

Scientific Communication CITS7200

Computer Science & Software Engineering

Lecture 8

Publishing a paper

There are many opportunities for publishing scientific work. These range from producing company reports or technical documentation, through to conference proceedings and journal articles, or books. In this lecture we will first look briefly at the IEEE standards for generating technical manuals, then talk about conference papers and producing posters for conference presentations, and finally deal with journal publication. The conclusion briefly outlines a simple \LaTeX method for generating large documents; alternatives will be considered in the lecture on how to write a thesis.

Software documentation

The IEEE has generated a standard for software user documentation relating to the installation, operation, and management of software of any size. The standard suggests the following components to user documentation:

- Title page.
- Restrictions.
- Warranties.
- Table of contents.

- List of illustrations (optional).
- Introduction.
- Body of document.
- Error conditions.
- Appendices (optional).
- Bibliography.
- Glossary.
- Index.

The **title page** should include at least the following information:

1. Document name.
2. Document version and date.
3. Software covered.
4. Issuing organisation.

When **restrictions** apply to the use of copyright of either the document or the software, describe these on the title page or immediately after the title page. Warranties or contractual obligations or disclaimers should then be specified.

A **table of contents** should be included for all documents over 8 pages in length. For large documents, the table of contents should be comprehensive, carrying entries to at least the third level of the document structure hierarchy, giving page numbers for every entry, and assisting the reader in matching entries with their corresponding page numbers.

The **introduction** should include the following information:

1. Audience description.
2. Applicability statement.
3. Purpose statement.
4. Document usage statement.

5. Related documents list or information.
6. Conventions description.
7. Problem reporting instruction.

The **body of the document** will depend upon whether the document is for instruction or for reference. In the instructional mode, an information-related document could be organised under the following headings:

1. Theory.
2. Software features.
3. Software architectures.

A task-related instructional document might be organised differently, giving the following information:

1. Scope of the material under discussion.
2. Materials needed (input manuals, passwords, computers, ...)
3. Preparation (obtain system passwords, disk space, ...)
4. Cautions and warnings.
5. Method.
 - (a) What the user must do.
 - (b) What function, if any, is invoked.
 - (c) Possible errors, and how to avoid or resolve them.
 - (d) What results to expect.
6. Related information.

A reference mode document is organised by the way in which the user accesses a software function (for example, by command, by menu, or by system calls). For each function, the following information should be included:

1. Purpose.
2. Materials needed (e.g., software drivers, interfaces, ...)

3. Preparation.
4. Input.
5. Cautions and warnings.
6. Invocation (required parameters, optional parameters, default options, and order and syntax).
7. Suspension (describe how to interrupt the function during execution and how to restart it).
8. Termination (how to recognise normal and abnormal termination).
9. Output.
10. Error conditions.
11. Related information (such as limitations, notes, and related functions).

Error messages, known problems, and error recovery should be described in a separate section of the document. For each error message give in detail the error that caused it, the procedures needed to recover from it, and the actions required to clear it.

Appendices are optional to your document but might include the following:

1. Detailed input and output data or formats.
2. Interactions between tasks or functions.
3. Global processing limitations.
4. Description of data formats and file structures.
5. Sample files.

The **glossary** should list alphabetically all terms, acronyms, and abbreviations that are likely to be unfamiliar to the audience, or used in an unfamiliar way.

An **index** should be developed for all key words and concepts in any document over 8 pages in length.

IEEE recommends the use of highlighting for selected material of special importance, especially cautions and warnings. Terminology, typographic style and stylistic conventions should be used consistently throughout the document. All terminology should be rigorously defined, and related material should be referenced.

Conference papers

If you continue in the academic world, your first publishing experience is likely to be in conjunction with your supervisor. This could arise from work you do in your Honours year, or afterwards as a graduate student if you continue with research work. The venue of your publication is likely to be a conference paper, or a journal paper.

How do you choose a conference? Generally, there are lots of factors, including the venue, the cost of registration, travel and accommodation, and who you are likely to meet at the conference. If you want to find out about a subject area, it is better to choose a conference with a small number of presented papers and some of the big names in the field; if you want to meet absolutely everyone in the field, then a large, international conference with hundreds of presented papers might be more appropriate. Some conferences are devoted to highly specialized topics, whilst others cover very broad areas. Since it is generally very expensive to get to conferences from Australia, it is worthwhile choosing your conference with care.

Although some conferences in Computer Science will accept papers on the basis of a submitted abstract, most conferences require a fully-refereed paper and accept only a (relatively) small percentage of the papers submitted (for example, the ACSC Conference). If your paper is accepted, it could be for an oral presentation (in which you might have the attention of the audience for about 20–30 minutes) or a poster presentation, where you stand over a poster of your work for about two hours, whilst delegates wander past and ask you questions. In both cases, your full paper would be published in the proceedings of the conference.

Although conference proceedings often carry the name of an editor, you are generally required to submit a camera-ready copy of your paper, often prepared in a given L^AT_EX style.

Posters

Researchers can make very effective use of research posters, both at conferences and for general display in the department or research lab as a means of exhibiting the type and quality of their work. Although it may not technically be a publication in its own right, a poster is read by many people and is often used for demonstration purposes when labs are seeking funding. A poster presentation at a conference is often accompanied by a written paper, and the paper is generally published as part of the conference proceedings.

A typical poster presentation includes about the same amount of material as a ten-minute talk: a brief introduction, an outline of the materials and methods you used, a main section devoted to results, and your conclusions. As always, you should have a short and informative title that is comprehensible to non-specialists.

The format and design of a poster presentation will make the difference between a successful display and a failure. Find out how posters will be attached to the display board, how much space is available, and what shape that space is. In particular, be clear about whether you have a landscape or portrait format for your display. Now start planning to fill that space as attractively and informatively as possible. Remember that most people who stop to look at your poster will not have time to read all the words, so that a striking picture is worth countless words. Figure 1 below shows some examples of poster layout.

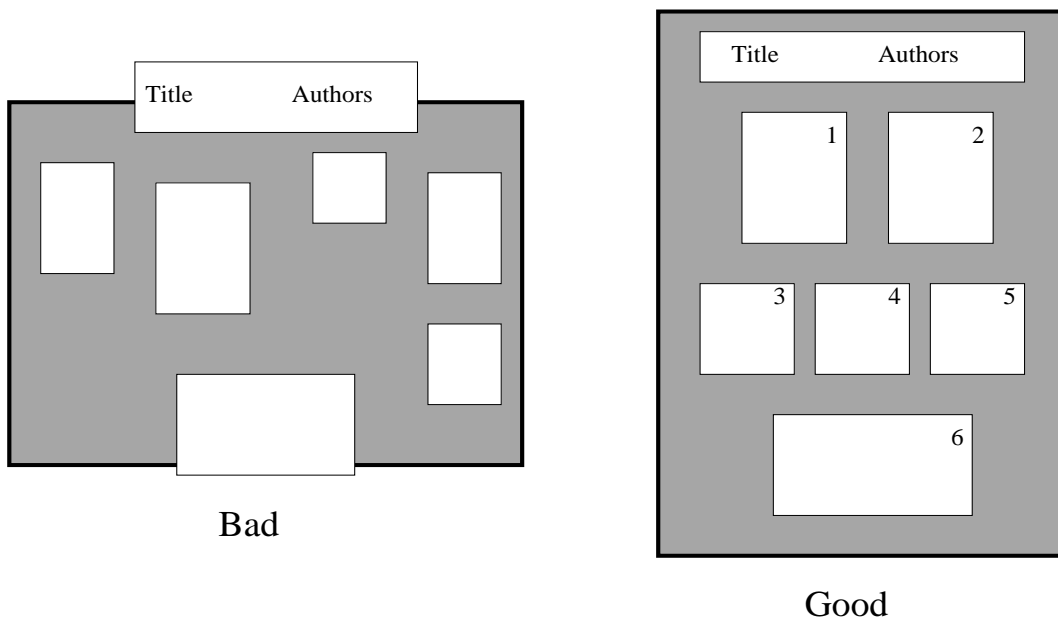


Figure 1: The importance of layout in poster design.

Colour is a good way of attracting attention. Strongly coloured card makes an excellent background for text and figures prepared on white or light yellow paper. Remember that graphs and photographs are always preferable to tables. Photographs and diagrams in appropriate colours, along with coloured subheadings, will attract the eye and get readers to linger over your display.

Make a sketch plan of your presentation, and then attach your pages of text and illustrations on thin card. Paste or glue is likely to make a mess of your

presentation unless you are extremely skilled at it; double-sided tape will probably give a more professional look. Likewise, scissors will generally fail to cut paper to professional standards; use a guillotine or a cutting knife to ensure perfectly straight and square edges. Make a title and author card to be placed at the top of your display, including your institutional address and contact coordinates.

Plan an uncluttered display, minimising the number of variations in font style and size. Make it clear from your layout whether the display is to be read across the rows or down the columns. A typical reader approaches a poster, stops, reads, understands, and moves on, all within a couple of minutes.

Produce the title and subheadings in a sans serif typeface such as Helvetica, using sentence capitalization. Capital letters should be about 20–30mm high so that the text can be read from a reasonable distance. Write your name and address a little larger, if there is room to do so. On the non-title pages, headings should be about 10mm high, and the text should be readable at a distance of about 1m.

Journal papers

If you decide to submit your paper for publication in a journal, it is usually because you consider it to be a more complete and scholarly piece of work than would be likely to appear in a conference proceedings. Since there are so many journals these days, it is important that you choose one that best matches the content of your paper. You can decide on good choices by reading recent issues of a journal, and looking at its stated objectives. Try to match your journal choice with that of others in the field, including those you cite. These are the people you want to read your work.

It is important to choose good quality, high-prestige, international journals for the maximum exposure. The quality of a journal is often determined by its Journal Impact Factor, which is a measure of the average number of citations that are made to articles published in it. Some journals give a measure of their quality by stating their average acceptance rate; one imagines that the lower the acceptance rate, the higher the quality, but acceptance rates can also be related to the frequency with which the journal appears.

In Computer Science it is often important that there be as little delay as possible between the date you first submit your paper and the date of publication. For some journals, this delay can be as long as two years or more! If this is unacceptable, choose a journal that guarantees a more rapid publica-

tion. This can sometimes be judged by looking at the articles in the journal, where relevant dates are given, or by considering the stated objectives of the journal, which often explicitly include rapid publication.

When you are ready to submit your manuscript, read the Instructions to Authors to find out to whom it should be sent. Generally, it is the Editor-in-Chief, but sometimes journals allow you to choose any member of the editorial board. This can be advantageous if there is a member from your own country, as it can reduce the amount of time it takes from submission to publication.

Include a covering letter stating the name of the journal to which you are submitting — the editor may act as editor for more than one journal, or be organizing more than one conference. State the name of your article, and the address for correspondence if there is more than one author. If your manuscript is available electronically, let the editor know.

Journals usually require that all images, graphs, diagrams, and tables be submitted on separate sheets, with a simple instruction in the manuscript like “PLACE FIGURE 4 ABOUT HERE” for typesetting. Images are usually required as high quality black and white photographs, since Postscript output is generally not good enough for reproduction. Some journals will print colour photographs where colour displays are essential. Each image, graph, etc. should be carefully labeled on the back in pencil. Captions for each diagram should be clearly labeled and submitted on separate sheets.

Most journals will tell you to submit multiple copies in double spacing, printed on a single side of the paper only. Staple the sheets of each copy together so that the reviewers do not lose any pages. You are unlikely to receive any of these copies back, whether your article is accepted or not. Always keep a spare copy of everything for yourself.

Always send your manuscripts electronically if possible, otherwise always use airmail.

The editor should acknowledge receipt of your paper within about four weeks of submission. If you do not hear from the editor after a couple of months, write and ask whether your manuscript has arrived.

The editor will choose a number of referees (usually from one to three) to read and comment upon your manuscript. They are given about two months to complete this task, which consists of filling in a journal form addressing a number of points regarding style, originality, content, etc. and writing a short report with comments about any changes or suggestions for improvement. It is rare that any paper is accepted without some recommended changes,

so do not be disappointed if the editor decides that you need to address the referees' comments and re-submit. Almost all authors go through this process and keep revising their papers until they are finally accepted. However, the better you write and the more you attend to details before submission, the fewer iterations will be necessary.

Once your paper has been accepted, the editor will write offering congratulations and asking you to fill out a number of forms. One is generally a form handing over copyright ownership to the journal. Another is a reprint order form. Most journals will give you between 50–100 free reprints of your article after it is published, but you can order more for a reasonable cost. You must fill in the order form, even if you only want the free copies.

After a short time, usually a few months, you will receive the galley proofs of your article. This used to refer to large, uncut sheets of paper containing the typeset version of your article. Nowadays, it is usually a photocopy of the journal's version of your article on standard A4 sheets. You are required to proofread these proofs, and return them, often within a 24-hour period! You must attend to this instantly, and send back the proofs by Express mail. It is wise to fax or email the editor at this point, explaining that you have attended to the proofs and that mail from Australia can take more than 24 hours (it's probably taken about a week to get to you in the first place!).

Figure 2 lists most of the standard proof correction symbols used by journals. You should use these symbols when you find any errors or ambiguities in the typesetting of your script.

It is worthwhile going through the galley proofs word-for-word with your original manuscript. There are a number of things to look for, such as:

- unmatched parentheses,
- wrong fonts,
- misspelt words,
- repeated words,
- missing punctuation, especially commas,
- incorrect hyphenation,
- a widow header or word,
- O for 0, l for 1, etc.

Delete	☞	Close up	⊖	Insert	∧
Insert space	#	Raise	⌈	Lower	⌋
Move to left	⌈	Move to right	⌋	Straighten type line	
Straighten lines	=	Paragraph	⌈	Put in middle of page or line centre	
Transpose (in text)	↯	Transpose (in margin)	tr.	Turn inverted letter	⌋
Change broken letter	×	Let it stand as set in type ...		Wrong font	wf
Lower case	lc	Use roman letter	rom	Use bold face	bf
Period	⊙	Comma	∧,	Apostrophe	∨'
Superior figure	∨ ²	Inferior figure	∧ ₂	Hyphen	=/
Use <u>small capitals</u>	sc	Use <u>CAPITALS</u>	Caps	Use italics	ital

Figure 2: Signs used in correcting proofs.

- bad line breaks in mathematical equations,
- incorrect formatting,
- missing symbols,
- errors in numbers in tables, and
- incorrect citation numbers.

Other publishing opportunities

It is now very easy to publish all sorts of documents from the desk-top, and \LaTeX makes book production very simple. The following \LaTeX source gives a reasonable idea on how to get started with a major document.

```

\documentclass[12pt, a4paper]{book}
%preamble setting up formatting details
\parindent 0pt
\parskip 5pt

\renewcommand{\baselinestretch}{1.5}

\begin{document}

\begin{titlepage}
%design of title page here
\end{titlepage}

\pagenumbering{roman}
\tableofcontents

\chapter{Title of first chapter}
\pagenumbering{arabic}
\input{chap1}

\chapter{Title of second chapter}
\input{chap2}

%Continue until all chaps are included

```

```
\bibliographystyle{plain}  
\bibliography{refs}  
  
\end{document}
```

Many errors can occur, even when submitting \LaTeX source. For this reason you should write well-structured and elegant \LaTeX source in case it is automatically re-formatted upon acceptance.

Once your publication has appeared in print, fame and glory are yours. Answer all requests for reprints and, in the case of a university research publication, submit the publication details to the departmental secretary for the University's Research Publication Database.