

L^AT_EX Template for Writing Papers

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WORKING DRAFT

Abstract

This file is a template file for writing papers in L^AT_EX. The main features are:

1. General variables to switch easily between working draft and submitted version and between proceedings and full versions. See [Section 2](#).
2. Macros to help compile the article into a clickable PDF document. See [Section 3](#)
3. Some useful macros. See [Section 4](#)

Keywords: L^AT_EX, hyperlinks

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1 How to use the template

Note: I assume that this is for installation on a PC, and WinEDT, MikTeX, and Acrobat reader are already installed.

1. Download `boaztemplate.zip` file and extract it to its own directory.
2. Rename `template.tex` and `template.bib` to `mypaper.tex` and `mypaper.bib` (assuming that you want to name your file `mypaper`).
3. Open `mypaper.tex` and change the title and author name (at the top).
4. Delete the contents of the abstract (between `\begin{abstract}` and `\end{abstract}`).
5. Delete the body of the document starting after the comment

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%  
% BEGIN BODY of Document
```

and ending before the comment

```
% END BODY of document  
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

(You can also delete the sample appendix)

6. Change the line `\bibliography{template}` to `\bibliography{mypaper}` [**Boaz's Note: WinEDT behaves better when .tex file and .bib file have the same name**]
7. Type your paper as usual, when you refer to a section, use `\sectionref{sec:crosref}` instead of `Section~\ref{sec:crosref}` (See [Section 3](#) for more details).
8. Don't forget to run \LaTeX or PDF- \LaTeX at least two times to get references and links right. If you are using BibTeX then run \LaTeX once, then BibTeX, and then run \LaTeX twice (same goes for PDF- \LaTeX).

1.1 Useful conventions

1.1.1 Bookmarks and macros.

There is a place in the template to add your own macros. It is marked with

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%  
% Macros for this paper
```

I find it useful to always keep WinEDT bookmark number 0 (Ctrl+Shift+0) pointing to this location so I can jump there quickly when I add a macro. Keep book mark number 2 (Ctrl+Shift+2) pointing to the current place you are in the document so you'll be able to jump back.

1.1.2 Labelling

I find it useful to always label a section with the prefix `sec:`, a definition with the prefix `def:` etc.. It also helps with WinEDT because it sorts all the labels alphabetically. When you refer to a label, don't forget to use `\sectionref{sec:macros}` instead of `Section~\ref{sec:macros}`

1.1.3 Bibliography

Use the following convention when using `\cite{}` to refer to a work: Full name of first author, two letters from every other author and then two digits of year. Thus, if we want to refer to a paper by Goldwasser, Micali and Rackoff from 1989 [GMR89], we'll use `\cite{GoldwasserMiRa89}`. Of course, at some point you'll need to ensure that your file `mypaper.bib` indeed contains a BibTeX item with the appropriate key. The easiest way to do so would be to search for a BibTeX citation on the Collection of Computer Science Bibliographies on <http://liinwww.ira.uka.de/bibliography/>.

When you find a citation, you can copy and paste it into your `mywork.bib` file. Just don't forget to change the key according to the convention above.

This is an example for a BibTeX citation for the paper [GMR89] (as it is in the file `template.bib`):

```
@article {GoldwasserMiRa89,
  AUTHOR = {Goldwasser, Shafi and Micali, Silvio and Rackoff, Charles},
  TITLE = {The knowledge complexity of interactive proof systems},
  JOURNAL = {SIAM J. Comput.},
  FJOURNAL = {SIAM Journal on Computing},
  VOLUME = {18},
  YEAR = {1989},
  NUMBER = {1},
  PAGES = {186--208},
  ISSN = {0097-5397},
  CODEN = {SMJCAT},
  MRCLASS = {68T15 (03F07 68Q15 94A60)},
  MRNUMBER = {90f:68157},
  MRREVIEWER = {Robert M. Baer},
}
```

2 General variables

We have the following switches:

- `full`: 1 - Full version , 0 - Proceeding version
- `draft`: 1 - Working draft (show “working draft” on title, show Author’s notes) , 0- submitted version
- `hylinks`: 1 - Use the `hyperref` package to generate hyperlinks for cross-references, 0 - don't
- `usetitlepage`: 1 - Have the abstract and title on a separate page , 0 - don't.

3 Hyperlinks and Cross-referencing

To link to a section labeled `sec:macros` use `\sectionref{sec:macros}`. The resulting link looks like this: [Section 4](#). There are also analogous commands `\definitionref`, `\theoremref` etc. Thus it is possible also to link to definitions, such as [Definition 4.1](#) and theorems, such as [Theorem 4.2](#).

When you site a work (such as [GMR89]) using the `\cite` command, you also get a link to the bibliography.

<p>Public input: $x \in \{0, 1\}^n$ (statement to be proved is “$x \in L$”)</p> <p>Prover’s auxiliary input: w (a witness that $x \in L$)</p>	
<p>Steps V1 (Send long random string): Verifier sends $r \leftarrow_{\mathbb{R}} \{0, 1\}^{10n}$.</p> <p>Step P2 (WI Proof): Prover proves to verifier using its input w via a witness-indistinguishable (WI) proof/argument system that either $x \in L$ or $r \in \Lambda$, where $r \in \Lambda$ iff there exists a Turing machine M of description length at most $\frac{ r }{2}$ such that, on the empty input, M outputs r within $f(n)$ steps. Verifier accepts if proof is completed successfully.</p>	

The right column contains a schematic description of the protocol as defined in the left column.

Protocol 4.3. Generic bounded non-uniformity zero-knowledge protocol.

4 Useful macros

4.1 Math Symbols (partial list)

$\backslash\text{eqdef} : \stackrel{\text{def}}{=}$ $\backslash\text{N} : \mathbb{N}$ $\backslash\text{R} : \mathbb{R}$ $\backslash\text{Z} : \mathbb{Z}$ $\backslash\text{bits} : \{0, 1\}$
 $\backslash\text{getsr} : \leftarrow_{\mathbb{R}}$ $\backslash\text{st} : \text{s.t.}$ $\backslash\text{Ex} : \mathbb{E}$ $\backslash\text{e} : \epsilon$ $\backslash\text{To} : \rightarrow$
 $\backslash\text{ceil}\{\} : \lceil x \rceil$ $\backslash\text{floor}\{\} : \lfloor x \rfloor$ $\backslash\text{angles}\{\} : \langle x, y, z \rangle$

4.2 Environments

List of environments:

- Theorems etc.: **theorem** , **claim** , **subclaim** (for a claim inside a proof of a theorem) , **lemma** , **corollary** , **conjecture** , **observation**.
- Definitions etc.: **definition** , **construction**, **example** , **remark**

Some examples:

Definition 4.1. A number $x \in \mathbb{R}$ is *rational* if there exist two numbers $m, n \in \mathbb{Z}$ such that $x = \frac{n}{m}$.

Theorem 4.2. *The number $\sqrt{2}$ is not rational.*

There’s also a floating protocol environment, see [Protocol 4.3](#) for an example.

4.3 Complexity classes

We use $\backslash\text{classname}$ to produce **P**, **NP**, **BPP**, **P/poly**, **EXP**, **NEXP**, **PCP**, **Dtime**, **Ntime**

4.4 Author’s note

To define an Author’s note command use a command like

```
 $\backslash\text{newcommand}\{\backslash\text{Bnote}\}[1]\{\{\backslash\text{authnote}\{\text{Boaz}\}\{\#1}\}\}$ 
```

The effect is as follows: **[Boaz’s Note: The notes are not displayed if one uses the `draft=0` option.]**

5 The `boaz.sty` package

The `boaz.sty` package contains the macros needed for most of the above stuff. This document uses the line

```
\usepackage[draft,hylinks,notitlepage,full]{boaz}
```

5.1 Package options

hylinks/nohylinks Use or don't use hyperlinks.

draft/final Working draft (show author notes) or final version

titlepage/notitlepage Use/don't use a title page

full/proceed Full or proceeding version. Mainly changes the `full` variable, which you can use as follows:

```
\ifnum\full=1
  Write here the full proof
\else
  For proof see the full version of this paper.
\fi
```

This also changes the behavior of the command `\nnspace`. In `proceed` mode this command causes a small negative vertical space, while in `full` mode it does nothing. It also changes the behavior of the `\newitem` command which is the same as `\item` in `full` mode, and with a negative space in `proceed` mode.

usetoc/nousetoc , uselot/nouselot , uselof/nouselof Control whether or not the table of contents, the list of tables and the list of figures is displayed.

The default setting is **full,hylinks,draft,notitlepage,usetoc,nouselot,nouselof**

5.2 Important macros

DOCheader environment Use this environment around your abstract, keywords and everything else you want in the top of your document. Will create or not a title page based on the `titlepage/notitlepage` option.

\DOCkeywords command Use this command inside the `DOCheader` environment to state your papers keywords. The keywords will appear only if there is a title page. Example:

```
\DOCkeywords{\LaTeX , hyperlinks}
```

References

- [GMR89] Shafi Goldwasser, Silvio Micali, and Charles Rackoff. The knowledge complexity of interactive proof systems. *SIAM J. Comput.*, 18(1):186–208, 1989.

A Sample Appendix