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

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Abstract—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.

I. Introduction

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.

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 metu enim. Vestibulum pellentesque felis eu massa. TODO!

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 Binz et al. [2].

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
                                            ./paper-
    conference.tex
   œŒűŰőŐ
585
   One sentence per line.
586
    This rule is important for the usage of version
587
         control systems.
    A new line is generated with a blank line.
588
    As you would do in Word:
589
    New paragraphs are generated by pressing enter.
590
    In LaTeX, this does not lead to a new paragraph
591
         as LaTeX joins subsequent lines.
    In case you want a new paragraph, just press
592
         enter twice!
    This leads to an empty line.
593
594
    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.
596
    In LaTeX, you can do that by using two
597
         backslashes (\textbackslash\textbackslash).
598
599
    This is rarely used.
600
601
    Please do \textit{not} use two backslashes for
         new paragraphs.
    For instance, this sentence belongs to the same
602
         paragraph, whereas the last one started a
         new one.
   A long motivation for that is provided at
603
         \url{http://loopspace.mathforge.org/HowDidIDoThat/Tex/vos/#section.og.
```

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-conference.tex

610 @Effűőő
611 \begin{mindflow}
612 This is a small note.
613 \end{mindflow}
```

C. Handling TODOs

Markierter Text.

```
Corresponding IATEX code of ./paper-conference.tex

618 œŒűŰőŐ
619 \textmarker{Markierter Text.}
```

Bei \textmarker wird nur die Textfarbe geändert, da dies auch bei einigen Worten gut funktioniert.

Markierter Text.

```
Corresponding LATEX code of ./paper-conference.tex

624 œEŭŰőŐ
625 \textcomment{Markierter Text.}{Kommentar dazu.}
```

Manuelle Markierung für Text, der seit der letzten Version geändert wurde.

```
Corresponding LATEX code of ./paper-conference.tex

628 @EűŰőŐ
629 \modified{Manuelle Markierung für Text, der seit der letzten Version geändert wurde.}
```

Das ist ein Text. Geänderter Text.

```
Corresponding IATEX code of ./paper-conference.tex

632 @Eüűőő
633 Das ist ein Text.
634 \change{FL1: Text angepasst}{Geänderter Text}.

ea/vos/*section.sg.
```

Hier nur ein Kommentar.

```
Corresponding LATEX code of ./paper-conference.tex

637 œŒŰŰŐ
638 Hier nur ein Kommentar\sidecomment{Kommentar}.
```

```
Corresponding LATEX code of ./paper-conference.tex

641 @@uűőő
642 \todo{Hier muss noch kräftig Text produziert werden}
```

D. Hyphenation

LATEX automatically hyphenates words. When using microtype, there should be fewer hyphenations 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: applica tion-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 ./paperconference.tex œŒűŰőŐ 652 In case you write 653 \enquote{application-specific}, then the word will only be hyphenated at the dash. You can also write 654 \verb1applica\allowbreak{}tion-specific1 (result: applica\allowbreak{}tion-specific), but this is much more effort. 655 You can now write words containing hyphens which 656 are hyphenated at other places in the word. For instance, \verb1application"=specific1 gets 657 application"=specific. This is enabled by an additional configuration of the babel package.

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 LATEX (and math mode): $100 \frac{\text{km}}{h}$.

```
Corresponding IATEX code of ./paper-
conference.tex

663 œŒŰŰŐŐ
664 Numbers can be written plain text (such as 100),
by using the
    \href{https://ctan.org/pkg/siunitx}{siunitx}
package as follows:
665 \SI{100}{\km\per\hour},
666 or by using plain \LaTeX{} (and math mode):
667 $100 \frac{\mathit{km}}{h}$.
```

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

```
Corresponding IATEX code of ./paper-conference.tex

670 @EUÜÖÖ
671 \SI{5}{\percent} of \SI{10}{kg}
```

Numbers are automatically grouped: 123456.

```
Corresponding LATEX code of ./paper-conference.tex

674 œŒŭŰőŐ
675 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.

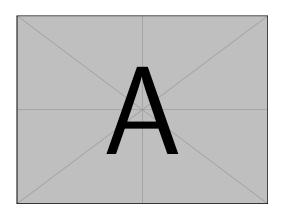


Figure 1. Example figure for cref demo

Heading1	Heading2
One	Two
Thee	Four

Figure 2. Example table for cref demo

```
Corresponding LATEX code of ./paper-conference.tex

680 œŒűŰőŐ
681 Please use the \enquote{enquote command} to quote something.
682 Quoting with "`quote"' or ``quote'' also works.
```

G. 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.

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

```
Corresponding LATEX code
                                           ./paper-
    conference.tex
712 œŒűŰőŐ
    \Cref{fig:ex:cref} shows a simple fact, although
713
         \cref{fig:ex:cref} could also show
         something else.
714
    \Cref{tab:ex:cref} shows a simple fact, although
715
         \cref{tab:ex:cref} could also show
         something else.
716
    \Cref{sec:ex:cref} shows a simple fact, although
717
         \cref{sec:ex:cref} could also show
         something else.
```

H. Figures

Figure 3 shows something interesting.

Golden ratio

(Original size: 32.361×200 bp)

Figure 3. Simple Figure. Based on Scharrer [3].

```
Corresponding LATEX
                                code
                                       of
                                             ./paper-
    conference.tex
    œŒííŰőŐ
    \Cref{fig:label} shows something interesting.
723
724
    \begin{figure}
725
      \includegraphics[width=.8\linewidth]{example-image-golden} e.g., \subfloat[]. An example is shown in Figure 6.
726
727
      \caption[Simple Figure]{
728
729
        Simple Figure.
        Based on \citet{mwe}.
730
731
732
      \label{fig:label}
    \end{figure}
```

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

```
code
    Corresponding
                       IAT<sub>E</sub>X
                                         of
                                               ./paper-
    conference.tex
    œŒűŰőŐ
739
    \begin{figure*}
740
741
      \centering
      % note that \textwidth is used instead of
742
           \label{linewidth} \
      % This ensures that the graphics width is 60%
743
           of the "page" (text block), and not just
           60\% of the current text column
744
           https://tex.stackexchange.com/a/17085/9075
      \includegraphics[width=.6\textwidth]{example-image-16x
745
      \caption{16x9 Figure}
746
      \label{fig:16x9}
747
    \end{figure*}
```

I. Sub Figures

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

Corresponding LATEX code ./paperconference.tex œŒűŰőŐ 756 \begin{figure*}[!b] 757 \centering 758 \subfloat[Case I]{\includegraphics[width=.4\linewidth]{example-image-a} \label{fig:first_case}} 760 \hfil 761 762 \subfloat[Case II] {\includegraphics[width=.4\linewidth] {example-image-b \label{fig:second_case}} 763 \caption{Example figure with two sub figures.} 764 \label{fig:two_sub_figures} 765 766 \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,

```
Corresponding LATEX code of
                                            ./paper-
    conference.tex
    œŒűŰőŐ
778
    \begin{figure*}[!b]
      \centering
780
      \subfloat[]{\includegraphics[width=.4\linewidth]{example-image
781
782
        \label{fig:first_case_ieee}}
      \hfil
783
784
      \subfloat[]{\includegraphics[width=.4\linewidth]{example-image
        \label{fig:second_case_ieee}}
785
      \caption{Example figure with two sub figures.
786
           IEEE style. (a) The first case. (b) The
           second case.}
      \label{fig:two_sub_figures_ieee}
    \end{figure*}
```

J. Tables

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

```
Corresponding LATEX
                                 code
                                              ./paper-
    conference.tex
    œŒűŰőŐ
795
    \begin{figure}
796
      \caption{Simple Table}
797
      \label{tab:simple}
798
      \centering
799
800
      \begin{tabular}{11}
801
        \toprule
        Heading1 & Heading2 \\
802
         \midrule
803
        One
                 & Two
804
                 & Four
                            11
805
        Thee
        \bottomrule
806
      \end{tabular}
    \end{figure}
808
```

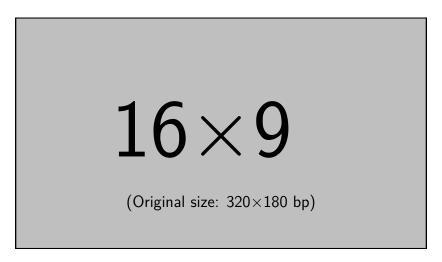


Figure 4. 16x9 Figure

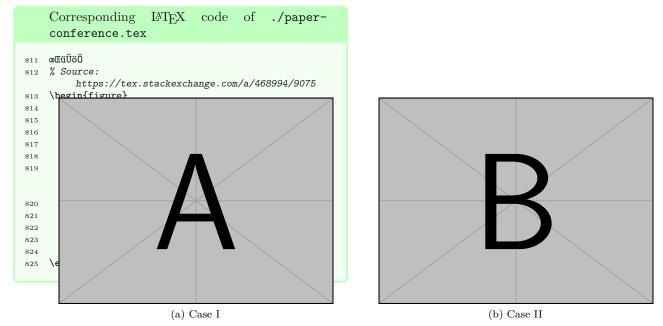


Figure 5. Example figure with two sub figures.

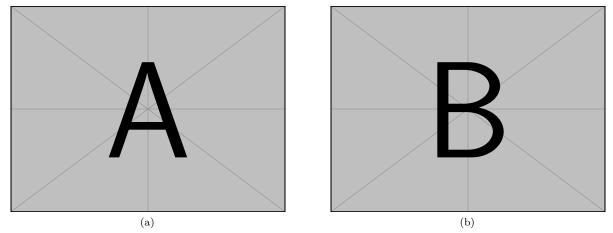


Figure 6. Example figure with two sub figures. IEEE style. (a) The first case. (b) The second case.

Figure 7. Simple Table			
Heading1	Heading2		
One Thee	Two Four		

Figure 8.	Table wit	h diagonal l	ine
Diag	Column		

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

```
{
1
     key: "value"
2
  }
3
```

Listing 3. Example JSON listing - placed as floating figure

```
public class Hello {
2
      public static void main (String[] args) {
          System.out.println("Hello World!");
3
4
  }
5
```

Listing 4. Example Java listing

K. Source Code

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

```
<listing name="example">
2
    <!-- comment -->
    <content>not interesting</content>
  </listing>
```

Listing 1. Example XML Listing

Corresponding LATEX code of ./paperconference.tex

```
831
    œŒűŰőŐ
    \Cref{lst:XML} shows source code written in XML.
832
    \Cref{line:comment} contains a comment.
833
834
    \begin{lstlisting}[
835
836
      language=XML,
837
      caption={Example XML Listing},
      label={lst:XML}]
838
    <listing name="example">
839
      <!-- comment --> (* \label{line:comment} *)
840
841
      <content>not interesting</content>
842
    </listing>
    \end{lstlisting}
```

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

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

Listing 2. Example XML listing - placed as floating figure

Corresponding LATEX code ./paperconference.tex

```
œŒűŰőŐ
849
850
    \begin{lstlisting}[
      % one can adjust spacing here if required
      % aboveskip=2.5\baselineskip,
852
      % belowskip=-.8\baselineskip,
853
854
      float.
      language=XML,
855
      caption={Example XML listing -- placed as
           floating figure},
      label={lst:flXML}]
857
    <listing name="example">
858
859
      Floating
    </listing>
    \end{lstlisting}
```

One can also typeset JSON as shown in Listing 3.

```
Corresponding LATEX
                     code
                                ./paper-
conference.tex
```

```
œŒűŰőŐ
    \begin{lstlisting}[
867
868
      float,
      language=json,
869
      caption={Example JSON listing -- placed as
870
           floating figure},
      label={lst:json}]
871
872
      key: "value"
873
874 }
    \end{lstlisting}
875
```

Java is also possible as shown in Listing 4.

Corresponding \LaTeX code of ./paper-conference.tex

```
œŒűŰőŐ
880
    \begin{lstlisting}[
881
      caption={Example Java listing},
882
      label=lst:java,
883
884
      language=Java,
      float]
885
886 public class Hello {
        public static void main (String[] args) {
887
            System.out.println("Hello World!");
888
889
    }
890
    \end{lstlisting}
891
```

L. Itemization

One can list items as follows:

- Item One
- Item Two

Corresponding LATEX code of ./paper-conference.tex

```
898 œŒŰŰŐŐ
899 \begin{itemize}
900 \item Item One
901 \item Item Two
902 \end{itemize}
```

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

- Item One
- Item Two

Corresponding \LaTeX code of ./paper-conference.tex

```
907 œŒŰŰŐŰ
908 \begin{compactitem}
909 \item Item One
910 \item Item Two
911 \end{compactitem}
```

One can enumerate items as follows:

- 1) Item One
- 2) Item Two

Corresponding \LaTeX code of ./paper-conference.tex

```
916 œŒŭŰőŐ
917 \begin{enumerate}
918 \item Item One
919 \item Item Two
920 \end{enumerate}
```

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

- 1) Item One
- 2) Item Two

Corresponding \LaTeX code of ./paper-conference.tex

```
925 œEüŰőŐ
926 \begin{compactenum}
927 \item Item One
928 \item Item Two
929 \end{compactenum}
```

With paralist, one can even have all items typeset 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-conference.tex

```
934 œŒűŰőŐ
935 \begin{inparaenum}
936 \item All these items...
937 \item ...appear in one line
938 \item This is enabled by the paralist package.
939 \end{inparaenum}
```

M. Other Features

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

Corresponding LATEX code of ./paper-conference.tex

```
944 œŒűŰőŐ

945 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: \mathcal{P} and not a Weierstrass p (\wp).

 $\mathcal{P}(1,2,3)$

Corresponding LATEX code of ./paper-conference.tex

```
948 œŒüŰőŐ
949 The symbol for powerset is now correct:
$\powerset$ and not a Weierstrass p ($\wp$).
950
951 $\powerset({1,2,3})$
```

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

Corresponding LATEX code of ./paper-conference.tex

```
954 œEűŰőŐ
955 Brackets work as designed:
956 <test>
957 One can also input backticks 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 [4].

In the bibliography, use \textsuperscript for "st", "nd", ...: E.g., "The 2nd conference on examples". When you use JabRef, you can use the clean up command to achieve that. See https://help.jabref.org/en/CleanupEntries for an overview of the cleanup functionality.

References

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All links were last followed on October 5, 2020.