(s) total: paper.tex

Words in text: 906

Words in headers: 49

Words outside text (captions, etc.): 44

Number of headers: 20

Number of floats/tables/figures: 8

Number of math inlines: 4

Number of math displayed: 0

Files: 2

# Automatisierte Checks

check.yml

on: push

- |                       |       |
|-----------------------|-------|
| ✓ pdf (latexmk paper) | 1m 4s |
| ✓ word-count          | 8s    |
| ✓ spell-check         | 10s   |
| ✓ indent              | 11s   |

# GitHub-Automatisierungen: Rechtschreibprüfung

## check.yml

on: push

- ✓ pdf (latexmk paper) 1m 4s
- ✓ word-count 8s
- ✓ spell-check 10s
- ✓ indent 11s

## spell-check summary

| file             | status |
|------------------|--------|
| commands.tex     | ✓      |
| paper-minted.tex | ✓      |
| paper.tex        | ✓      |



# Rechtschreibprüfung (Arbeitsversion)

check.yml

on: push

- ✓ pdf (latexmk paper) 1m 1s
- ✓ word-count 7s
- ✗ spell-check 9s
- ✓ indent 8s

## spell-check summary

| file             | status                                                                                                            |
|------------------|-------------------------------------------------------------------------------------------------------------------|
| commands.tex     | ✗ OMG BPEL BPMN UML                                                                                               |
| paper-minted.tex | ✗ LaTeXing IEEEtran cls lastname geändert für geändert Geänderter kräftig subfig subcaption itemizations          |
| paper.tex        | ✗ œ LaTeXing IEEEtran cls lastname pragaph tipp geändert für geändert Geänderte subfigure subcaption itemizations |

Job summary generated at run-time

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# Entwicklung: main.en.tex

```
52 % DO NOT DOWNLOAD IEEEtran.cls - Use the one of your LaTeX distribution
53 % For the final version, replace "draftcls" by "final"
54 \documentclass[<%= ieeevariant %>,<%= papersize %>paper,english]{IEEEtran}[2015/08/26]
55
163 <%- include('siunitx.preamble.en.tex'); %>
```

<%= **EJS** %>

Embedded JavaScript templating.

# Entwicklung: siunitx.preamble.en.tex und siunitx.example.en.tex

```
\usepackage[group-minimum-digits=4,per-mode=fraction]{siunitx}
```

```
1 <%= heading2 %>{Typesetting Units}
2
3 <%- bexample %>
4 Numbers can written plain text (such as 100), by using the siunitx package like that:
5 \SI{100}{\km\per\hour},
6 or by using plain \LaTeX{} (and math mode):
7 $100 \frac{\mathit{km}}{h}$.
8 <%- eexample %>
9
10 <%- bexample %>
11 \SI{5}{\percent} of \SI{10}{kg}
12 <%- eexample %>
13
14 <%- bexample %>
15 Numbers are automatically grouped: \num{123456}.
16 <%- eexample %>
--
```

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# Automatische Prüfung GitHub



## Some checks haven't completed yet

16 queued and 20 in progress checks

[Hide all checks](#)

-  Check acmart-a4-lualatex-bibtex-2023-true / check (push) *Queued — Waiting to run this check...* [Details](#)
-  Check ieee-conference-a4-lualatex-bibtex-2023-false / check (push) *Queued — Waiting to run this ch...* [Details](#)
-  Check ieee-conference-a4-pdflatex-bibtex-2023-true / check (push) *Queued — Waiting to run this ch...* [Details](#)
-  Check ieee-conference-letter-pdflatex-bibtex-2023-false / check (push) *Queued — Waiting to run this...* [Details](#)
-  Check ieee-conference-letter-pdflatex-bibtex-2023-true / check (push) *Queued — Waiting to run this ...* [Details](#)
-  Check ieee-journal-a4-lualatex-bibtex-2023-true / check (push) *Queued — Waiting to run this check...* [Details](#)



## This branch has no conflicts with the base branch

Merging can be performed automatically.

Squash and merge



[Convert to draft](#) or view [command line instructions](#).

# Generierung der GitHub Workflows

```
--
12 documentclasses = ['acmart', 'ieee', 'lncs', 'ustutt'] # , 'scientific-thesis'
13 latexcompilers = ['pdflatex', 'both']
14
15 bibtextools = ['bibtex', 'biblatex']
16
17 texlives = [2024, 2025]
18
19 languages = ['en', 'de']
20
21 # "arial" not available on linux
22 fonts = ['default', 'times']
23
24 listings = ['listings', 'minted']
25 enquotes = ['csquotes', 'plainlatex']
26 tweakouterquotes = ['babel', 'outerquote']
27 todos = ['pdfcomment', 'none']
28 examples = ['true', 'false']
29 howtotexts = ['true', 'false']
30
31 # ACM only
32 acmformats = ['manuscript', 'acmsmall', 'acmlarge', 'acmtog', 'sigconf', 'sigplan']
33 acmreviews = ['true', 'false']
34
35 # IEEE only
36 ievevariants = ['conference', 'journal', 'peerreview']
37
38 docker = "iot"
39
```



# Generierungsergebnis

```
78 - name: latexmk var_edlcbpt
79 run: updmap -sys && texhash && tlmgr generate language --rebuild-sys && latexmk paper.tex
80 working-directory: '${{ github.workspace }}/var_edlcbpt'
81 - id: var_edlcbpt_u
82 uses: actions/upload-artifact@v4
83 with:
84 name: ${{ env.CURRENT_VARIANT }}
85 path: ${{ env.CURRENT_VARIANT_SHORT }}
86 - run: echo "TABLE=${{TABLE}}\n| ieee | both | bibtex | 2024 | en | default |"
87 - run: mkdir var_edlcbnt
88 - run: echo CURRENT_VARIANT='ieee_both_bibtex_2024_en_default_listings_csquotes_babel_none_true_true' >
89 - run: echo CURRENT_VARIANT_SHORT='var_edlcbnt' >> $GITHUB_ENV
90 - run: echo CURRENT_VARIANT_TABLE_ROW='| ieee | both | bibtex | 2024 | en |'
91 - name: Create var_edlcbnt
92 run: yo $GITHUB_WORKSPACE/generators/app/index.js --documentclass=ieee --ieevariant=conference --pag
93 working-directory: '${{ github.workspace }}/var_edlcbnt'
94 - name: Install TeX Live
95 uses: zauguin/install-texlive@v4
96 with:
97 package_file: '${{ github.workspace }}/var_edlcbnt/Texlivefile'
98 texlive_version: 2024
99 - name: latexmk var_edlcbnt
```

# Statistiken

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- 56 Workflows
- Jeder Workflow ca. 2800 Zeilen
- Insgesamt 5120 latexmk-Aufrufe

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# Lesetipp: Prüfungen von LaTeX-Dokumenten

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- [Marei Peischl et al.: Creation of LaTeX documents using a cloud-based pipeline](#)

Using web-based platforms for collaborative editing of LaTeX documents is common these days. These tools focus on writing documents and not on creation of templates or packages. Using build servers with automated pipelines is common within software development but can easily be adapted for TeX & friends.

- Template-Repository mit Links

- <https://github.com/TeXhackse/tugboat-tug2024-cicd>

# Nächste Schritte

---

- Umstellung Masterarbeits-Template der Universität Stuttgart
- Weitere Templates
- Weitere Pakete
  
- Automatische Rückmeldungen, welche Updates was gebrochen haben

Aufruf – ausprobieren und rückmelden!

- `npm install -g generator-latex-template`
- `yo latex-template`
  
- <https://github.com/latextemplates/generator-latex-template>