

L^AT_EX template for a SCORES contribution

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ABSTRACT

This paper is a sample L^AT_EX document that conforms to the formatting guidelines for the SCORES conference proceedings. The authors have tried to include a majority of commonly employed elements, such as titles and subtitles, footnotes, references, equations, tables, figures, lists, algorithms, etc. Compile the source code of this document (the .tex file) using the pdf_latex and bibtex commands, and compare the obtained output document (the .pdf file) with the reference document.

KEYWORDS

L^AT_EX, template, paper, conference ¹

1 INTRODUCTION

A *proceedings* is the collection of papers presented at a conference. SCORES seeks to produce a proceedings with a uniform, high-quality appearance. To this end, SCORES imposes rigid requirements regarding the formatting of the papers. In particular, we prescribe a double-column format, fonts and their sizes, margins, column width, and spacing between the two columns.

Fortunately, L^AT_EX automatically deals with all of these requirements. You only have to follow a few simple rules and make sure that the output PDF document does not exceed **four pages**.

The remainder of this document presents a selection of L^AT_EX commands to specify the structure of your paper. Rather than giving rigorous descriptions or explanations, we present the commands through examples in the context of this sample document.

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, sub-sections, sub-subsections, and possibly even smaller sections. The command `\section` that precedes this paragraph is part of such a hierarchy. By using the appropriate sectioning commands, you

make L^AT_EX handle the numbering and placement of the headings for you. 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 this sample document.²

Since 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 `\emph` or `\textit`, **boldface** text with the command `\textbf`, and typewriter-style text (e.g., for program code) with `\texttt`. Remember, however, that 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 boldface, but that is handled by L^AT_EX itself.

You can use whatever symbols, accented characters, or non-English characters you need anywhere in your document.³ You can find a complete list of what is available in the *L^AT_EX User's Guide* [5].

2.2 Math Equations

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

2.2.1 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` construct or with the short form `$...$`. You can use any of the symbols and structures, from α to ω , available in L^AT_EX [5].

¹List three to ten keywords that are specific to your paper, yet reasonably common within the subject area of your work.

²This is the second footnote. It starts a series of three footnotes that add nothing in terms of content but are just meant to give you an idea of how footnotes look and work. It is a wordy footnote, so you can see how a longish one plays out.

³The third footnote. Let's make it rather short to see how it looks.

The inline style is not completely equivalent to the display style. For example, as we will see in the next section, the inline equation $\lim_{x \rightarrow \infty} \frac{1}{x} = 0$ looks slightly different when set in the display style.

2.2.2 Display Equations. A numbered display equation — one set off by a 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 constructs available in \LaTeX ; this section will just give a couple of examples of display equations. First, consider the equation shown as an inline equation above:

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

Notice that it is formatted somewhat differently in the **displaymath** environment. Now, let us enter an unnumbered equation

$$\sum_{i=1}^{\infty} \frac{1}{x^2} = \frac{\pi^2}{6}$$

followed by another numbered equation:

$$\int_0^{\pi/2} \cos x \, dx = \sin x \Big|_0^{\pi/2} = \sin \frac{\pi}{2} - \sin 0 = 1. \quad (2)$$

Next you will see an example of an unnumbered equation that is not set in the **displaymath** environment but in short form defined with **\$\$...\$\$**. When $a \neq 0$, there are two solutions to $ax^2 + bx + c = 0$, and they are

$$x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}.$$

Here is an example of referencing an equation. Equation 3 shows how to write cases in \LaTeX .

$$\text{nr}(G_i, r) = \begin{cases} 1 & \text{if } r \text{ is played by one member of } G_i; \\ -2 & \text{if } r \text{ is not played in } G_i; \\ -p & \text{if } r \text{ is played by } p \text{ members in } G_i. \end{cases} \quad (3)$$

2.2.3 Long equations. When an equation is too long for a single column, use the **aligned** environment within the **equation** environment. To align the equation inside the **aligned** environment, use the symbol **&** as seen in Equation 4.

$$\begin{aligned} O_{\max} = & w_1 \sum_{a=1}^m \sum_{b=a+1}^n (-|CPT_a - CPT_b|) \\ & + w_2 \sum_{j=1}^m (DIF_j) + w_3 \sum_{j=1}^m (INT_j / \sum_{x=1}^n x_{ij}) \end{aligned} \quad (4)$$

2.3 Citations

Citations to articles [1, 4, 6], conference proceedings [2, 8], or books [3, 5, 7] listed in the Bibliography section of your article will probably occur throughout your text. You should use **bibtex** to produce this bibliography automatically; you simply have to insert one of several available citation commands with the key of the item cited at the proper location in the **.tex** file [5]. The key is a short reference that you invent to identify each work uniquely; 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.

Table 1: Frequency of Special Characters.

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

The details of how to create the **.bib** file are beyond the scope of this sample document. More information can be found in the *Author’s Guide*; for exhaustive details, see the *\LaTeX User’s Guide* [5].

This article employs only the plainest form of citation, the one produced with the **\cite** command. This is, in fact, the only citation style recommended by the ACM.

2.4 Tables

Since a table cannot be split across pages, we typically place it at the top of the page, close to its initial reference. To achieve a proper “floating” placement of tables, use the environment **table** to enclose the table’s contents and caption. The contents of the table itself have to be put inside the **tabular** environment, which ensures a suitable alignment of rows and columns. Again, detailed instructions on **tabular** material can be found in the *\LaTeX 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 PDF output of this document.

To set a wider table (one that takes up the whole width of the page’s live area), use the environment **table***. 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 PDF 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, close to their initial reference⁴. To ensure a proper “floating” placement of figures, use the environment **figure** to enclose the figure and its caption.

Figure 1 displays an image in the PDF format. Figure 2 shows a PNG image.

As with tables, you may sometimes want a figure to span over two columns. To achieve this, while still ensuring a proper “floating” placement, use the environment **figure***. An example can be seen in Figure 3.

2.6 Lists

In some cases, you might want to present your ideas using lists. Lists are created with the **itemize** environment. In the next example, you can see how lists are created and used:

- First item,

⁴The fourth, and last, footnote.

Table 2: Some Typical Commands.

Command	A Number	Comments
<code>\imagespath</code>	200	To provide the directory of included images
<code>\table</code>	300	For tables
<code>\table*</code>	400	For wider tables

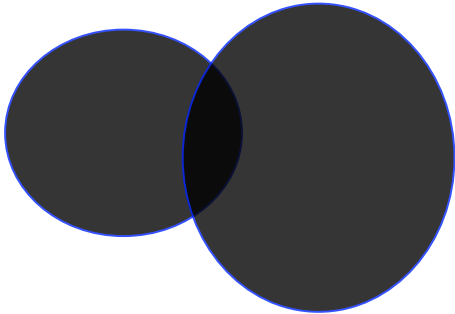


Figure 1: A sample circles graphic (PDF format).



Figure 2: A sample star graphic (PNG format).

- second item, and
- third item.

Sometimes, authors want to reference certain list items in the subsequent text. For that purpose, you can use the **enumerate** environment. Following is an example of a numbered list:

- (1) First point,
- (2) second point,
- (3) ...

Item 2 tells us what to do once we check off the preceding item.

2.7 Algorithms

To display algorithms in your document, employ the **algorithm** environment. Algorithms can be referenced in the same way as tables and figures (e.g., Algorithm 1).

Data: this text

Result: how to write an algorithm with LaTeX

```
1 initialization;
/* this is a comment to tell you that we will now
   really start the code                               */
2 while not at end of this document do
3   read the current section;
4   if understand then
5     go to the next section;
6     this section becomes the current section;
7   else
8     go back to the beginning of the current section;
9   end
10 end
```

Algorithm 1: How to write algorithms.

You can reference any line of your algorithm: an example of the while loop can be seen in line 2. For more details on the **algorithm** environment, see the <http://tug.ctan.org/macros/latex/contrib/algorithm2e/doc/algorithm2e.pdf> document.

3 CONCLUSIONS

This paragraph will end the body of this sample document. Remember that you may still give acknowledgments; a brief sample of these can be seen below. The conclusion (or acknowledgments) should be followed by the bibliography list (remember, the **bibtex** command produces it automatically from the `.bib` file and the citations in your text). To conclude, let us make a disclaimer regarding the bibliography in this sample paper: with the exception of the reference to the LaTeX book, the citations in this paper refer to works that have nothing to do with the present subject and are used as examples only.

ACKNOWLEDGMENTS

This section is optional; it gives you room to acknowledge grants, funding, editing assistance, etc.

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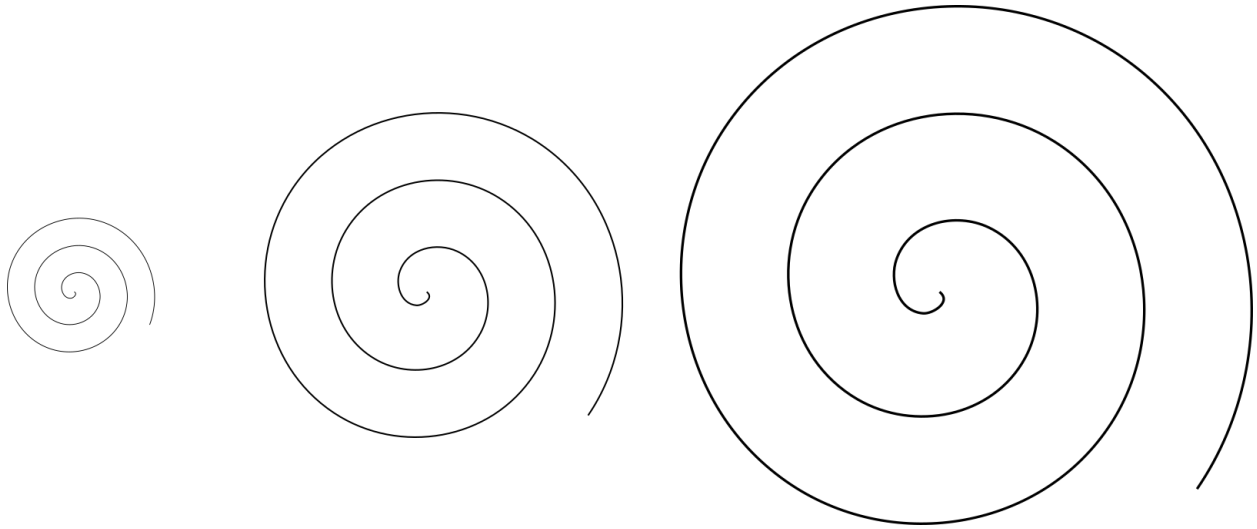


Figure 3: A sample spin graphic with a span.

- [6] Yann LeCun, Yoshua Bengio, and Geoffrey Hinton. 2015. Deep learning. *Nature* 521, 7553 (2015), 436–444.
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