Episode 2. Writing Your Course Paper

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Choose a topic for the course paper

Cloud computing
The use of game theory and economic markets in the analysis of large-scale system behaviour
Security and privacy
Other topics: upon approval of the instructor
What do you write about in a paper?

So what do you choose?

The one that excites you (or at least interests you)
The one that you believe will be trendy in the research literature
The one that may fit the research project you are currently working on
Become an expert in the topic

Read papers (a lot of them) towards this specific research topic
But how?
Start with one paper

that is important, a landmark or a breakthrough in the research direction

that is most recent

that has been cited frequently

that has a long bibliography (possibly an outdated survey itself)
Expanded-ring search

Read the references in the initial paper
Read the papers that cited the initial paper
Identify the faculty member in the author list, read the papers from the same group
Read the papers/theses from the same student author
Read the papers from the same session in the conference the initial paper is published
Do not rely on google

Google is not the best way to find good papers

It’s good for finding research group or authors’ web sites, though

Paper titles may be very misleading
New fancy ways:
scholar.google.com
www.researchindex.org

old fashioned (manual) way is the best

When do I stop?
Stop till the set is self-contained
How do you read a paper?

Read a paper in three passes

**First pass:** read the title and abstract, and perhaps part of the introduction, and skim through the remainder

- Less than an hour
- Record what you have found
- If the paper is found to be relevant, useful, and exciting: *second pass*

**Second pass:** read most of the paper, but skip details that take more time to understand

- 3-5 hours, including experimental results, record what you have found
- If the paper is directly related to your work, *final pass*

**Final pass:** read all details in a paper, and think about the relevance to and difference from your work

- As much time as you need, record what you have found
Record your papers

In .bib format in LaTeX

Bibliography software may be helpful if it generates .bib (such as Bibdesk in Mac OS X)

At least remember the conference/journal, and last name of the most important author

Important to share it with others, or to find it later
Getting new insights

- Find the common theme, objective or problem of all related papers
- Categorize the papers in terms of their differences
- Sort them in terms of maturity level

Usually its related to its date of publication

Not always
More on writing a good course paper

Categorize the papers

Do the papers differ from each other in terms of

Problems to be solved
Techniques used
Assumptions of the system
Nature of the paper (theoretical studies vs. practical protocols)
Is that sufficient?

Once you have categorized and sorted the existing work:

Establish several “tracks” of work (usually identified using references)

Understand the flow of ideas in each “track” of papers

Record everything you have found

You write the course paper out of your discoveries

A paper brings interesting and original insights to the table

A paper can be published (perhaps as a tutorial or book chapter)

A paper may be well cited
Be graphical

Draw in your favourite graphing program or on scratch paper:

The “tree” of ideas, each branch may be a track, and the root of the tree may be the first paper in this direction

You may include your own “tree” (or a few more modest tables and charts) in your paper
Comparisons

Academic papers are not usually comparable to each other, or to benchmarks

Identify those good papers that are

Use charts to visually illustrate the results
Include your own comments and observations

It’s like writing one — and more formal — critique for many papers

Is it realistic? Bring the point of view from the industry

Is the problem solved?

How can the research go further towards this direction?
Attention to detail is important

Once you have become an expert, you write your own

Originality — novel and new insights
Exciting introduction with strong motivations
Completeness of literature survey (“related work”)
An original and exciting paper

You have already known the area of research

Let the reader know—in a plain and simple way—why your paper is better and brings new insights

Excite the reader with very strong motivations to the problem

Usually we do this in the introduction, but it really should be the focus throughout the paper
Grading your course paper: evaluation criteria

Completeness of references

New insights

Clear flow of thoughts

Easy to read and to understand

Include figures as many figures as you wish
Grading your course paper

1 (20%) – Strong Reject: worst paper I have seen

2 (40%) — Weak Reject: the paper has major flaws, but readable

3 (60%) – Accept only if there is room: mediocre paper

4 (80%) – Weak Accept: good but with minor problems

5 (100%) – Strong Accept: Excellent paper