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

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ABSTRACT

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I. INTRODUCTION

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Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

The remainder of the paper starts with a presentation of related work (Section II). It is followed by a presentation of hints on LaTeX (Section III). Finally, a conclusion is drawn and outlook on future work is made (Section IV).

II. RELATED WORK

Winery [1] is a graphical modeling tool. The whole idea of TOSCA is explained by Nipkow et al. [1].

III. LATEX HINTS

This section contains hints on writing LaTeX. It focuses on minimal examples, which can be directly adapted to the content

A. Handling of paragraphs

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.

Corresponding LaTeX code of `paper.tex`

```
436
437 One sentence per line.
438 This rule is important for the usage of version control systems.
439 A new line is generated with a blank line.
440 As you would do in Word:
441 New paragraphs are generated by pressing enter.
442 In LaTeX, this does not lead to a new paragraph as LaTeX joins
        subsequent lines.
443 In case you want a new paragraph, just press enter twice (!).
444 This leads to an empty line.
445 In word, there is the functionality to press shift and enter.
446 This leads to a hard line break.
447 The text starts at the beginning of a new line.
448 In LaTeX, you can do that by using two backslashes
        (\textbackslash\textbackslash).\\
449 This is rarely used.
450
451 Please do \textit{not} use two backslashes for new paragraphs.
452 For instance, this sentence belongs to the same paragraph,
        whereas the last one started a new one.
453 A long motivation for that is provided at
        \url{http://loopspace.mathforge.org/HowDidIDoThat/TeX/VCS/#section.3}.
```

B. Notes separated from the text

The package mindflow enables writing down notes and annotations in a way so that they are separated from the main text.

This is a small note.

Corresponding LaTeX code of `paper.tex`

```
460
461 \begin{mindflow}
462 This is a small note.
463 \end{mindflow}
```

C. Hyphenation

LaTeX automatically hyphenates words. When using microtype, there should be less hypnetations than in other settings. It might be necessary to tweak the hyphenations nevertheless. Here are some hints:

In case you write “application-specific”, then the word will only be hyphenated at the dash. You can also write `applica\allowbreak{}tion-specific` (result: application-specific), but this is much more effort.

You can now write words containing hyphens which are hyphenated at other places in the word. For instance, `application"=specific` gets application"=specific. This is enabled by an additional configuration of the babel package.

Corresponding LaTeX code of `paper.tex`

```
473
474 In case you write \enquote{application-specific}, then the word
        will only be hyphenated at the dash.
475 You can also write \verb1applica\allowbreak{}tion-specific1
        (result: applica\allowbreak{}tion-specific), but this is
        much more effort.
476
477 You can now write words containing hyphens which are hyphenated
        at other places in the word.
478 For instance, \verb1application"=specific1 gets
        application"=specific.
479 This is enabled by an additional configuration of the babel
        package.
```

D. Typesetting Units

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

Corresponding LaTeX code of `paper.tex`

```
484
485 Numbers can be written plain text (such as 100), by using the
        siunitx package as follows:
486 \SI{100}{\km\per\hour},
487 or by using plain \LaTeX{} (and math mode):
488 $100 \frac{\mathit{km}}{h}$.
```

$5\,\%$ of $10\,\mathrm{kg}$

Corresponding LaTeX code of `paper.tex`

```
491
492 \SI{5}{\percent} of \SI{10}{kg}
```

Numbers are automatically grouped: $123\,456$.

Corresponding LaTeX code of `paper.tex`

```
495
496 Numbers are automatically grouped: \num{123456}.
```

E. Surrounding Text by Quotes

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

Corresponding LaTeX code of `paper.tex`

```
501
502 Please use the \enquote{enquote command} to quote something.
503 Quoting with "`quote"' or ``quote'' also works.
```

F. Cleveref examples

Cleveref demonstration: Cref at beginning of sentence, cref in all other cases.

Figure 1 shows a simple fact, although Figure 1 could also show something else.

Figure 2 shows a simple fact, although Figure 2 could also show something else.

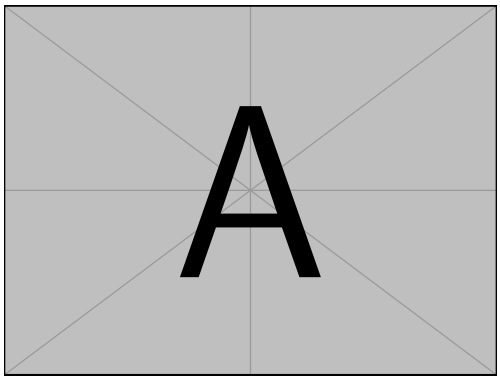


Figure 1. Example figure for cref demo

Heading1	Heading2
One	Two
Thee	Four

Figure 2. Example table for cref demo

Section III-F shows a simple fact, although Section III-F could also show something else.

Corresponding LaTeX code of `paper.tex`

```
533
534 \Cref{fig:ex:cref} shows a simple fact, although
        \cref{fig:ex:cref} could also show something else.
535
536 \Cref{tab:ex:cref} shows a simple fact, although
        \cref{tab:ex:cref} could also show something else.
537
538 \Cref{sec:ex:cref} shows a simple fact, although
        \cref{sec:ex:cref} could also show something else.
```

G. Figures

Figure 3 shows something interesting.

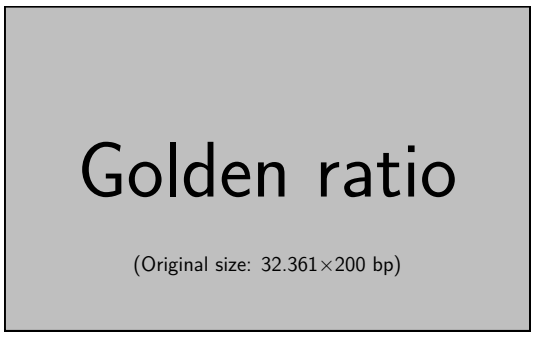


Figure 3. Simple Figure. Based on Nipkow et al. [1].

Corresponding LaTeX code of `paper.tex`

```
543
544 \Cref{fig:label} shows something interesting.
545
546 \begin{figure}
547   \centering
548   \includegraphics[width=.8\linewidth]{example-image-golden}
549   \caption[Simple Figure]{Simple Figure. Based on
          \citet{IsabelleHOL}.}
550   \label{fig:label}
551 \end{figure}
```

One can span a figure across multiple columns by using `\begin{figure*}`. See Figure 4 as an example.

Corresponding LaTeX code of `paper.tex`

```
557
558 \begin{figure*}
559   \centering
560   % note that \textwidth is used instead of \linewidth
561   % This ensures that the graphics width is 60% of the "page"
          (text block), and not just 60% of the current text
          column
562   % See https://tex.stackexchange.com/a/17085/9075 for details
563   \includegraphics[width=.6\textwidth]{example-image-16x9}
564   \caption{16x9 Figure}
565   \label{fig:16x9}
566 \end{figure*}
```

H. Sub Figures

An example of two sub figures is shown in Figure 5.

Corresponding LaTeX code of `paper.tex`

```
574
575 \begin{figure*}[!b]
576     \centering
577     \subfloat[Case
            I]{\includegraphics[width=.4\linewidth]{example-image-a}%
578     \label{fig:first_case}}
579   \hfil
580     \subfloat[Case
            II]{\includegraphics[width=.4\linewidth]{example-image-b}%
581     \label{fig:second_case}}
582   \caption{Example figure with two sub figures.}
583   \label{fig:two_sub_figures}
584 \end{figure*}
```

Note that often IEEE papers with subfigures do not employ subfigure captions (using the optional argument to `\subfloat[]`), but instead will reference/describe all of them (a), (b), etc., within the main caption. Be aware that for subfig.sty to generate the (a), (b), etc., subfigure labels, the optional argument to `\subfloat` must be present. If a subcaption is not desired, just leave its contents blank, e.g., `\subfloat[]`. An example is shown in Figure 6.

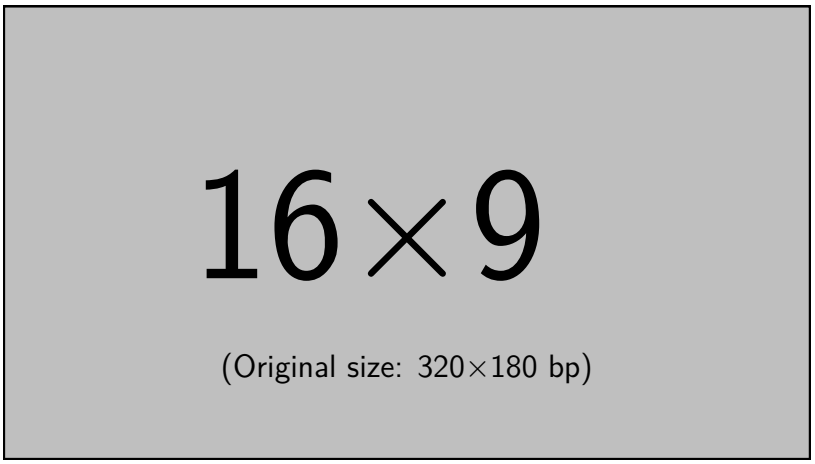


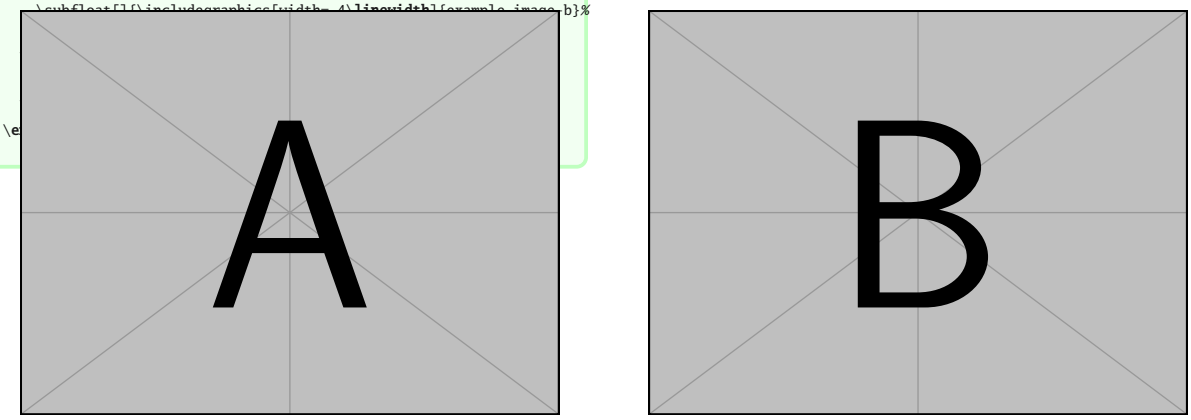
Figure 4. 16x9 Figure

Corresponding LaTeX code of `paper.tex`

```
596
597 \begin{figure*}[!b]
598     \centering
599     \subfloat[]{\includegraphics[width=.4\linewidth]{example-image-a}%
600     \label{fig:first_case_ieee}}
601   \hfil
602     \subfloat[]{\includegraphics[width=.4\linewidth]{example-image-b}%
603
604
605
606 \e
```

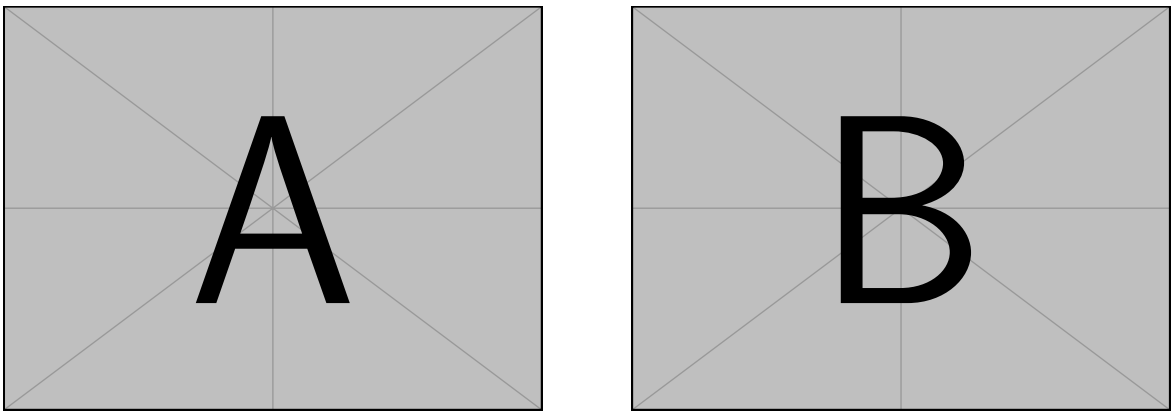
I. Tables

Note that IEEE does not support `\begin{table}`, one has to use `\begin{figure}`.



(a) Case I (b) Case II

Figure 5. Example figure with two sub figures.



(a) (b)

Figure 6. Example figure with two sub figures. IEEE style. (a) The first case. (b) The second case.

Figure 7. Simple Table

Heading1	Heading2
One	Two
Thee	Four

Figure 8. Table with diagonal line

Diag Column Head II / Diag Column Head I	Second	Third
	foo	bar

Corresponding LaTeX code of `paper.tex`

```
\begin{figure}
  \caption{Simple Table}
  \label{tab:simple}
  \centering
  \begin{tabular}{ll}
    \toprule
    Heading1 & Heading2 \\
    \midrule
    One      & Two      \\
    Thee     & Four     \\
    \bottomrule
  \end{tabular}
\end{figure}
```

Corresponding LaTeX code of `paper.tex`

```
% Source: https://tex.stackexchange.com/a/468994/9075
\begin{figure}
\caption{Table with diagonal line}
\label{tab:diag}
\begin{center}
\begin{tabular}{|l|c|c|}
\hline
\diagbox[width=10em]{Diag\\Column Head I}{Diag Column\\Head II}
      & Second & Third \\
\hline
& foo & bar \\
\hline
\end{tabular}
\end{center}
\end{figure}
```

J. Source Code

Listing 1 shows source code written in XML. Line 2 contains a comment.

```
<listing name="example">
  <!-- comment -->
  <content>not interesting</content>
</listing>
```

Listing 1. Example XML Listing

```
<listing name="example">
  Floating
</listing>
```

Listing 2. Example XML listing – placed as floating figure

```
{
  key: "value"
}
```

Listing 3. Example JSON listing – placed as floating figure

Corresponding LaTeX code of `paper.tex`

```

\Cref{lst:XML} shows source code written in XML.
\Cref{line:comment} contains a comment.

\begin{lstlisting}[
  language=XML,
  caption={Example XML Listing},
  label={lst:XML}]
<listing name="example">
  <!-- comment --> (* \label{line:comment} *)
  <content>not interesting</content>
</listing>
\end{lstlisting}
```

One can also add `float` as parameter to have the listing floating. Listing 2 shows the floating listing.

Corresponding LaTeX code of `paper.tex`

```

\begin{lstlisting}[
  % one can adjust spacing here if required
  % aboveskip=2.5\baselineskip,
  % belowskip=-.8\baselineskip,
  float,
  language=XML,
  caption={Example XML listing -- placed as floating figure},
  label={lst:flXML}]
<listing name="example">
  Floating
</listing>
\end{lstlisting}
```

One can also typeset JSON as shown in Listing 3.

Corresponding LaTeX code of `paper.tex`

```

\begin{lstlisting}[
  float,
  language=json,
  caption={Example JSON listing -- placed as floating figure},
  label={lst:json}]
{
  key: "value"
}
\end{lstlisting}
```

Java is also possible as shown in Listing 4.

```java
public class Hello {
    public static void main (String[] args) {
        System.out.println("Hello World!");
    }
}
```

Listing 4. Example Java listing

Corresponding LaTeX code of paper.tex

```
\begin{lstlisting}[
  caption={Example Java listing},
  label=lst:java,
  language=Java,
  float]
public class Hello {
    public static void main (String[] args) {
        System.out.println("Hello World!");
    }
}
\end{lstlisting}
```

K. Itemization

One can list items as follows:

- Item One
- Item Two

Corresponding LaTeX code of paper.tex

```
\begin{itemize}
\item Item One
\item Item Two
\end{itemize}
```

With the package paralist, one can create itemizations with lesser spacing:

- Item One
- Item Two

Corresponding LaTeX code of paper.tex

```
\begin{compactitem}
\item Item One
\item Item Two
\end{compactitem}
```

One can enumerate items as follows:

1) Item One
2) Item Two

Corresponding LaTeX code of paper.tex

```
\begin{enumerate}
  \item Item One
  \item Item Two
\end{enumerate}
```

With the package paralist, one can create enumerations with lesser spacing:

1) Item One
2) Item Two

Corresponding LaTeX code of paper.tex

```
\begin{compactenum}
  \item Item One
  \item Item Two
\end{compactenum}
```

With paralist, one can even have all items typset after each other and have them clean in the tex document:

1) All these items... 2) ...appear in one line 3) This is enabled by the paralist package.

Corresponding LaTeX code of paper.tex

```
\begin{inparaenum}
  \item All these items...
  \item ...appear in one line
  \item This is enabled by the paralist package.
\end{inparaenum}
```

L. Other Features

The words “workflow” and “dwarflike” can be copied from the PDF and pasted to a text file.

Corresponding LaTeX code of paper.tex

```
The words \enquote{workflow} and \enquote{dwarflike} can be
      copied from the PDF and pasted to a text file.
```

The symbol for powerset is now correct: $\wp$ and not a Weierstrass p ($\wp$).

$\wp(1,2,3)$

Corresponding LaTeX code of paper.tex

```
The symbol for powerset is now correct: $\powerset$ and not a
      Weierstrass p ($\wp$).

$\powerset({1,2,3})$
```

Brackets work as designed: <test> One can also input backquotes in verbatim text: `test`.

Corresponding LaTeX code of paper.tex

```
Brackets work as designed:
<test>
One can also input backquotes in verbatim text: \verb|`test`|.
```

IV. Conclusion and Outlook

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula

augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

ACKNOWLEDGMENT

Identification of funding sources and other support, and thanks to individuals and groups that assisted in the research and the preparation of the work should be included in an acknowledgment section, which is placed just before the reference section in your document [1].

REFERENCES

[1] T. Nipkow, M. Wenzel, and L. C. Paulson, *Isabelle/HOL: A Proof Assistant for Higher-Order Logic*, ser. Lecture Notes in Computer Science. Berlin, Heidelberg: Springer, 2002, vol. 2283.