Transition Motion Synthesis for Video-Based Text to ASL

Yulia
National Taiwan University of Science and
Technology
No.43, Keelung Rd., Sec.4
Taipei 10607, Taiwan
m10609803@mail.ntust.edu.tw

Chuan-Kai Yang
National Taiwan University of Science and
Technology
No.43, Keelung Rd., Sec.4
Taipei 10607, Taiwan
ckyang@cs.ntust.edu.tw

ABSTRACT

This paper provides a sample of a LaTeX document which conforms, somewhat loosely, to the formatting guidelines for ACM SIG Proceedings. It is an alternate style which produces a tighter-looking paper and was designed in response to concerns expressed, by authors, over page-budgets. It complements the document Author's (Alternate) Guide to Preparing ACM SIG Proceedings Using LaTeX_{ϵ} and BibTeX. This source file has been written with the intention of being compiled under LaTeX_{ϵ} and BibTeX.

The developers have tried to include every imaginable sort of "bells and whistles", such as a subtitle, footnotes on title, subtitle and authors, as well as in the text, and every optional component (e.g. Acknowledgments, Additional Authors, Appendices), not to mention examples of equations, theorems, tables and figures.

To make best use of this sample document, run it through LATEX and BibTeX, and compare this source code with the printed output produced by the dvi file. A compiled PDF version is available on the web page to help you with the 'look and feel'.

CCS Concepts

•Computer systems organization → Embedded systems; Redundancy; Robotics; •Networks → Network reliability:

Keywords

ACM proceedings; LATEX; text tagging

1. INTRODUCTION

According to World Health Organization (WHO) [?], there are over 5% or about 466 million of world's population have suffered of hearing disability. This number consists of 432 million adults and 34 million children. It is also predicted that by 2050, there will be over 900 million people or one in every ten people will have the hearing disability.

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2. THE BODY OF THE PAPER

Typically, the body of a paper is organized into a hierarchical structure, with numbered or unnumbered headings for sections, subsections, sub-subsections, and even smaller sections. The command \section that precedes this paragraph is part of such a hierarchy. LaTeX handles the numbering and placement of these headings for you, when you use the appropriate heading commands around the titles of the headings. If you want a sub-subsection or smaller part to be unnumbered in your output, simply append an asterisk to the command name. Examples of both numbered and unnumbered headings will appear throughout the balance of this sample document.

Because the entire article is contained in the **document** environment, you can indicate the start of a new paragraph with a blank line in your input file; that is why this sentence forms a separate paragraph.

2.1 Type Changes and Special Characters

We have already seen several typeface changes in this sample. You can indicate italicized words or phrases in your text with the command \textit; emboldening with the command \textbf and typewriter-style (for instance, for computer code) with \texttt. But remember, you do not have to indicate typestyle changes when such changes are part of the *structural* elements of your article; for instance, the heading of this subsection will be in a sans serif² typeface, but that is handled by the document class file. Take care with the use of³ the curly braces in typeface changes; they mark the beginning and end of the text that is to be in the different typeface.

You can use whatever symbols, accented characters, or non-English characters you need anywhere in your document; you can find a complete list of what is available in the parameter Text User's Guide[5].

2.2 Math Equations

You may want to display math equations in three distinct styles: inline, numbered or non-numbered display. Each of the three are discussed in the next sections.

2.2.1 Inline (In-text) Equations

¹This is the second footnote. It starts a series of three footnotes that add nothing informational, but just give an idea of how footnotes work and look. It is a wordy one, just so you see how a longish one plays out.

you see how a longish one plays out. ²A third footnote, here. Let's make this a rather short one to see how it looks.

³A fourth, and last, footnote.

A formula that appears in the running text is called an inline or in-text formula. It is produced by the **math** environment, which can be invoked with the usual **\begin**. . **\end** construction or with the short form \$. . .\$. You can use any of the symbols and structures, from α to ω , available in IATEX[5]; this section will simply show a few examples of in-text equations in context. Notice how this equation: $\lim_{n\to\infty} x=0$, set here in in-line math style, looks slightly different when set in display style. (See next section).

2.2.2 Display Equations

A numbered display equation – one set off by vertical space from the text and centered horizontally – is produced by the **equation** environment. An unnumbered display equation is produced by the **displaymath** environment.

Again, in either environment, you can use any of the symbols and structures available in IATEX; this section will just give a couple of examples of display equations in context. First, consider the equation, shown as an inline equation above:

$$\lim_{n \to \infty} x = 0 \tag{1}$$

Notice how it is formatted somewhat differently in the **displaymath** environment. Now, we'll enter an unnumbered equation:

$$\sum_{i=0}^{\infty} x + 1$$

and follow it with another numbered equation:

$$\sum_{i=0}^{\infty} x_i = \int_0^{\pi+2} f \tag{2}$$

just to demonstrate LATEX's able handling of numbering.

2.3 Citations

Citations to articles [1, 3, 2, 4], conference proceedings [3] or books [6, 5] listed in the Bibliography section of your article will occur throughout the text of your article. You should use BibTeX to automatically produce this bibliography; you simply need to insert one of several citation commands with a key of the item cited in the proper location in the .tex file [5]. The key is a short reference you invent to uniquely identify each work; in this sample document, the key is the first author's surname and a word from the title. This identifying key is included with each item in the .bib file for your article.

The details of the construction of the .bib file are beyond the scope of this sample document, but more information can be found in the *Author's Guide*, and exhaustive details in the *BTEX User's Guide*[5].

This article shows only the plainest form of the citation command, using **\cite**. This is what is stipulated in the SIGS style specifications. No other citation format is endorsed or supported.

2.4 Tables

Because tables cannot be split across pages, the best placement for them is typically the top of the page nearest their initial cite. To ensure this proper "floating" placement of tables, use the environment **table** to enclose the table's contents and the table caption. The contents of the table itself

Table 1: Frequency of Special Characters

Non-English or Math	Frequency	Comments
Ø	1 in 1,000	For Swedish names
π	1 in 5	Common in math
\$	4 in 5	Used in business
Ψ_1^2	1 in 40,000	Unexplained usage



Figure 1: A sample black and white graphic.

must go in the **tabular** environment, to be aligned properly in rows and columns, with the desired horizontal and vertical rules. Again, detailed instructions on **tabular** material is found in the $\rlap/\!\!\!/ T_{FX}$ User's Guide.

Immediately following this sentence is the point at which Table 1 is included in the input file; compare the placement of the table here with the table in the printed dvi output of this document.

To set a wider table, which takes up the whole width of the page's live area, use the environment **table*** to enclose the table's contents and the table caption. As with a single-column table, this wide table will "float" to a location deemed more desirable. Immediately following this sentence is the point at which Table 2 is included in the input file; again, it is instructive to compare the placement of the table here with the table in the printed dvi output of this document.

2.5 Figures

Like tables, figures cannot be split across pages; the best placement for them is typically the top or the bottom of the page nearest their initial cite. To ensure this proper "floating" placement of figures, use the environment figure to enclose the figure and its caption.

This sample document contains examples of .eps files to be displayable with LATEX. If you work with pdfLATEX, use files in the .pdf format. Note that most modern TEX system will convert .eps to .pdf for you on the fly. More details on each of these is found in the *Author's Guide*.

As was the case with tables, you may want a figure that spans two columns. To do this, and still to ensure proper "floating" placement of tables, use the environment **figure*** to enclose the figure and its caption. and don't forget to end the environment with figure*, not figure!

2.6 Theorem-like Constructs



Figure 2: A sample black and white graphic that has been resized with the includegraphics command.

Table 2: Some Typical Commands

Command	A Number	Comments	
\alignauthor	100	Author alignment	
\numberofauthors	200	Author enumeration	
\table	300	For tables	
\table*	400	For wider tables	

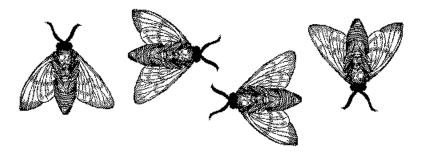


Figure 3: A sample black and white graphic that needs to span two columns of text.

PROOF. Suppose on the contrary there exists a real number L such that

$$\lim_{x \to \infty} \frac{f(x)}{g(x)} = L.$$

Then

$$l = \lim_{x \to c} f(x) = \lim_{x \to c} \left[gx \cdot \frac{f(x)}{g(x)} \right] = \lim_{x \to c} g(x) \cdot \lim_{x \to c} \frac{f(x)}{g(x)} = 0 \cdot L = 0,$$

which contradicts our assumption that $l \neq 0$. \square

Figure 4: A sample black and white graphic that has been resized with the includegraphics command.

Other common constructs that may occur in your article are the forms for logical constructs like theorems, axioms, corollaries and proofs. There are two forms, one produced by the command \newtheorem and the other by the command \newdef; perhaps the clearest and easiest way to distinguish them is to compare the two in the output of this sample document:

This uses the **theorem** environment, created by the \newtheorem command:

Theorem 1. Let f be continuous on [a,b]. If G is an antiderivative for f on [a,b], then

$$\int_{a}^{b} f(t)dt = G(b) - G(a).$$

The other uses the **definition** environment, created by the **\newdef** command:

Definition 1. If z is irrational, then by e^z we mean the unique number which has logarithm z:

$$\log e^z = z$$

Two lists of constructs that use one of these forms is given in the Author's Guidelines.

There is one other similar construct environment, which is already set up for you; i.e. you must *not* use a **\newdef** command to create it: the **proof** environment. Here is a example of its use:

Complete rules about using these environments and using the two different creation commands are in the *Author's Guide*; please consult it for more detailed instructions. If you need to use another construct, not listed therein, which you want to have the same formatting as the Theorem or the Definition[6] shown above, use the \newtheorem or the \newdef command, respectively, to create it.

A Caveat for the TFX Expert

Because you have just been given permission to use the \newdef command to create a new form, you might think you can use TeX's \def to create a new command: Please refrain from doing this! Remember that your LATeX source code is primarily intended to create camera-ready copy, but may be converted to other forms – e.g. HTML. If you inadvertently omit some or all of the \defs recompilation will be, to say the least, problematic.

3. CONCLUSIONS

This paragraph will end the body of this sample document. Remember that you might still have Acknowledgments or Appendices; brief samples of these follow. There is still the Bibliography to deal with; and we will make a disclaimer about that here: with the exception of the reference to the LATEX book, the citations in this paper are to articles which have nothing to do with the present subject and are used as examples only.

4. ACKNOWLEDGMENTS

This section is optional; it is a location for you to acknowledge grants, funding, editing assistance and what have you. In the present case, for example, the authors would like to thank Gerald Murray of ACM for his help in codifying this Author's Guide and the .cls and .tex files that it describes.

5. REFERENCES

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- [3] M. Clark. Post congress tristesse. In TeX90 Conference Proceedings, pages 84–89. TeX Users Group, March 1991.
- [4] M. Herlihy. A methodology for implementing highly concurrent data objects. ACM Trans. Program. Lang. Syst., 15(5):745-770, November 1993.
- [5] L. Lamport. LaTeX User's Guide and Document Reference Manual. Addison-Wesley Publishing Company, Reading, Massachusetts, 1986.
- [6] S. Salas and E. Hille. Calculus: One and Several Variable. John Wiley and Sons, New York, 1978.

APPENDIX

A. HEADINGS IN APPENDICES

The rules about hierarchical headings discussed above for the body of the article are different in the appendices. In the **appendix** environment, the command **section** is used to indicate the start of each Appendix, with alphabetic order designation (i.e. the first is A, the second B, etc.) and a title (if you include one). So, if you need hierarchical structure within an Appendix, start with **subsection** as the highest level. Here is an outline of the body of this document in Appendix-appropriate form:

A.1 Introduction

A.2 The Body of the Paper

- A.2.1 Type Changes and Special Characters
- A.2.2 Math Equations

Inline (In-text) Equations.

Display Equations.

- A.2.3 Citations
- A.2.4 Tables
- A.2.5 Figures
- A.2.6 Theorem-like Constructs

A Caveat for the TFX Expert

A.3 Conclusions

A.4 Acknowledgments

A.5 Additional Authors

This section is inserted by LaTeX; you do not insert it. You just add the names and information in the \additionalauthors command at the start of the document.

A.6 References

Generated by bibtex from your .bib file. Run latex, then bibtex, then latex twice (to resolve references) to create the .bbl file. Insert that .bbl file into the .tex source file and comment out the command **\thebibliography**.

B. MORE HELP FOR THE HARDY

The sig-alternate.cls file itself is chock-full of succinct and helpful comments. If you consider yourself a moderately experienced to expert user of LATEX, you may find reading it useful but please remember not to change it.