



SIG Proceedings Paper in LaTeX Format*

Extended Abstract[†]

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32 **Figure 1: This is a teaser**

ABSTRACT

33 This paper provides a sample of a L^AT_EX document which
34 conforms, somewhat loosely, to the formatting guidelines
35 for ACM SIG Proceedings.

CCS CONCEPTS

- Computer systems organization → Embedded systems; Redundancy; Robotics;
- Networks → Network reliability;

KEYWORDS

36 ACM proceedings, L^AT_EX, text tagging

ACM Reference format:

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†The full version of the author's guide is available as acmart.pdf document

‡Dr. Trovato insisted his name be first.

§The secretary disavows any knowledge of this author's actions.

¶This author is the one who did all the really hard work.

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1 INTRODUCTION

The *proceedings* are the records of a conference.¹ ACM seeks to give these conference by-products a uniform, high-quality appearance. To do this, ACM has some rigid requirements for the format of the proceedings documents: there is a specified format (balanced double columns), a specified set of fonts (Arial or Helvetica and Times Roman) in certain specified sizes, a specified live area, centered on the page, specified size of margins, specified column width and gutter size.

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.² L^AT_EX 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.

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 serif³ typeface, but that is handled by the document class file. Take care with the use of⁴ the curly braces in typeface changes; they mark the beginning and end of the text that is to be in the different typeface.

¹This is a footnote.

²This is a footnote.

³Another footnote here. Let's make this a rather long one to see how it looks.

⁴Another footnote.

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 *L^AT_EX User's Guide* [26].

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.

Inline (In-text) Equations. 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 L^AT_EX [26]; this section will simply show a few examples of in-text equations in context. Notice how this equation: $\lim_{n \rightarrow \infty} x = 0$, set here in in-line math style, looks slightly different when set in display style. (See next section).

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 L^AT_EX; this section will just give a couple of examples of display equations in context. First, consider the equation, shown as an inline equation above:

$$\lim_{n \rightarrow \infty} x = 0 \quad (1)$$

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:

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

just to demonstrate L^AT_EX's able handling of numbering.

Citations

Citations to articles [6–8, 19], conference proceedings [8] or maybe books [26, 34] 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 [26]. The key is a short reference you invent to uniquely identify each work; in this sample document, the

213 key is the first author's surname and a word from the title.
 214 This identifying key is included with each item in the .bib
 215 file for your article.

216 The details of the construction of the .bib file are beyond
 217 the scope of this sample document, but more information
 218 can be found in the *Author's Guide*, and exhaustive details in
 219 the *L^AT_EX User's Guide* by Lampert [26].

220 This article shows only the plainest form of the citation
 221 command, using \cite.

222 Some examples. A paginated journal article [2], an enumerated
 223 journal article [11], a reference to an entire issue [10], a
 224 monograph (whole book) [25], a monograph/whole book in
 225 a series (see 2a in spec. document) [18], a divisible-book such
 226 as an anthology or compilation [13] followed by the same
 227 example, however we only output the series if the volume
 228 number is given [14] (so Editor00a's series should NOT be
 229 present since it has no vol. no.), a chapter in a divisible book
 230 [37], a chapter in a divisible book in a series [12], a multi-
 231 volume work as book [24], an article in a proceedings (of a
 232 conference, symposium, workshop for example) (paginated
 233 proceedings article) [4], a proceedings article with all possi-
 234 ble elements [36], an example of an enumerated proceedings
 235 article [16], an informally published work [17], a doctoral
 236 dissertation [9], a master's thesis: [5], an online document
 237 / world wide web resource [1, 30, 38], a video game (Case
 238 1) [29] and (Case 2) [28] and [27] and (Case 3) a patent [35],
 239 work accepted for publication [31], 'YYYYb'-test for prolific
 240 author [32] and [33]. Other cites might contain 'duplicate'
 241 DOI and URLs (some SIAM articles) [23]. Boris / Barbara
 242 Beeton: multi-volume works as books [21] and [20].

243 A couple of citations with DOIs: [22, 23].

244 Online citations: [38–40].

245 Tables

246 Because tables cannot be split across pages, the best place-
 247 ment for them is typically the top of the page nearest their
 248 initial cite. To ensure this proper "floating" placement of
 249 tables, use the environment **table** to enclose the table's con-
 250 tents and the table caption. The contents of the table itself
 251 must go in the **tabular** environment, to be aligned properly
 252 in rows and columns, with the desired horizontal and vertical
 253 rules. Again, detailed instructions on **tabular** material are
 254 found in the *L^AT_EX User's Guide*.

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

259 To set a wider table, which takes up the whole width of
 260 the page's live area, use the environment **table*** to enclose
 261 the table's contents and the table caption. As with a single-
 262 column table, this wide table will "float" to a location deemed
 263 more desirable. Immediately following this sentence is the

Table 1: Frequency of Special Characters

Non-English or Math	Frequency	Comments
\emptyset	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 2: A sample black and white graphic.****Figure 3: A sample black and white graphic that has been resized with the includegraphics command.**

291 point at which Table 2 is included in the input file; again,
 292 it is instructive to compare the placement of the table here
 293 with the table in the printed output of this document.

294 It is strongly recommended to use the package book-
 295 tabs [15] and follow its main principles of typography with
 296 respect to tables:

- (1) Never, ever use vertical rules.
- (2) Never use double rules.

297 It is also a good idea not to overuse horizontal rules.

300 **Figures**

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

306 This sample document contains examples of .eps files to
 307 be displayable with L^AT_EX. If you work with pdfL^AT_EX, use files
 308 in the .pdf format. Note that most modern T_EX systems will
 309 convert .eps to .pdf for you on the fly. More details on each
 310 of these are found in the *Author's Guide*.

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

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Figure 5: A sample black and white graphic that has been
resized with the `includegraphics` command.

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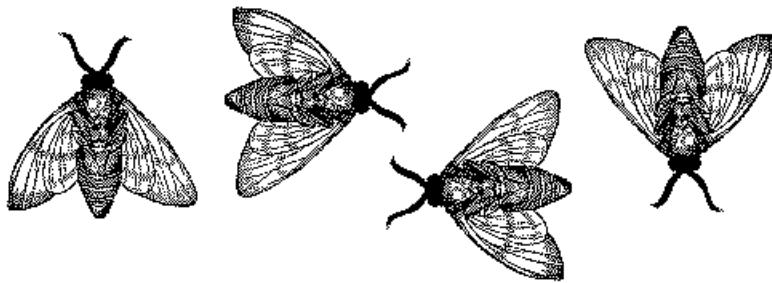
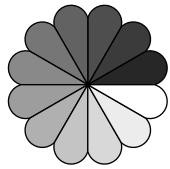
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Table 2: Some Typical Commands

Command	A Number	Comments	
\author	100	Author	375
\table	300	For tables	376
\table*	400	For wider tables	377

**Figure 4: A sample black and white graphic that needs to span two columns of text.****Figure 5: A sample black and white graphic that has been resized with the `includegraphics` command.**

Theorem-like Constructs

Other common constructs that may occur in your article are the forms for logical constructs like theorems, axioms, corollaries and proofs. ACM uses two types of these constructs: theorem-like and definition-like.

Here is a theorem:

THEOREM 2.1. *Let f be continuous on $[a, b]$. If G is an anti-derivative for f on $[a, b]$, then*

$$\int_a^b f(t) dt = G(b) - G(a).$$

Here is a definition:

Definition 2.2. If z is irrational, then by e^z we mean the unique number that has logarithm z :

$$\log e^z = z.$$

The pre-defined theorem-like constructs are **theorem**, **conjecture**, **proposition**, **lemma** and **corollary**. The pre-defined definition-like constructs are **example** and **definition**. You can add your own constructs using the *amsthm*

interface [3]. The styles used in the \theoremstyle command are **acmplain** and **acmdefinition**.

Another construct is **proof**, for example,

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

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

Then

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

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

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 L^AT_EX book, the citations in this paper are to articles which have nothing to do with the present subject and are used as examples only.

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

425 level. Here is an outline of the body of this document in
 426 Appendix-appropriate form:
 427

428 Introduction

429 The Body of the Paper

430 *Type Changes and Special Characters.*

432 *Math Equations.*

434 *Inline (In-text) Equations.*

436 *Display Equations.*

438 *Citations.*

439 *Tables.*

440 *Figures.*

441 *Theorem-like Constructs.*

443 *A Caveat for the TeX Expert.*

445 Conclusions

446 References

448 Generated by bibtex from your .bib file. Run latex, then
 449 bibtex, then latex twice (to resolve references) to create the
 450 .bb1 file. Insert that .bb1 file into the .tex source file and
 451 comment out the command \thebibliography.

452 B MORE HELP FOR THE HARDY

454 Of course, reading the source code is always useful. The
 455 file acmart.pdf contains both the user guide and the com-
 456 mmented code.

457 ACKNOWLEDGMENTS

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 465 Support Program (<http://www.nnsf.cn/youngscientsts>).

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