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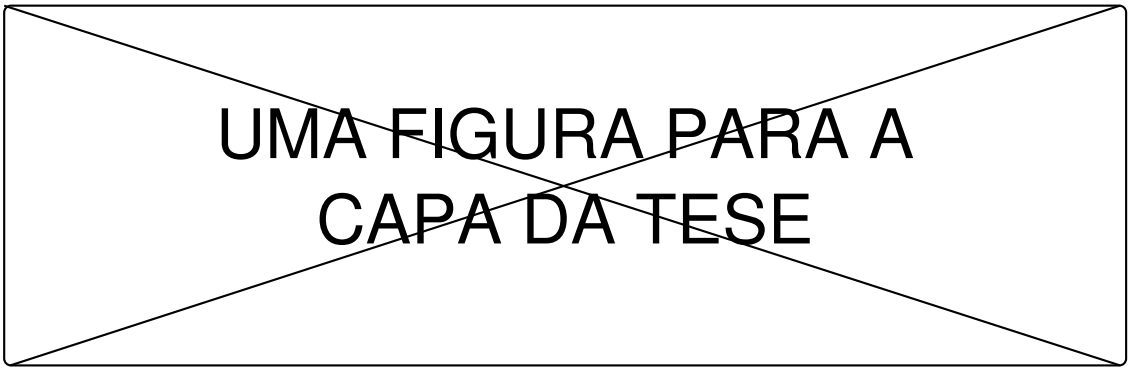

Geração Automática de Testes de Unitários

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Dissertação para obtenção do Grau de Mestre em
Mestrado Bolonha em Engenharia Informática e de Computadores - Alameda

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	Doutor whatever full name 3

Julho de 2007

Acknowledgments

Thanks to the author of this document... If you are not thanking than... you are not thanking!!!

Abstract

Place your abstract in here

Keywords

Put 6 keywords in here

Resumo

Place your abstract in here... in portuguese now

Palavras Chave

Put 6 keywords in here... in portuguese now

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Introduction

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Write your introduction in here. You should start by introducing your thesis in a way that the reader understands where your thesis stand in todays technology and overall knowledge. Consider answering questions such as:

1. what is the background of your work?
2. how do your work fit in todays knowledge? Have you done something that does not exist in the market? What are the differences? What is missing in nowadays products and solutions?
3. is your thesis made as part of a larger project? If so, describe it.
4. is your thesis usefull for some work environment? If so, describe it.

1.1 Motivation

Given the general description provided previously, what is the motivation of your work. Explain why the product or solution developed in the course of your thesis is important.

1.2 Objectives

This section should describe the objectives of your work.

1.3 Main contributions

Do not forget this one. Notice that the objectives is what you have proposed to do. Main contributions are the innovations of your work, or, in other cases, what your work is really good at. If you submitted/published an article in a peer-reviewed conference or journal, do not forget to state here.

1.4 Dissertation outline

Explain how did you organized your thesis.

2

State of the art

Contents

2.1 Summary 4

The second chapter can be the state of the art for the work you are preenting. Sometimes it appears under the previous chapter – Introduction. Though I typically prefer to put it in a separate chapter.

In most cases this chapter addresses some important technology or knowledge. Name this chapter according to the topic.

The introduction should be written assuming that the reader has little or no knowledge of your specific problem. Try to write this chapter in a clear manner that makes it easier for the reader to understand the remaining of your thesis. Append information to this chapter as needed when writting other chapters.

Do not forget to add references to your document. In general, if you are stating something which is not obvious nor it is of common knowledge amongst the scientific or engineering community, you should place a reference. To ease the process of referencing I include a couple of references to my own papers herein. Here are some examples: [4], [5], Ramalho et al. [2], [3, (2.2)].

To help you make references, you can try the commands or consult the manual. The following link can also be a good help: http://merkel.zoneo.net/Latex/natbib.php.

As a side note, remember that you should not include links in your dissertation as I just made. Instead you should put a reference as follows: [1]. Remember that in this case, the reference date is the date you have last consulted the page.

2.1 Summary

It is typical a good ideia to have an ending section summarizing the chapter.

3

The work

Contents

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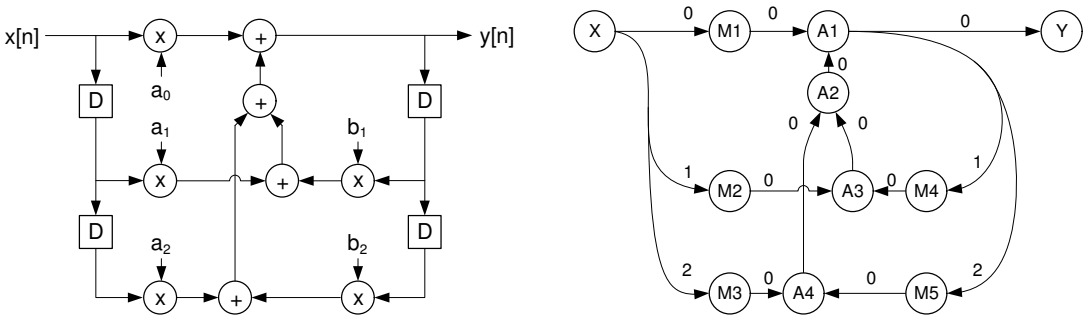

(a) caption for subfigure a

(b) caption for subfigure b

Figure 3.1: A figure example.

IMPORTANT NOTICE: This chapter should not be called "The Work" in the final version of your dissertation. This comment was inserted after some of my faculty collegues noticed that some naive souls call the chapter "The Work". This is by no means appropriate. This and all chapter names should be named accordingly to your thesis.

The third chapter is typically the work you have performed in your thesis. Obviously you should focus on your contributions, but do not forget to write it so that others can understand. Never assume the reader knows the subject (unless it is really obvious). Your work is typically done in a very specific area which others may not know as much. So try to make it as clear as possible; and a self-explaining figure is always a big help.

See the source code to see how to reference each of the subfigures 3.1(a) or 3.1(b), or the main figure 3.1.

There are several ways to define formulas (see the *Short Math Guide for LaTeX* included in the package). The typical method is to use (see source code):

$$a = b + c \tag{3.1}$$

or

$$\begin{aligned} c &= d \cdot e \\ d &= \mathbf{X}^{\mathsf{T}}\mathbf{Y} + \gamma e^{2\pi} \end{aligned} \tag{3.2}$$

or

$$c = d \cdot e \tag{3.3a}$$

$$d = \mathbf{X}^{\mathsf{T}}\mathbf{Y} + \gamma e^{2\pi} \tag{3.3b}$$

where $\mathbf{X}$ and $\mathbf{Y}$ are column vectors (you should always present the meaning of each parameter). The **AMS** packages allow to use the command `\eqref` to cite equations such as (3.2), (3.3a),(3.3b) or (3.3) (see source code).

3.1 Summary

It is typical a good ideia to have an ending section summarizing the chapter.

4

Implementation

Contents

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While the first chapter focus on your ideas the second can focus on the implementation. Though that may change from thesis to thesis.

4.1 Summary

It is typical a good ideia to have an ending section summarizing the chapter.

5

Results

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Table 5.1: Example table

Benchmark: ANN	**#Layers** (1)	**#Nets** (2)	#Nodes* $(3) = 8 \cdot (1) \cdot (2)$	Critical path $(4) = 4 \cdot (1)$	**Latency (T_{iter})** (5)
A1	**3–1501**	1	**24–12008**	**12–6004**	4
A2	501	1	4008	2004	**2–2000**
A3	10	**2–1024**	**160–81920**	40	60†
A4	10	50	4000	40	**80–1200**

Benchmark: FFT	**FFT size**‡ (1)	*#Inputs* $(2) = 2^{(1)}$	*#Nodes** $(3) = 10 \cdot (1) \cdot (2)$	*Critical path* $(4) = 4 \cdot (1)$	**Latency (T_{iter})** (5)
F1	**1–10**	2–1024	**20–102400**	4–40	6–60†
F2	**5**	32	1600	20	**40 – 1500**

Benchmark: Random networks	**#Types** (1)	**#Nodes** (2)	*#Networks* (3)	*Critical path* (4)	**Latency (T_{iter})** (5)
R1	3	10–2000	500	*variable*	(4)
R2	3	50	500	*variable*	$(4) \times [1; \cdots; 20]$

* *Excluding constant nodes.*
† *Value kept proportional to the critical path:* $(5) = (4) * 1.5$.
‡ *A size of* x *corresponds to a* 2^x *point FFT.*
Values in bold indicate the parameter being varied.

5.1 Testing framework

For helping the reader first explain how did you achieve your experimental results. This may include (but is not limited to): the algorithm parameters; the computer or harware platform performing the operations; the comparative algorithms, frameworks or platforms parameters.

For a table example see the file `table_example.tex`. It will print table 5.1. Always remember that, unlike with figures, the caption should appear above the table (not below). Also, always remember that the command `\label` should always appear after the command `\caption`. If you place it before the caption, the reference will not appear correctly.

5.2 The results

There is usual a future work section as well As usual you should finish your thesis with the experimental results.

5.3 Summary

It is typical a good ideia to have an ending section summarizing the chapter.

6

Conclusions

Contents

6.1 Future work 14

Draw your conclusions here and sell your work. It is your job to trasmit to the juri how hard it was to develop the presented work. I Good strategy

6.1 Future work

There is usual a future work section as well

Bibliography

[1] Merkel, S. (2010). http://merkel.zoneo.net/Latex/natbib.php.

[2] Ramalho, R. M. M., Tomás, P., and Sousa, L. (2010). Efficient independent component analysis on a gpu. In 10th IEEE International Conference on Computer and Information Technology, pages 1128–1133. IEEE Computer Society.

[3] Tomás, P. (2009). Neural Code: Tunning and Assessment of Retina Models. PhD thesis, IST, Universidade Técnica de Lisboa, Lisboa, Portugal.

[4] Tomás, P., Ilic, A., and Sousa, L. (2010). Biomedical Diagnostics and Clinical Technologies: Applying High-Performance Cluster and Grid Computing, chapter Massive Data Classification of Neural Responses. IGI Global.

[5] Tomás, P. and Sousa, L. (2010). A quantitative analysis of firing rate estimators: unveiling bias sources. Neurocomputing, (73):2944–2954.

Appendix A

B

Appendix A