# The Name of the Title is Hope

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A clear and well-documented LTEX document is presented as an article formatted for publication by ACM in a conference proceedings or journal publication. Based on the "acmart" document class, this article presents and explains many of the common variations, as well as many of the formatting elements an author may use in the preparation of the documentation of their work

CCS Concepts: • Computer systems organization  $\rightarrow$  Embedded systems; *Redundancy*; Robotics; • Networks  $\rightarrow$  Network reliability.

#### **ACM Reference Format:**

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## 1 INTRODUCTION

ACM's consolidated article template, introduced in 2017, provides a consistent LaTeX style for use across ACM publications, and incorporates accessibility and metadata-extraction functionality necessary for future Digital Library endeavors. Numerous ACM and SIG-specific LaTeX templates have been examined, and their unique features incorporated into this single new template.

If you are new to publishing with ACM, this document is a valuable guide to the process of preparing your work for publication. If you have published with ACM before, this document provides

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insight and instruction into more recent changes to the article template.

The "acmart" document class can be used to prepare articles for any ACM publication — conference or journal, and for any stage of publication, from review to final "camera-ready" copy, to the author's own version, with *very* few changes to the source.

#### 2 TEMPLATE OVERVIEW

As noted in the introduction, the "acmart" document class can be used to prepare many different kinds of documentation — a double-blind initial submission of a full-length technical paper, a two-page SIGGRAPH Emerging Technologies abstract, a "cameraready" journal article, a SIGCHI Extended Abstract, and more — all by selecting the appropriate  $template\ style$  and  $template\ parameters$ .

This document will explain the major features of the document class. For further information, the LaTeX User's Guide is available from https://www.acm.org/publications/proceedings-template.

# 2.1 Template Styles

The primary parameter given to the "acmart" document class is the *template style* which corresponds to the kind of publication or SIG publishing the work. This parameter is enclosed in square brackets and is a part of the documentclass command:

\documentclass[STYLE]{acmart}

Journals use one of three template styles. All but three ACM journals use the acmsmall template style:

- acmsmall: The default journal template style.
- acmlarge: Used by JOCCH and TAP.
- acmtog: Used by TOG.

The majority of conference proceedings documentation will use the acmconf template style.

- acmconf: The default proceedings template style.
- sigchi: Used for SIGCHI conference articles.
- sigchi-a: Used for SIGCHI "Extended Abstract" articles.
- sigplan: Used for SIGPLAN conference articles.

## 2.2 Template Parameters

In addition to specifying the *template style* to be used in formatting your work, there are a number of *template parameters* which modify some part of the applied template style. A complete list of these parameters can be found in the LATEX User's Guide.

Frequently-used parameters, or combinations of parameters, include:

- anonymous, review: Suitable for a "double-blind" conference submission. Anonymizes the work and includes line numbers. Use with the \acmSubmissionID command to print the submission's unique ID on each page of the work.
- authorversion: Produces a version of the work suitable for posting by the author.
- screen: Produces colored hyperlinks.

This document uses the following string as the first command in the source file:

\documentclass[acmtog]{acmart}

#### 3 MODIFICATIONS

Modifying the template — including but not limited to: adjusting margins, typeface sizes, line spacing, paragraph and list definitions, and the use of the  $\$ vspace command to manually adjust the vertical spacing between elements of your work — is not allowed.

Your document will be returned to you for revision if modifications are discovered.

## 4 TYPEFACES

The "acmart" document class requires the use of the "Libertine" typeface family. Your TEX installation should include this set of packages. Please do not substitute other typefaces. The "lmodern" and "ltimes" packages should not be used, as they will override the built-in typeface families.

## 5 TITLE INFORMATION

The title of your work should use capital letters appropriately - https://capitalizemytitle.com/ has useful rules for capitalization. Use the title command to define the title of your work. If your work has a subtitle, define it with the subtitle command. Do not insert line breaks in your title.

If your title is lengthy, you must define a short version to be used in the page headers, to prevent overlapping text. The title command has a "short title" parameter:

\title[short title]{full title}

## 6 AUTHORS AND AFFILIATIONS

Each author must be defined separately for accurate metadata identification. Multiple authors may share one affiliation. Authors' names should not be abbreviated; use full first names wherever possible. Include authors' e-mail addresses whenever possible.

Grouping authors' names or e-mail addresses, or providing an "e-mail alias," as shown below, is not acceptable:

\author{Brooke Aster, David Mehldau}
\email{dave,judy,steve@university.edu}
\email{firstname.lastname@phillips.org}

The authornote and authornotemark commands allow a note to apply to multiple authors — for example, if the first two authors of an article contributed equally to the work.

If your author list is lengthy, you must define a shortened version of the list of authors to be used in the page headers, to prevent overlapping text. The following command should be placed just after the last \author{} definition:

\renewcommand{\shortauthors}{McCartney, et al.}

Omitting this command will force the use of a concatenated list of all of the authors' names, which may result in overlapping text in the page headers.

The article template's documentation, available at https://www.acm.org/publications/proceedings-template, has a complete explanation of these commands and tips for their effective use.

Note that authors' addresses are mandatory for journal articles.

#### 7 RIGHTS INFORMATION

Authors of any work published by ACM will need to complete a rights form. Depending on the kind of work, and the rights management choice made by the author, this may be copyright transfer, permission, license, or an OA (open access) agreement.

Regardless of the rights management choice, the author will receive a copy of the completed rights form once it has been submitted. This form contains LATEX commands that must be copied into the source document. When the document source is compiled, these commands and their parameters add formatted text to several areas of the final document:

- the "ACM Reference Format" text on the first page.
- the "rights management" text on the first page.
- the conference information in the page header(s).

Rights information is unique to the work; if you are preparing several works for an event, make sure to use the correct set of commands with each of the works.

The ACM Reference Format text is required for all articles over one page in length, and is optional for one-page articles (abstracts).

# 8 CCS CONCEPTS AND USER-DEFINED KEYWORDS

Two elements of the "acmart" document class provide powerful taxonomic tools for you to help readers find your work in an online search.

The ACM Computing Classification System — https://www.acm. org/publications/class-2012 — is a set of classifiers and concepts that describe the computing discipline. Authors can select entries from this classification system, via https://dl.acm.org/ccs/ccs.cfm, and generate the commands to be included in the  $\LaTeX$ 

User-defined keywords are a comma-separated list of words and phrases of the authors' choosing, providing a more flexible way of describing the research being presented.

CCS concepts and user-defined keywords are required for for all articles over two pages in length, and are optional for one- and two-page articles (or abstracts).

# 9 SECTIONING COMMANDS

Your work should use standard LATEX sectioning commands: section, subsection, subsection, and paragraph. They should be numbered; do not remove the numbering from the commands.

Simulating a sectioning command by setting the first word or words of a paragraph in boldface or italicized text is **not allowed**.

Table 1. Frequency of Special Characters

| Non-English or Math | Frequency   | Comments          |
|---------------------|-------------|-------------------|
| Ø                   | 1 in 1,000  | For Swedish names |
| $\pi$               | 1 in 5      | Common in math    |
| \$                  | 4 in 5      | Used in business  |
| $\Psi_1^2$          | 1 in 40,000 | Unexplained usage |

## 10 TABLES

The "acmart" document class includes the "booktabs" package — https://ctan.org/pkg/booktabs — for preparing high-quality tables. Table captions are placed *above* the table.

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 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 are found in the *BTFX 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 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 output of this document.

# 11 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.

#### 11.1 Inline (In-text) Equations

A formula that appears in the running text is called an inline or intext 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  $\alpha$  to  $\omega$ , available in Lappa [Lamport 1986]; 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).

# 11.2 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 LATEX; 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.

## 12 FIGURES

The "figure" environment should be used for figures. One or more images can be placed within a figure. If your figure contains third-party material, you must clearly identify it as such, as shown in the example below.



Fig. 1. 1907 Franklin Model D roadster. Photograph by Harris & Ewing, Inc. [Public domain], via Wikimedia Commons. (https://goo.gl/VLCRBB).

Your figures should contain a caption which describes the figure to the reader. Figure captions go below the figure. Your figures should **also** include a description suitable for screen readers, to assist the visually-challenged to better understand your work.

Figure captions are placed below the figure.

# 12.1 The "Teaser Figure"

A "teaser figure" is an image, or set of images in one figure, that are placed after all author and affiliation information, and before the body of the article, spanning the page. If you wish to have such a figure in your article, place the command immediately before the \maketitle command:

Table 2. Some Typical Commands

| Command           | A Number   | Comments             |
|-------------------|------------|----------------------|
| \author<br>\table | 100<br>300 | Author<br>For tables |
| \table*           | 400        | For wider tables     |

\begin{teaserfigure}
 \includegraphics[width=\textwidth]{sampleteaser}
 \caption{figure caption}
 \Description{figure description}
\end{teaserfigure}

## 13 CITATIONS AND BIBLIOGRAPHIES

The use of TeX for the preparation and formatting of one's references is strongly recommended. Authors' names should be complete — use full first names ("Donald E. Knuth") not initials ("D. E. Knuth") — and the salient identifying features of a reference should be included: title, year, volume, number, pages, article DOI, etc.

The bibliography is included in your source document with these two commands, placed just before the \end{document} command:

\bibliographystyle{ACM-Reference-Format}
\bibliography{bibfile}

where "bibfile" is the name, without the ".bib" suffix, of the TeX file

Citations and references are numbered by default. A small number of ACM publications have citations and references formatted in the "author year" style; for these exceptions, please include this command in the **preamble** (before the command "\begin{document}") of your LATEX source:

\citestyle{acmauthoryear}

Some examples. A paginated journal article [Abril and Plant 2007], an enumerated journal article [Cohen et al. 2007], a reference to an entire issue [Cohen 1996], a monograph (whole book) [Kosiur 2001], a monograph/whole book in a series (see 2a in spec. document) [Harel 1979], a divisible-book such as an anthology or compilation [Editor 2007] followed by the same example, however we only output the series if the volume number is given [Editor 2008] (so Editor00a's series should NOT be present since it has no vol. no.), a chapter in a divisible book [Spector 1990], a chapter in a divisible book in a series [Douglass et al. 1998], a multi-volume work as book [Knuth 1997], an article in a proceedings (of a conference, symposium, workshop for example) (paginated proceedings article) [Andler 1979], a proceedings article with all possible elements [Smith 2010], an example of an enumerated proceedings article [Gundy et al. 2007], an informally published work [Harel 1978], a doctoral dissertation [Clarkson 1985], a master's thesis: [Anisi 2003], an online document / world wide web resource [Ablamowicz and Fauser 2007; Poker-Edge.Com 2006; Thornburg 2001], a video game (Case 1) [Obama 2008] and (Case 2) [Novak 2003] and [Lee 2005] and (Case 3) a patent [Scientist 2009], work accepted for publication [Rous 2008], 'YYYYb'-test for prolific author [Saeedi et al. 2010a] and [Saeedi et al. 2010b]. Other cites might contain 'duplicate' DOI

and URLs (some SIAM articles) [Kirschmer and Voight 2010]. Boris / Barbara Beeton: multi-volume works as books [Hörmander 1985b] and [Hörmander 1985a]. A couple of citations with DOIs: [IEEE 2004; Kirschmer and Voight 2010]. Online citations: [Thornburg 2001; TUG 2017; Veytsman [n.d.]]. Artifacts: [R Core Team 2019] and [Anzaroot and McCallum 2013].

#### 14 ACKNOWLEDGMENTS

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. This section has a special environment:

\begin{acks}
...
\end{acks}

so that the information contained therein can be more easily collected during the article metadata extraction phase, and to ensure consistency in the spelling of the section heading.

Authors should not prepare this section as a numbered or unnumbered \section; please use the "acks" environment.

## 15 APPENDICES

If your work needs an appendix, add it before the "\end{document}" command at the conclusion of your source document.

Start the appendix with the "appendix" command:

\appendix

and note that in the appendix, sections are lettered, not numbered. This document has two appendices, demonstrating the section and subsection identification method.

## 16 SIGCHI EXTENDED ABSTRACTS

The "sigchi-a" template style (available only in Late) and not in Word) produces a landscape-orientation formatted article, with a wide left margin. Three environments are available for use with the "sigchi-a" template style, and produce formatted output in the margin:

- sidebar: Place formatted text in the margin.
- marginfigure: Place a figure in the margin.
- margintable: Place a table in the margin.

## **ACKNOWLEDGMENTS**

To Robert, for the bagels and explaining CMYK and color spaces.

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## A RESEARCH METHODS

## A.1 Part One

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Morbi malesuada, quam in pulvinar varius, metus nunc fermentum urna, id sollicitudin purus odio sit amet enim. Aliquam ullamcorper eu ipsum vel mollis. Curabitur quis dictum nisl. Phasellus vel semper risus, et lacinia dolor. Integer ultricies commodo sem nec semper.

## A.2 Part Two

Etiam commodo feugiat nisl pulvinar pellentesque. Etiam auctor sodales ligula, non varius nibh pulvinar semper. Suspendisse nec lectus non ipsum convallis congue hendrerit vitae sapien. Donec at laoreet eros. Vivamus non purus placerat, scelerisque diam eu, cursus ante. Etiam aliquam tortor auctor efficitur mattis.

# B ONLINE RESOURCES

Nam id fermentum dui. Suspendisse sagittis tortor a nulla mollis, in pulvinar ex pretium. Sed interdum orci quis metus euismod, et sagittis enim maximus. Vestibulum gravida massa ut felis suscipit congue. Quisque mattis elit a risus ultrices commodo venenatis eget dui. Etiam sagittis eleifend elementum.

Nam interdum magna at lectus dignissim, ac dignissim lorem rhoncus. Maecenas eu arcu ac neque placerat aliquam. Nunc pulvinar massa et mattis lacinia.