

# Problem Solving in Computer Science: Lecture 19

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## Introduction

The lecture reported in this document started by a comparison of the results obtained by the different groups on the third project of the course. The presentation started in the previous lecture has then been resumed

## 1 Results for Project 3

Each group gave the information reported in Table 1 about their concurrent implementation of Binary Decision Diagrams (BDD).

Experiments were also run during this lecture to check the correctness of the implementations. For this purpose, each group added the same set of BDD's using several threads, then called sequentially the method to change the order on the variables, and compared the size of 6 pairs of BDD's. The correct sizes are shown in Table 2.

The report for this project is due for the following lecture. It should describe the implementation (with more emphasis on its concurrent aspect than on its sequential). The most important part of the report concerns the experimentation. It will have to be described thoroughly, and correspond to a good exploration of the parameters.

## 2 How to Write a Great Research Paper

The other part of the lecture was the continuation of the presentation of the slides by Simon Peyton-Jones[1]. Following is a list of comments on the slides by Prof. Thomas Henzinger:

Group	1	2	4	6	7
Number of functions in 2 min.	3500	1000	40	20000	2000
Machine	2GHz	2GHz	2GHz	?	2.4GHz
Language	Java	Java	Java	Java	Java
Hashing	yes	yes	no	?	yes
Running time for test1000	8s	35s	N/A	?	20s

Table 1: Description of the implementations of each group

compareBDD(...)	Size
1st call	6
2nd call	4
3rd call	4
4th call	5
5th call	4
6th call	6

Table 2: Correct results

- Concerning related work, an in depth comparison with other people's work is better at the end of the paper, when you can use the full terminology.
- Keep one main message in the paper. Make clear what the main contribution is, and defend the main idea with proofs and/or experiments.
- Always think of yourself as writing for the reader. Always have in mind the mental state of the reader, what does he know, etc.
- If you can, a running example that illustrate the different steps in the paper is the best example. Other people reusing an example in their paper is a sign for a good example choice.
- Giving intuition first is key. A good intuition should make all the details obvious for experts of the area.
- Do not write a paper 12 hours before the deadline: it shows. Start writing early, even if the work is in progress. This implies rewriting, which it is a good thing.
- Never make claims that are not refutable (i.e. without evidence).
- Always be positive about other people's work. First, because the reviewer can be one of them. Point out what makes yours better. Emphasize the increment over something already positive. Giving credit to other does not decrease yours. Conversely, do not talk only positively about your work. Talk about the weaknesses, the drawbacks, side conditions...
- Do not include people who did not collaborate. However, do not be afraid to receive an idea that would make them appear as the main author. Being one of 3 authors of a good paper is not a problem. It is just a small advantage to be the sole author, which can come in handy in a job search.
- With an alphabetical sorting of the author, the amount of work of each author is not specified. It is a win-win situation, as it avoids a constant fight over the participation. In any case, stick to the conventions of the community regarding the sorting of the authors.
- A good directory structure to keep track of papers over the years can be the following:

```
PaperTitle/  
  conf08-submission/  
    main.tex      (always use the same standard name  
                  for the main tex file)  
  epfl08-techreport/  
  conf09-submission/ (if rejected before)  
  conf09-proceeding/  
  journal-submission/ (keep the same title,  
                      even if the content changed)  
  
  journal-revision/  
  journal-final/
```

- The more “guinea pigs” who can proof read your paper, the better. Their time is also valuable, so do not give them unfinished drafts, as they will not read the changes. Volunteer for giving feedback, to hope for a return of the favor.

## References

- [1] Simon Peyton-Jones. “How to Write a Great Research Paper”. Invited talk at the Technical University of Vienna, October 2004. Slides available at <http://research.microsoft.com/~simonpj/papers/giving-a-talk/writing-a-paper-slides.pdf>. Video available at [http://www.wit.at/events/peyton-jones/writing\\_a\\_paper.ram](http://www.wit.at/events/peyton-jones/writing_a_paper.ram).