

CS-420—Operating Systems Guidelines for a Survey Paper

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A good model for your survey paper is what ACM *Computing Surveys* refers to as a *Tutorial paper*:¹

A paper that organizes and introduces work in the field. A tutorial paper assumes its audience is inexperienced; it emphasizes the basic concepts of the field and provides concrete examples that embody these concepts.

Note that they distinguish *Survey papers* from *Tutorial papers* on the basis of the target audience. Your audience is informed (senior Computer Science undergrads) but not expert, particularly in the specialized area you are surveying.

Structure

Most of you can find a survey paper, either in *Computing Surveys* or another journal, in your bibliographic search. These usually are a good model for overall structure. You should start out by clearly stating what your area is and where it fits, both conceptually and in time, into the range of broader areas that surround it, both within CS and within other relevant disciplines.

¹<http://surveys.acm.org/Authors.html>.

Scope

Your biggest challenge is likely to be finding the right scope for the paper. You will have read a variety of papers, often taking you in divergent directions within your area. You should try to find a “natural” range of these—a set of topics that forms a coherent sub-area. Your choice should depend a good deal on the number and quality of sources you have found. It is important for your survey to be clear and complete.

Length

It is very unlikely that you can do an adequate job in fewer than six or eight double-spaced pages. If you have found the right scope it should be hard to cover the overview and range of topics in fewer pages. It is also unlikely that you will need more than ten or twelve pages. If you seem to need more space than that you should probably be cutting down the scope. If you are having difficulty with either of these guidelines, talk with me about it. I can probably give you ideas of how to modify the scope appropriately.

Quotations and Citations

Quotations in this type of paper should primarily be reserved for circumstances in which the point at issue is the actual thoughts of the source of the quote or the specific content of the quote (including some, but not most, technical definitions). You should not include chunks of explanatory material from your sources. Rather tell us what it means and cite the source.

You should provide citations of the sources of each of the concepts and terminology you use. Generally, if a block of material (a paragraph, perhaps) is all based on a single source (or group of sources) a single citation at the first concept will suffice. Your citations should make it possible for the reader to easily find the basis for your explanations. If there are intervening citations of other works, provide the previous citation again when you return to it. If the block of material extends over several

paragraphs, provide enough citations to make that clear. You should make certain that you are using the reference style you have adopted consistently.

Bibliography

Please state clearly at the top of your bibliography section which reference style you are using. You should only include works that you have actually used in writing the paper in the bibliography itself—they should each be the target of at least one citation within the paper. You can include an additional section of related but uncited works, although if you have not actually read the work (or even obtained it yet) then you should clearly state so.

N.B. Each web reference you include needs to be accompanied by an explanation of how you verified the authority of the source.

Topics

There are a wide variety of topics to choose among within the domain of operating systems, here is a sampling:

- Embedded operating systems
- Mobile operating systems
- Large page size support
- Distributed operating systems
- Micro-kernel architectures
- Multi-media operating systems
- Large scale multi-processing operating systems (1000+ cores)

Once you have settled on a topic send me an email message describing it so I can vet it.

Sources

In addition to the ACM and IEEE libraries generally there are some specific sources of papers covering topics in operating systems you will find useful:

- <http://www.acm.org/repository/> - ACM's Computing Research Repository
- <http://http://citeseer.ist.psu.edu> - CiteSeer: The Scientific Literature Digital Library
- <http://liinwww.ira.uka.de/bibliography/> - Computer Science Bibliographies
- <http://www.acm.org/sigops/> - ACM SIGOPS
- <http://www.sosp.org/> - Symposium on Operating Systems Principles (SOSP)
- <http://www.usenix.org/event/bytopic/osdi.html> - USENIX Symposium on Operating Systems Design and Implementation (OSDI)

Assignment History

Most of this document is taken directly from Jim Rogers' description of the Senior Seminar survey paper.