INSTRUCTIONS FOR AUTHORS OF PAPERS USING LATEX

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ABSTRACT

This set of instructions for producing a proceedings paper for the 2020 Winter Simulation Conference (WSC) with LATEX also serves as a sample file that you can edit to produce your submission, and a checklist to ensure that your submission meets the WSC 2020 requirements. Please follow the guidelines herein when preparing your paper. Failure to do so may result in a paper being rejected, returned for appropriate revision, or edited without your knowledge.

1 INTRODUCTION

This paper provides instructions for the preparation of papers for the 2020 Winter Simulation Conference (WSC) using LATEX. There is a companion paper that provides instructions for the preparation of papers using Microsoft Word. **The easiest way to write a paper using LATEX that complies with the requirements is to edit the source file,** `wsc20paper.tex,` **for this document.** Do not use an older version, as *some specifications have changed.* The style of this document is based on the special paper class file `wscpaperproc` which is selected by using `\documentclass{wscpaperproc}`.

An author kit is available online via the conference website. The author kit includes this LATEX document and its Microsoft Word companion. It also includes guidelines that you may find helpful for writing a conference paper and for giving a presentation.

This document was typeset using `pdflatex`, which allows you to use certain graphics file types that are not allowed using the outdated `latex-dvips-ps2pdf` route. For more on this issue, see Section 4.3 below.

2 GENERAL GUIDELINES

2.1 Language

The paper should be prepared using U.S. English in the interest of consistency across the proceedings. Please carefully check the spelling of words before you submit your paper. There are spell checkers for LATEX as well. Some examples of software which supports spell checking are TexnicCenter, TexMaker, and TexClipse.

2.2 Paper Submission

You will submit the Portable Document Format (`.pdf`) of your paper electronically at the conference website. Source files (text, graphics, bib) are not needed. If the paper is accepted, you will electronically submit the LATEXsource file (`.tex`) for the final version of your paper in a ZIP format that includes all figures and auxiliary files. The editors may send the file back to you with the request to make changes to conform to conference guidelines. For minor changes, the editors may make the changes themselves. Final `.pdf` files are generated by the conference proceedings editors.

You will also need to transfer the copyright of your article to the WSC using the copyright transfer form that will be available via the conference web site at the appropriate time. *For your paper to be published by the WSC, you must complete the transfer of copyright.* When you have successfully transferred the copyright, you will receive a `.pdf` receipt.

If you are unable to satisfy these requirements, you should contact the proceedings editors.

2.3 Objectivity

The content of the paper should be objective and without any appearance of commercialism. In general, comparisons of commercial software should be avoided unless they are central to the topic. If a comparison of commercial software is included, it should be based on objective analysis that includes criteria, description of ranking methodology on each criterion, and the rankings themselves to arrive at a conclusion. If an approach other than a detailed objective analysis is used to select the simulation software used for the study being reported, such as, availability of the software, or the familiarity of the analyst with the software, it should be clearly identified.

2.4 Length Constraints

2.4.1 Length of the Abstract

The abstract should be at most 150 words. Since abstracts of all papers accepted for publication in the proceedings will also appear in the final program, the length limit of 150 words will be strictly enforced for each abstract. The abstract should consist of a single paragraph, and it should not contain references or mathematical symbols. Do not include a list of keywords. Keywords are not used in WSC proceedings.

2.4.2 Length of the Paper

The page size in the proceedings must be 8.5 inches by 11 inches (21.6 cm by 27.9 cm). The overall length of the paper should be at least 5 proceedings pages. **Papers including bibliography and author biography should be at most twelve (12) pages,** except for introductory tutorials, advanced tutorials, and panel sessions, for which the limit is 15 pages. Exceeding the page limit will result in rejection for the proceedings.

2.5 Font Specification and Spacing

The paper should be set in the Times New Roman font using a 11-point font size. The paper should be single spaced. Do not use other fonts; use of other fonts means the proceedings editors will need to send the paper back to you to change the font.

2.6 Margins

The width of the text area is 6.5 inches (16.5 cm). The left and right margins should be 1 inch (2.54 cm) on each page. Except for the first page, the top and bottom margins should be 1 inch (2.54 cm). First page has 1.5 inch (3.81 cm) margin from the title to the top of the page, and 1 inch bottom margin. Authors should neither change the header and footer settings nor the corresponding LaTeX style when preparing a manuscript.

2.7 Justification

Headings of sections, subsections, and subsubsections should be left-justified. One-line captions for figures or tables should be centered. A multiline caption for a figure or table should be fully justified. All other text should be fully justified across the page (that is, the text should line up on the right-hand and left-hand sides of the page).

2.8 Headings of Sections, Subsections, and Subsubsections

Section, subsection, and subsubsection headings should appear flush left, set in the bold font style, and numbered as shown in this document. The headings for the Abstract, Acknowledgments, References and Author Biographies sections are not numbered. Section headings should be set in **FULL CAPITALS LIKE THIS PHRASE**, while subsection and subsubsection headings should be **Capitalized in Headline Style like This Phrase**. Lengthy headings should be broken across two or more lines. **Again, these formats should be accomplished using the styles Heading 1, Heading 2, Heading 3, etc.**

2.8.1 Paragraphs

The first paragraph after a heading should not be indented; all other paragraphs should be indented by 0.25 inches (0.63 cm). Do not insert additional space between paragraphs.

Programming code should use "Program Start," "Program," and "Program End" Styles with the following guidelines.

```
class Exponential{
...// Properties of the Exponential
};
```

One-line programs should use the "Program Both" style.

```
Exponential interArrival;
```

2.8.2 Footnotes

Do not use footnotes; instead incorporate such material into the text directly or parenthetically.

2.8.3 Page Numbers

Do not include page numbers. Page numbers are generated by the proceedings editors once all accepted papers are ordered for the final proceedings.

3 FORMATTING THE FIRST PAGE

3.1 Running Heads

The running head (provided in the template) in the upper left-hand corner of the first page (which should read *Proceedings of the 2020 Winter Simulation Conference...*) is left-justified and set in the 11-point italic font style. You do not have to change the content of the first-page header; the first-page header was set by the proceedings editors in the preparation of this document.

Running heads on the second and subsequent pages should contain the last names of the authors, centered and set in the 11-point italic font style. For example, running heads for papers would appear like *Justme* for papers with one author, or *Justme and Him* for papers with two authors, or *Justme, Him, and Youtoo* for papers with three authors, etc. These are created by using the macro

```
\WSCpagesetup{LastName1, LastName2, and LastNameLastAuthor}
```

defined in the class file. Please use this macro to set up the running heads, as it sets further parameters important for the correct layout of the document.

The author names are listed in the same order as they appear on the title page, which is the same order the author biographies are provided. These entries **do** need to be changed by the authors in the \WSCpagesetup command in the source for this file. Please give all author names, do not leave out any author names, and do not use et al.

3.2 Title and Authors

Center the title of the paper across the page and set it in bold **FULL CAPITALS** so that the top edge of the title begins 1.5 inches from the top of the page. The correct placement is automatically done by the class file as well. Just use the \title and \maketitle commands as it is done in the source of this document. Multiline titles should have about the same amount of text on each line.

There should be 2 blank lines between the title and the authors' names (will be inserted by the class file if the \author, \title, and \maketitle commands are used).

Each author's name should be capitalized and centered on a new line, with the author's first name first and no job title or honorific. Insert 1 blank line between the author's name and address. The organization or institution that the author is affiliated to should be typed first. Next type the complete street address, without abbreviations, followed by the city, standard two-letter state or province abbreviation, postal code, and country. The address should be centered and capitalized, except for the country, which should be set in FULL CAPITALS. For papers with multiple authors, the authors should be listed in order of decreasing contribution. Authors from the same institution are grouped in the block of an author with the highest contribution among them. Different formats for multiple authors are shown as examples in Figures 3-8 at the end of this document. There should be two blank lines between the author fields and the text of the paper. Do not include email addresses on the first page; emails for authors are provided in the author biographies. Authors with multiple affiliations shall pick the primary affiliation for the title page and mention other affiliations in their biographies.

You should use the \author command to enter author names, separated using the command \and – see the source for this document.

4 FORMATTING SUBSEQUENT PAGES

Please refer to section 2.6 for the correct margins.

4.1 Mathematical Expressions in Text and in Displays

Display only the most important equations, and number only the displayed equations that are explicitly referenced in the text. To conserve space, simple mathematical expressions such as $\bar{Y} = n^{-1} \sum_{i=1}^{n} Y_i$ may be incorporated into the text. Mathematical expressions that are more complicated or that must be referenced later should be displayed, as in

$$s^2 = \frac{1}{n-1} \sum_{i=1}^{n} (Y_i - \bar{Y})^2.$$

If a display is referenced in the text, then enclose the equation number in parentheses and place it flush with the right-hand margin of the column. For example, the quadratic equation has the general form

$$ax^2 + bx + c = 0, \text{ where } a \neq 0. \tag{1}$$

In the text, each reference to an equation number should also be enclosed in parentheses. For example, the solution to (1) is given in (3) in Appendix A.

If the equation is at the end of a sentence, then you should end the equation with a period. If the sentence in question continues beyond the equation, then you should end the equation with the appropriate punctuation – that is, a comma, semicolon, or no punctuation mark. If the equation is not included within any sentence, but just given between two paragraphs, no punctuation is used as in equation (2).

$$ax^2 + bx + c = 0 \tag{2}$$

4.2 Displayed Lists

A displayed list is a list that is set off from the text, as opposed to a run-in list that is incorporated into the text. The bulleted list given below provides more information about the format of a displayed list.

- Use standard bullets instead of checks, arrows, etc. for bulleted lists.

1. For numbered lists, the labels should not be arabic numerals enclosed in parentheses because such labels cannot be distinguished from equation numbers.

Indent the paragraph after the list.

4.3 Figures and Tables

Figures and tables should be centered within the text and should not extend beyond the right and left margins of the paper. Figures and tables can make use of color since the WSC produces electronic proceedings. However, try to select colors that can be differentiated when printing in black and white in consideration of people using such printers. Figures and tables are numbered sequentially, but separately, using arabic numerals. All tables and figures should be explicitly referenced in the text and they should not be placed before they are referenced. The reference is always written in full (Figure 1), and never abbreviated as in "(Fig. 1)". For figures which can fit next to each other, the author can choose to align them next to each other with the figure text centered below each figure and on the same line for both figures. For tables which can fit next to each other, the author can also choose to align them next to each other with the table text centered above each table and on the same line for both tables.

With regards to both tables and figures, all captions end with a period; one-line captions are centered; and multiline captions are fully justified. It is fine to have multiple-sentence captions that help to explain the table. Table captions should appear *above* the table, while figure captions appear *below* the figure. See Tables 1 and 2 and Figures 1 and 2 for respective examples.

Table 1: Table captions appear above the table, and if they are longer than one line they are fully justified. Captions are written using normal sentences with full punctuation. It is fine to have multiple-sentence captions that help to explain the table.

Creature	IQ	Diet
dog	70	anything
human	60	ice cream
dolphin	120	fish fillet

Table 2: Counting in Maori.

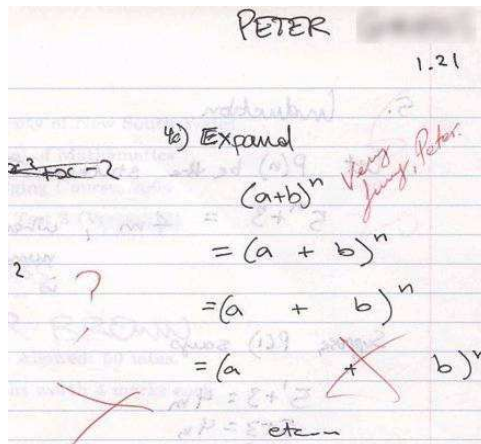| English	Maori
one	tahi
two	rua

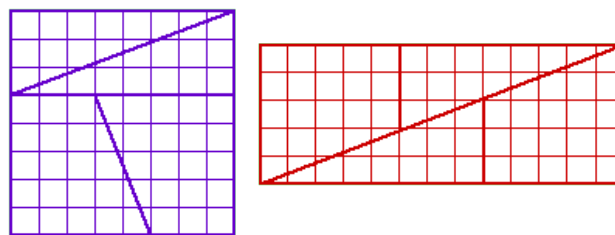Figure 1: An unusual answer to a question.

Figure 2: The area of the square is 64 squares, while that of the rectangle is 65 squares, yet they are made of the same pieces! How is this possible?

References to tables and figures identified by number are capitalized. Avoid using "in the previous table" or "in the figure below", as positions might change in the final formatting. Be sure to use the `\label` command within the figure or table environment and refer to the associated figure or table using `Table~ \ref{labelgiven}`. Please do not use hard coded figure/table numbers. This is error prone, and the references will not be hyperlinks.

Please ensure that the text within figures uses standard fonts and is readable: Arial (recommended), Symbol, etc. The minimum font size should be around 9pt (Arial). Remember that you might need larger fonts in your original figure if you reduce the size of the figure in your WSC paper to less that 100% (e.g.,

when you insert your figure with a 50% of its original size, your original fonts have to be $>=$18pt). This applies to all text elements in the figure, including captions of axes, etc.

Including graphics files in your document can be complicated. Use `.jpg`, `.png` or `.pdf` files. The main difference between the formats is how they store the images and how well suited they are for specific graphics. You can choose between bitmap and vector graphics. Bitmap graphics are well suited for photographs (jpg is very common here) or for screenshots (PNG is a lossless encoding in contrast to jpg, and is thus better suited for all those cases where you have sharp edges in your graphics). Vector graphics are the encoding to be chosen for all kinds of drawings (diagrams, charts, ...). In contrast to bitmap formats, they can be scaled to any size without any loss of sharpness. This makes it possible to read such graphics even if two pages are printed on one sheet of paper, or if the documents are read electronically. So what to choose for your LaTeX document? As a rule of thumb you should always prefer PDF or PS and EPS. In general these three encodings can contain both, bitmap and vector graphics. But there is no need (and no use) to convert your bitmaps to any of these.

Use the `PDFLaTeX` command to generate your pdf file, as was done with this file. The final file format is PDF. If you include figures via `includegraphics`, then please do so without the file ending (e.g., skip .pdf, .ps, ...).

4.4 Definitions and Theorems

Definitions, theorems, propositions, etc. should be formatted like a normal paragraph with boldface heading as shown in the examples below. Number these items separately and sequentially. You may choose not to separately number theorems, propositions, corollaries, etc., as opposed to the example below where corollaries and theorems are numbered together. Search the source of this document to see how these environments were defined. The key command is \newtheorem. Do not use a period after the definition, theorem, corollary or proposition *number*, but do end the sentence with a period.

Definition 1 In colloquial New Zealand English, the term *dopey mongrel* is used to refer to someone who has exhibited less than stellar intelligence.

Theorem 1 If a proceedings editor from New Zealand accidentally deletes his draft of the author kit shortly after completing it, he would be considered to be a dopey mongrel.

Corollary 2 One of the proceedings editors is a dopey mongrel.

Indent the paragraph after the definition or theorem.

4.5 Hyperlinks

A *hyperlink* specifies a web address (URL) or an email address. The use of hyperlinks allows authors for providing readers access to external electronic information, such as a dynamic simulation or animation. The use of hyperlinks is at the discretion of the author(s). **While the use of hyperlinked text is encouraged in the main body of the paper, it is recommended that corresponding web addresses and other identifying information should be provided in the list of references.** For example, instead of spelling out the web address of the conference website, one would refer to the conference website, and the corresponding entry in the reference section will spell out the associated web address and other relevant information such as author(s) and/or the organization that published the content. This would allow readers for searching for the content using the author(s), organization, etc. if the actual Web address is changed. This also allows for a cleaner appearance of the main body of the paper.

If the author(s) feel that sufficient information is provided in the main body of the paper to locate the content even if the Web address is changed, the address can be included in the main body of the paper itself.

Each hyperlink should be set in the same font as the text. Hyperlinks are *not* underlined. A live hyperlink (or hot link) – that is, a hyperlink that will activate your web browser and take it to an external web site or that will activate your email software for sending a message to a specific email address – should be colored blue. You have already seen examples of such hyperlinks in this paper. To use live hyperlinks in a proceedings paper, use the `hyperref` package. If you are using `PDFLaTeX` to generate your pdf file then, as was done for this file, you should add the following as the last `\usepackage` command in the preamble.

```
\usepackage[pdftex,colorlinks=true,urlcolor=blue,citecolor=black,
anchorcolor=black,linkcolor=black]{hyperref}
```

On the other hand, if you are using the traditional `latex – dvips – ps2pdf` route, then users of MiKTeX or PCTeX for Windows should add the command

```
\usepackage[dvips,colorlinks=true,urlcolor=blue,citecolor=black,
anchorcolor=black,linkcolor=black]{hyperref}
```

as the last `\usepackage` command in the preamble, while users of Y&Y TeX should add the command

```
\usepackage[dvipsone,colorlinks=true,urlcolor=blue,citecolor=black,
anchorcolor=black,linkcolor=black]{hyperref}
```

as the last `\usepackage` command in the preamble. (In general the `\usepackage` command above that works for MiKTeX running on a Windows system should also work for most implementations of LaTeX running on a Unix or Apple system.) Thus the hypertext link conference website (WSC 2020) to the WSC website can be established by the command

```
\href{http://www.wintersim.org}{conference website}
```

This is especially important since WSC papers are filed in the IEEE Xplore digital library, which does not allow hyperlinks, so for that purpose the hyperlinks are removed. Therefore it is recommended to add all hypertext references to the `.bib` file and to refer to them from the text as it is done in the example above. All live hyperlinks still appear in the CD of the proceedings and in other repositories.

If you use the package `hyperref` as suggested here, and if you use citation commands to handle references, then your citations will become hyperlinks (as in this document).

Non-live hyperlinks – that is, the hyperlinks that are included for the reader's information but do not actually invoke the reader's web browser or email software should be colored black.

4.6 Citing a Reference

To cite a reference in the text, use the author-date method. Thus, Chien (1989) could also be cited parenthetically (Chien 1989). Do not use a comma within this parenthesis. For a work by three or more authors, use an abbreviated form. For example, a work by Banks, Carson, and Nelson would be cited in one of the following ways: Banks et al. (2000) or (Banks et al. 2000).

Parenthetical citations are enclosed in parentheses ( ), not square brackets [ ]. Semicolons separate the items in a series of such citations.

The following is a list of correct forms of citations:

- Brown and Edwards (1993)
- (Brown and Edwards 1993)
- (Smith 1987; Brown and Edwards 1992; Brown et al. 1995)

The following is a list of **incorrect** forms of citations:

- Brown and Edwards [1993]
- (Brown and Edwards, 1993)
- (Smith, 1987; Brown and Edwards, 1993)
- (Smith 1987, Arnold, Brown and Edwards 1992, Brown et al. 1995)

4.7 General Style and Sequence of References

Place the list of references after the appendices. The section heading is **REFERENCES**, and it is not numbered. List only references that are cited in the text. Do not number the references. The only exception are papers in the "tutorial" tracks: Here it is permitted to have an additional section heading **ADDITIONAL READING** after references, followed by further literature that is recommended for continued studies but not directly used within the text of the paper

Do not number the references and arrange them in the following order:

- By the last name of the first author
- For papers with the same first author, arrange first all papers by this author only, then all papers by this author and one co-author, and finally all papers with this author and two or more co- authors
- Within this sorting sequence, arrange papers by year

To identify multiple references by the same authors and year, append a lower case letter to the year of publication; for example, 1984a and 1984b. The same applies to references that have more than two authors and the same first author and year.

Give complete references without abbreviations. Even for more than three authors, list <u>all</u> authors.

The format for other types of reference as well as examples can be inferred from the examples in the references section, which include:

- A technical report (Chien 1989)
- A proceedings article (Cheng 1994)
- A conference contribution without book publication (Rabe et al. 2017)
- A journal article with two authors (Powell and Mustafee 2017)
- A journal article with more than two authors (Gupta et al. 1973)
- A book by two authors (Hammersley and Handscomb 1964)
- A chapter in a book (Schruben 1979)
- An unpublished thesis or dissertation (Steiger 1999)
- A book with no identified authors (The University of Chicago Press 2010)
- A document available on the web (WSC 2020)

Be sure that references to past WSC proceedings include the necessary information, as in Cheng (1994). This is a template for a bib entry of a (yyyy) Winter Simulation Conference proceedings paper:

```
@Inproceedings{(!!Provide a unique key here!!),
author = {aaaa},
title  ={tttt},
```

```
year = {yyyy},
pages = {n-m},
booktitle = {Proceedings of the yyyy Winter Simulation Conference},
editors = {first editor, second editor, ..., and last editor},
address = {Piscataway, New Jersey},
publisher = {Institute of Electrical and Electronics Engineers, Inc.}
}
```

Please do not add any additional attributes.

4.8 Formatting References according to their Type of Publication

Use hanging indentation to distinguish individual entries. Do not insert additional space between references.

You can enter the references using (a) *BIBTEX as discussed in Section 5*, (b) using the environment `thebibliography` via the `\bibitem` and `\cite` commands, or (c) the `hangref` environment as shown below. Please note that neither (b) nor (c) are recommended. These alternatives may mean extra work for you and the editor during the editing process. Option (c) means in addition that the references will not be hyperlinks – as the proceedings are electronic proceedings this is not recommended at all.

To use `hangref` you would enter the following lines.

```
\begin{hangref}
\item The first reference goes here, and if you happen to have enough
information on the line you will be able to see how the second and if
you really have lots of text to be displayed later lines of the
reference are indented.
\item The second reference goes here, and once again later lines are
indented if you have a sufficient amount of words in the text block.
\item Further references appear here.
\end{hangref}
```

4.8.1 Journal Articles

The bibliographic style for a journal article is: <Surname of first author>, <Author's initials>, <Initials and surnames of other authors>. <year>. <Capitalized article title in quotes>. *<Journal Name in Headline Italics>* <Volume number>(<issue number>):<page numbers>.

Gupta, S. S., K. Nagel, and S. Panchapakesan. 1973. "On the Order Statistics from Equally Correlated Normal Random Variables". *Biometrika* 60(2):403–413.
Powell, J. H., and N. Mustafee. 2017. "Widening Requirements Capture with Soft Methods: An Investigation of Hybrid M&S Studies in Healthcare". *Journal of the Operational Research Society* 68(10):1211-1222.

4.8.2 Books

The bibliographic style for books is: <Surname of first author>, <Author's initial(s)>, <Initials and surnames of other authors>. <year>. *<Book Name in Headline Italics>*. [<edition> ed.]<city of publication>: <publisher>.

Banks, J., J. S. Carson, B. L. Nelson, and D. M. Nicol. 2000. *Discrete-Event System Simulation*. 3rd ed. Upper Saddle River, New Jersey: Prentice-Hall, Inc.
Hammersley, J. M., and D. C. Handscomb. 1964. *Monte Carlo Methods*. London: Methuen.
Law, A. M., and W. D. Kelton. 2000. *Simulation Modeling & Analysis*. 3rd ed. New York: McGraw-Hill, Inc.

4.8.3 Book Contributions

The bibliographic style for book contributions is: <Surname of first author>, <Author's initial(s)>, <Initials and surnames of other authors>. <year>. <Capitalized article title in quotes>. In <*Book Name in Headline Italics*>, edited by <Initials and surnames of editors>, <page numbers>. <city of publication>: <publisher>. Publishers are not abbreviated ("IEEE", "ASIM"), but written in full ("Institute of Electrical and Electronics Engineers, Inc.", "Arbeitsgemeinschaft Simulation", etc.).

Cheng, R. C. H. 1994. "Selecting Input Models". In *Proceedings of the 1994 Winter Simulation Conference*, edited by J. D. Tew, M. Manivannan, D. A. Sadowski, and A. F. Seila, 184–191. Piscataway, New Jersey: Institute of Electrical and Electronics Engineers, Inc.

Schruben, L. W. 1979. "Designing Correlation Induction Strategies for Simulation Experiments". In *Current Issues in Computer Simulation*, edited by N. R. Adam and A. Dogramaci, 235–256. New York: Academic Press.

4.8.4 Conferences

For conferences that have been published as an (electronic) book publication (with editors, publisher, ISBN), use the same style as for book contributions (take care to specify the city of publication, not the conference location!). This especially applies to past WSC proceedings, such as (Cheng 1994). See the example under "book contributions" for this purpose.

For conferences that have <u>not</u> been published as a book, the bibliographical style is: <Surname of first author>, <Author's initial(s)>, <Initials and surnames of other authors>. <year>. <Capitalized article title in quotes>. <*Conference Name in Headline Italics*>, <full date(s) of conference>, <location of conference>, <page numbers if available>.

Rabe, M., F. Dross, and A. Wuttke. 2017. "Combining a Discrete-event Simulation Model of a Logistics Network with Deep Reinforcement Learning". In *Proceedings of the MIC and MAEB 2017 Conferences*, July 4th-7th, Barcelona, Spain, 765-774.

4.8.5 Handbooks, Reports, and other Publications

If you need to cite handbooks or other publications that have editors but no authors, use the following bibliographic style: <Surname of first editor>, <Editor's initial(s)>, <Initials and surnames of other editors>, Editors. <year>. <*Book Name in Headline Italics*>. <city of publication>: <publisher>.

Chien, C. 1989. "Small Sample Theory for Steady State Confidence Intervals". Technical Report No. 37, Department of Operations Research, Stanford University, Stanford, California

4.8.6 Online Publications

For publications that are only WWW pages, if there is no way to avoid them, use the best fitting style from the categories above and add the URL and the date when you accessed the page without the year:

Sharon Parq Associates. 2018. WordTips: Numbering Equations. http://word.tips.net/Pages/T000273_Numbering_Equations.html, accessed 15th April.

If you just refer to a document from the WWW that has a clear publication date, the citation year is this date and the year of access must be given:

Steiger, N. M. 1999. *Improved Batching for Confidence Interval Construction in Steady-State Simulation*. Ph.D. thesis, Department of Industrial Engineering, North Carolina State University, Raleigh, North Carolina. http://www.lib.ncsu.edu/resolver/1840.16/4713, accessed 12th February 2019.

5   USING BIBTEX

Using BIBTEX for referencing is the recommended way. Indeed, the references in this document were generated using BIBTEX, so the source for this document serves as an example of how to use BIBTEX to

meet the WSC formatting requirements. One benefit of using BIBTEX is that bibliography formatting and referencing can be greatly simplified: the correct citation and reference list style is automatically created. We assume that you already know how to use BIBTEX. Software to manage BIBTEX files, for example JabRef (Java based), can support you on managing and creating valid `bib` files. *Please open your bib file with a software like JabRef BEFORE you submit your final version. Experience shows that almost all manually edited bib files contain duplicated bib keys (which means a random selection of references), broken entries which usually lead to missing bibliographic information, invalid keys, and last but not least invalid tokens in bib files. Bib files DO NOT support comments. BIBTEX should not report any error for your final submitted document.*

The BIBTEX input file `wsc.bst` and the LATEX macros found in `wscbib.tex` are required, but are included in `wsc20sty.tex`, so no other files (apart from your bibliography) are required. The macros in these files have been tested with LATEX. They are not intended for use with LATEX 2.09, which is obsolete. The file `wsc.bst` is essentially the same as `chicago.bst`, a file found on many LATEX distributions, but is modified to be more compatible with WSC format requirements.

The simplest way to write a WSC article that uses BIBTEX is to take the source file for this document, and modify it to generate your article.

5.1 Set Up the BIBTEX Input Files

BIBTEX requires a bibliography style file (extension `.bst`) and a bibliography database file (extension `.bib`). This is achieved using

```
\bibliographystyle{wsc}
\bibliography{demobib}
```

just before the AUTHOR BIOGRAPHY section. The file `demobib` in the `\bibliography` command should be replaced with the base names of your BIBTEX `*.bib` files that you use for your bibliography. BIBTEX is then run as usual to create a bibliography file (`*.bbl`).

5.2 Use the Citation Macros

There are a number of macros available to cite references in the LATEX source document. The `\cite` macro can be used to give a list of references in parentheses. For example,

```
\cite{cheng:input94,law:simulationc}
```

results in the citation (Cheng 1994; Law and Kelton 2000). A reference that functions as a noun is created with the `\citeN` macro. For example,

```
\citeN{law:simulationc} say \ldots
```

results in: Law and Kelton (2000) say . . . .

Citations within parentheses do not need the extra parentheses provided by the above citation commands. To suppress the inclusion of extra parentheses, use the `\citeNP` macro. To obtain (Law and Kelton 2000), for example, use:

```
(\citeNP{law:simulationc}).
```

When there are three or more authors, the name of the first author should be given along with the text "et al." This can be achieved with the `\shortcite` macro. To obtain (Banks et al. 2000), for example, use:

```
\shortcite{bcnn:simulation}
```

The macros `\shortciteN` and `\shortciteNP` are also available to obtain 'et al.' when a citation with many authors is used as a noun.

For further information on the available commands for citing, search for `\cite` in the file `wscbib.tex`, or consult the file `chicago.sty`. The commands for making BIBTEX work with `wsc.bst` are very similar to those used in the standard LATEX file `chicago.sty`.

5.3 Generate the Bibliography File

Run `PDFLaTeX` (or LATEX), then BIBTEX, and then `PDFLaTeX` two more times. Running `PDFLaTeX` the first time creates the `.aux` file. Running BIBTEX creates the `.bbl` file. Running `PDFLaTeX` again (twice) fixes the bibliography and citation references.

ACKNOWLEDGMENTS

Place the acknowledgments section, if needed, after the main text, but before any appendices and the references. The section heading is not numbered. These instructions are adapted from instructions that have been iteratively updated and improved by proceedings editors and several other individuals, who are too numerous to name separately, since the first set of instructions were written by Barry Nelson for the 1991 WSC.

A   APPENDICES

Place any appendices after the acknowledgments and label them **A**, **B**, **C**, and so forth.

The solution to (1) has the form

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \text{ if } a \neq 0. \tag{3}$$

B   GETTING HELP

If you need help in preparing your paper, contact the proceedings editors. You can reach us individually using the contact information below:

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C AUTHOR CHECKLIST

We strive for a consistent appearance in all papers published in the proceedings. If you have used the template and styles within this author's kit, then almost all of the requirements in this checklist will be automatically satisfied, and there is very little to check. Please **print a hardcopy of your paper**, and go over your printed paper to make sure it adheres to the following requirements. Thank you!

1. The paper can be *at most* 12 pages long (15 for tutorials and panel sessions). Longer papers cannot be published; the minimum number of pages is 5.
2. No keywords, footnotes or page numbers.
3. The paper has been spellchecked using U.S. English.
4. The paper title is in bold and in ALL CAPS. Please use the templates to use correct indents and spaces.
5. The abstract must have 150 or fewer words.
6. Double-check that the author section after the title is formatted correctly: the number of organizations defines the number of blocks, and the number of blocks defines the layout. Country names are in ALL CAPS.
7. Use the correct running heads! Use the proceedings editors and chairs on page one, and use the last names of authors separated by commas for the other pages. Do not forget that the last Last Name is preceded by "and" (also with a comma if more than two authors).
8. Section titles are in bold and ALL CAPS, subsections capitalize the first letter of important words. Please use the templates to use correct indents and spaces and make sure to left-justify. Section titles are numbered, except for the abstract, acknowledgments, references and author biographies.
9. The first line of each paragraph is indented, except for the first paragraph of a section or subsection.
10. There should be extra lines before and after enumerations, lists, definitions, etc.
11. Citations are by author and year; citations are enclosed in parentheses, not brackets.
12. References are in the hangref style with a 9pt font, listed alphabetically by the last names(s) of the author(s).
13. Double-check that figures and tables are referenced in the text and have the correct caption format! Table captions appear above the table. Figure captions appear below the figure. All text in figures and tables is readable (minimum final print font using Arial could be 8pt, for Times 9pt).
14. Verify that equations are centered and that all equation numbers are in parentheses and right-justified.
15. Ensure that hyperlinks will work as of the date of December 2020. Live hyperlinks are blue, non-live hyperlinks are black.
16. Don't forget the "author biographies" section! Author biographies must be one paragraph per author and must include an email address. Author biographies are mandatory for all authors and given in the same sequence as in the running head.

The following items should work automatically if you are using the WSC 2020 template, but you are encouraged to double-check, especially if you copy and paste any text from other documents:

1. Paper is letter format (8.5" x 11", or 216 mm x 279 mm), not DIN A4 format. Please use the required margins.
2. All text is in 11-Point Times New Roman with a line spacing of 12.5pt.

REFERENCES

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WSC 2020. "Winter Simulation Conference". accessed 22nd January 2020.

AUTHOR BIOGRAPHIES

Author biographies are mandatory for all authors and given in the same sequence as in the running head. Use a smaller font size (9pt) as it is set up in this template. Giving an email address is mandatory and the author's name is set in bold capitals (see the examples below). Separate the authors by an empty line with the same style. Give only one paragraph per author, but sufficient information to understand the author's position and scientific background.

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AUTHOR BLOCK TEMPLATES (TITLE PAGE)

<div align="center">

First Name Last Name 1
[First Name Last Name 2]
[First Name Last Name 3]

Institution
Street Address line 1
Street Address line 2
City, ST Zip, COUNTRY

</div>

Figure 3: Example title page heading with author(s) from one single institution. Each author name has its own line.

<div align="center">

First Name Last Name 1	First Name Last Name 2
[First Name Last Name 3]	[First Name Last Name 4]
Institution 1	Institution 2
Street Address line 1	Street Address line 1
Street Address line 2	Street Address line 2
City, ST Zip, COUNTRY	City, ST Zip, COUNTRY

</div>

Figure 4: Example title page heading with authors from two different institutions. Each author name is entered in a separate line. If you have more authors from one institution, then please add blank table cells to align the institutions on the same line.

First Name Last Name 1

Institution 1
Street Address Line 1
Street Address Line 2
City, ST Zip, COUNTRY

First Name Last Name 2

Institution 2
Street Address Line 1
Street Address Line 2
City, ST Zip, COUNTRY

First Name Last Name 3

Institution 3
Street Address line 1
Street Address line 2
City, ST Zip, COUNTRY

Figure 5: Example title page heading with authors from three different institutions. Note that there are two empty rows between the institutions. For additional authors from these institutions compare Figure 4.

First Name Last Name 1

Institution 1
Street Address Line 1
Street Address Line 2
City, ST Zip, COUNTRY

First Name Last Name 2

Institution 2
Street Address Line 1
Street Address Line 2
City, ST Zip, COUNTRY

First Name Last Name 3

Institution 3
Street Address Line 1
Street Address Line 2
City, ST Zip, COUNTRY

First Name Last Name 4

Institution 4
Street Address Line 1
Street Address Line 2
City, ST Zip, COUNTRY

Figure 6: Example title page heading with authors from four different institutions. Note that there are two empty rows between the institutions. For additional authors from these institutions compare Figure 4.

First Name Last Name 1

Institution 1
Street Address Line 1
Street Address Line 2
City, ST Zip, COUNTRY

First Name Last Name 2

Institution 2
Street Address Line 1
Street Address Line 2
City, ST Zip, COUNTRY

First Name Last Name 3

Institution 3
Street Address Line 1
Street Address Line 2
City, ST Zip, COUNTRY

First Name Last Name 4

Institution 4
Street Address Line 1
Street Address Line 2
City, ST Zip, COUNTRY

First Name Last Name 5

Institution 5
Street Address line 1
Street Address line 2
City, ST Zip, COUNTRY

Figure 7: Example title page heading with authors from five different institutions. Note that there are two empty rows between the institutions. For additional authors from these institutions compare Figure 4.

First Name Last Name 1	First Name Last Name 2
Institution 1	Institution 2
Street Address Line 1	Street Address Line 1
Street Address Line 2	Street Address Line 2
City, ST Zip, COUNTRY	City, ST Zip, COUNTRY
First Name Last Name 3	First Name Last Name 4
Institution 3	Institution 4
Street Address Line 1	Street Address Line 1
Street Address Line 2	Street Address Line 2
City, ST Zip, COUNTRY	City, ST Zip, COUNTRY
First Name Last Name 5	First Name Last Name 6
Institution 5	Institution 6
Street Address Line 1	Street Address Line 1
Street Address Line 2	Street Address Line 2
City, ST Zip, COUNTRY	City, ST Zip, COUNTRY

Figure 8: Example title page heading with authors from six different institutions. Note that there are two empty rows between the institutions. For additional authors from these institutions compare Figure 4.