

**YOUR TITLE IN ENGLISH
HERE**

FULANO DA SILVA

Thesis presented as partial requirement for
obtaining the degree of Ph. D. in Computer
Science at Pontifical Catholic University of
Rio Grande do Sul.

Advisor: Prof. Beltrano Dias
Co-Advisor: Prof. Ciclano de Farias

**REPLACE THIS PAGE
WITH THE LIBRARY
CATALOG INFORMATION**

**REPLACE THIS PAGE
WITH THE
PRESENTATION TERM**

Dedico este trabalho a meus pais.

“The art of simplicity is a puzzle of complexity.”
(Douglas Horton)

ACKNOWLEDGMENTS

À lorem ipsum, dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod tempor. invidunt ut labore et dolore magna aliquyam

À erat sed, diam voluptua at vero, eos et accusam et justo duo dolores et ea rebum stet clita.

À kasd gubergren, no sea. takimata sanctus est lorem ipsum dolor sit amet lorem ipsum dolor sit amet. consetetur sadipscing elitr sed

À diam nonumy, eirmod tempor, invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at.

SEU TÍTULO EM PORTUGUÊS AQUI

RESUMO

Seu resumo em português aqui. lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at vero eos et accusam et justo duo dolores et ea rebum stet clita. kasd gubergren no sea takimata sanctus est lorem ipsum dolor sit amet lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at.

Palavras-Chave: lorem, ipsum, dolor, sit, amet.

YOUR TITLE IN ENGLISH HERE

ABSTRACT

Your abstract in English here. lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at vero eos et accusam et justo duo dolores et ea rebum stet clita kasd gubergren no sea takimata sanctus est lorem ipsum dolor sit amet lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at

Keywords: lorem, ipsum, dolor, sit, amet.

LIST OF FIGURES

Figure 1.1 – This is a figure with a very long caption which looks ugly in the corresponding list of figures. Fortunately, there is an optional parameter for a shorter replacement of this monstrosity	31
Figure 2.1 – This is another figure	36

LIST OF TABLES

Table 2.1 – This is a table	35
Table 2.2 – Note que a legenda da tabela fica na parte de cima	37

LIST OF ACRONYMS

ABC – Associação Brasileira de Computadores

IJK – lorem ipsum dolor sit

XYZ – lorem ipsum dolor sit

LIST OF ABBREVIATIONS

Abrev. – Abreviatura

Inform. – Informática

LIST OF SYMBOLS

Hz – Hertz	31
π – Constante com valor aproximado de 3.1415926	31

LIST OF ALGORITHMS

1	An algorithm with an optional shorter caption	32
---	---	----

CONTENTS

1	INTRODUÇÃO	31
1.1	PRIMEIRA SEÇÃO	32
1.1.1	SUBSEÇÃO	32
2	ANOTHER CHAPTER	35
2.1	ANOTHER SECTION	35
2.1.1	ANOTHER SUBSECTION	36
	REFERENCES	39
	APPENDIX A – Meu primeiro apêndice	41
	APPENDIX B – My second appendix	43
	ATTACHMENT A – Meu primeiro anexo	45
	ATTACHMENT B – My second attachment	47

1. INTRODUÇÃO

lorem ipsum dolor sit amet Capítulo 1 consetetur sadipscing elitr sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at vero eos et accusam et justo duo dolores et ea rebum stet clita kasd gubergren no sea takimata sanctus est lorem ipsum dolor sit amet lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod. Ver Figura 1.1.

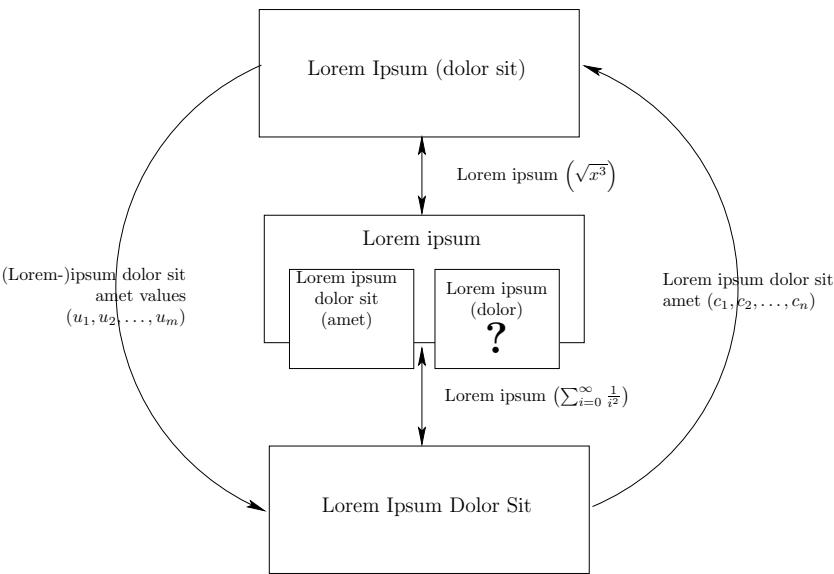


Figure 1.1 – This is a figure with a very long caption which looks ugly in the corresponding list of figures. Fortunately, there is an optional parameter for a shorter replacement of this monstrosity

tempor invidunt [Ski98] ut labore et dolore magna aliquyam erat sed diam voluptua at vero eos et accusam et justo duo dolores et ea rebum stet clita kasd gubergren no sea takimata sanctus est lorem ipsum dolor sit amet lorem ipsum [NA07]. O Algoritmo 1 mostra este processo.

tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at vero eos et accusam et justo duo dolores et ea rebum [CLRS01].

dolor sit [Ben07] amet consetetur sadipscing elitr sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at vero [Atk04].

- 1. lorem
- 2. ipsum
- 3. dolor
- 4. sit
- 5. amet
- 6. consetetur

Algorithm 1 This is an algorithm with a very long caption. However, this time we will use the shorter version.

```

1: function  $\sigma(i, j)$ 
2: {table lorem ipsum dolor consetetur sadipscing elitr sed  $(i, j)$ }
3: if  $table[i, j].memoized$  then
4:   return  $table[i, j].error$ 
5: end if
6:  $minerror \leftarrow \infty$ 
7:  $bestt \leftarrow nil$ 
8: for each template  $t$  in  $T$  do
9:    $error \leftarrow allocate(t, i, j)$ 
10:  if  $error < minerror$  then
11:     $minerror \leftarrow error$ 
12:     $bestt \leftarrow t$ 
13:  end if
14: end for
15:  $table[i, j].memoized \leftarrow true$ 
16:  $table[i, j].template \leftarrow bestt$ 
17:  $table[i, j].error \leftarrow minerror$ 
18: return  $minerror$ 

```

1.1 Primeira seção

lorem ipsum dolor sit $x \leq 2$ amet consetetur sadipscing elitr sed diam nonumy eirmod
 Seção 1.1 tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at vero eos
 et accusam et justo duo dolores et ea rebum stet clita. [Oli08]

$$\int_0^{\infty} x^2 + \frac{\pi}{\sum_{i=0}^n \frac{1}{i^2}} \quad (1.1)$$

kasd gubergren no sea Equação (1.1) takimata sanctus est lorem ipsum dolor sit amet
 lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod. [PCC⁺11]

amet lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod. [Pic08]

1.1.1 Subseção

dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod tempor invidunt ut
 labore et dolore magna aliquyam erat sed diam voluptua at vero.

lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod tempor
 invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at vero eos et accusam et justo
 duo dolores et ea rebum stet clita kasd gubergren no sea takimata sanctus est lorem ipsum dolor
 sit amet lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod.

tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at vero eos et accusam et justo duo dolores et ea rebum stet clita kasd gubergren no sea takimata sanctus est lorem ipsum dolor sit amet lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at vero:

- lorem
- ipsum
- dolor
- sit
- amet
- consetetur

Subsubsub

lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at vero eos et accusam et justo duo dolores et ea rebum stet clita. [Gol09]

$$L(i, j, w, h) = \begin{cases} E(i, w, h) & i = j \\ \min \left(\min_{k=i}^{j-1} \{\heartsuit(i, k, j, w, h)\}, \min_{k=i}^{j-1} \{\spadesuit(i, k, j, w, h)\} \right) & i < j. \end{cases} \quad (1.2)$$

lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at vero eos et accusam et justo duo dolores et ea rebum stet clita kasd gubergren no sea takimata sanctus est lorem ipsum dolor sit amet lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at vero eos et accusam et justo duo dolores et ea rebum stet clita kasd gubergren no sea takimata sanctus est lorem ipsum dolor sit amet lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at vero eos et accusam et justo duo dolores et ea rebum stet clita kasd gubergren no sea takimata sanctus est lorem ipsum dolor sit amet.

De acordo com Esquedo (2011, p. 19):

ut wisi enim ad minim veniam quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio

duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit

praesent luptatum zzril delenit augue dui dolore te feugait nulla facilisi lorem ipsum dolor sit amet consectetur adipiscing elit sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.

ut wisi enim ad minim veniam quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat dui autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue dui dolore te feugait nulla facilisi.

nam liber tempor cum soluta nobis eleifend option congue nihil imperdiet doming id quod mazim placerat facer possim assum lorem ipsum dolor sit amet consectetur adipiscing elit sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat ut wisi enim ad minim veniam quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat.

2. ANOTHER CHAPTER

lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod tempor invidunt [Pla81] ut labore et dolore magna aliquyam erat sed diam voluptua at vero eos et accusam et justo duo dolores et ea rebum stet clita kasd gubergren no sea takimata sanctus est lorem ipsum dolor sit amet lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at vero eos et accusam et justo duo dolores et ea rebum stet clita kasd gubergren no sea takimata sanctus est lorem ipsum dolor sit amet lorem ipsum. A Tabela 2.1 mostra o cronograma. [Wik09]

Table 2.1 – This is a table

Atividade	Ano/Semestre			
	2011/II	2012/I	2012/II	2013/I
1				
2	✓	✓	✓	
3	✓	✓	✓	
4	✓	✓	✓	×
5				
6				
7	×			
8		×		
9		×	×	
10	×	×	×	
11	×	×	×	×

2.1 Another section

Lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at vero eos et accusam et justo duo dolores et ea rebum stet clita kasd gubergren no sea takimata sanctus est lorem ipsum dolor sit amet lorem. [Lin05]

Lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at vero eos et accusam et justo duo dolores et ea rebum stet clita kasd gubergren no sea takimata sanctus est lorem ipsum dolor sit amet lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at vero eos et accusam et justo duo dolores et ea rebum stet clita kasd gubergren no sea takimata sanctus est lorem ipsum dolor sit amet lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at vero eos et accusam et justo

duo dolores et ea rebum stet clita kasd gubergren no sea takimata sanctus est lorem ipsum dolor sit amet. Figura 2.1.

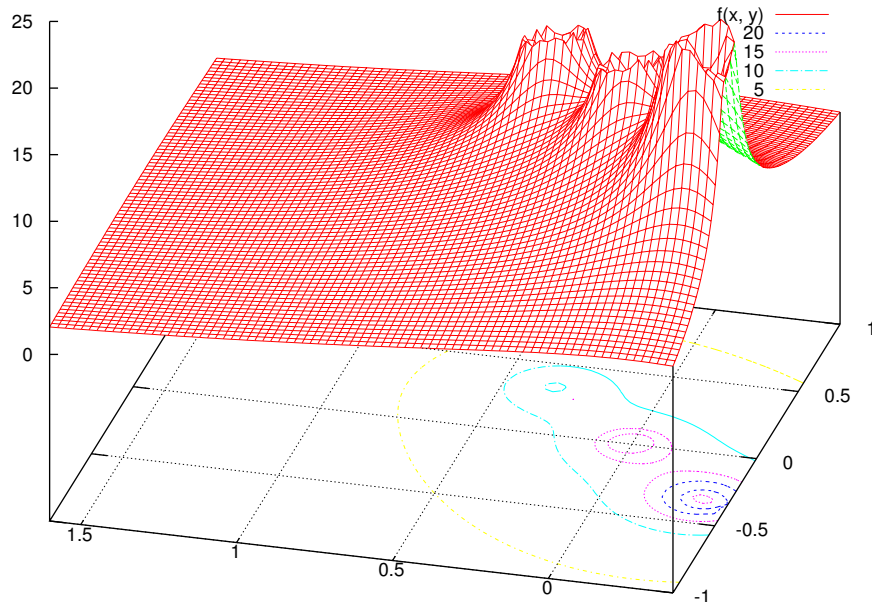


Figure 2.1 – This is another figure

Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue dui dolore te feugait nulla facilisi lorem ipsum dolor sit amet consectetur adipiscing elit sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.

Ut wisi enim ad minim veniam quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat dui autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue dui dolore te feugait nulla facilisi.

Nam liber tempor cum soluta nobis eleifend option congue nihil imperdiet doming id quod mazim placerat facer possim assum lorem ipsum dolor sit amet consectetur adipiscing elit sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat ut wisi enim ad minim veniam quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat.

2.1.1 Another subsection

lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam. [CGMV98]

Another subsubsection

lorem ipsum dolor sit amet consetetur sadipscing elitr sed diam nonumy. A seguir, a Tabela 2.2 mostra algo mais simples.

Table 2.2 – Note que a legenda da tabela fica na parte de cima

lorem	ipsum	dolor
sit	amet	consetetur
sadipscing	elit	sed
diam	nonumy	eirmod
tempor	invidunt	ut
labore	et	dolore
magna	aliquyam	erat
sed	diam	voluptua
at	vero	eos

Lorem ipsum dolor sit amet consetetur sadipscing elit sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at vero eos et accusam et justo duo dolores et ea rebum stet clita kasd gubergren no sea takimata sanctus est lorem ipsum dolor sit amet lorem ipsum dolor sit amet consetetur sadipscing elit sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at.

Lorem ipsum dolor sit amet consetetur sadipscing elit sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at vero eos et accusam et justo duo dolores et ea rebum stet clita kasd gubergren no sea takimata sanctus est lorem ipsum dolor sit amet lorem ipsum dolor sit amet consetetur sadipscing elit sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat sed diam voluptua at.

BIBLIOGRAPHY

- [Atk04] Atkins, B. C. "Adaptive photo collection page layout". In: International Conference on Image Processing, 2004, pp. 2897–2900.
- [Ben07] Bentley, J. "The most beautiful code I never wrote". In: *Beautiful Code: Leading Programmers Explain How They Think*, Oram, A.; Wilson, G. (Editors), Sebastopol, CA: O'Reilly & Associates, Inc., 2007, chap. 3, pp. 29–40.
- [CGMV98] Coffman, E.; Galambos, J.; Martello, S.; Vigo, D. "Bin packing approximation algorithms: Combinatorial analysis". Capturado em: <http://citeseer.ist.psu.edu/coffman98bin.html>, Dez 2007.
- [CLRS01] Cormen, T. H.; Leiserson, C. E.; Rivest, R. L.; Stein, C. "Introduction to Algorithms, Second Edition". Cambridge, MA: The MIT Press, 2001, 1184p.
- [Gol09] Goldenberg, E. "Automatic layout of variable-content print data", Master's Thesis, School of Cognitive & Computing Sciences, University of Sussex, Brighton, UK, 2009, 41p.
- [Lin05] Lin, X. "Active layout engine: Algorithms and applications in variable data printing", Technical Report, Hewlett & Packard Laboratories, Palo Alto, CA, USA, 2005, 33p.
- [NA07] Nagamochi, H.; Abe, Y. "An approximation algorithm for dissecting a rectangle into rectangles with specified areas", *Discrete Appl. Math.*, vol. 155–4, 2007, pp. 523–537.
- [Oli08] de Oliveira, J. B. S. "Two algorithms for automatic document page layout". In: Proceedings of the eighth ACM symposium on Document engineering, 2008, pp. 141–149.
- [PCC⁺11] Piccoli, R. F. B.; Chamun, R.; Cogo, N. C.; de Oliveira, J. B. S.; Manssour, I. H. "A novel physics-based interaction model for free document layout". In: Proceedings of the 11th ACM symposium on Document engineering, 2011, pp. 153–162.
- [Pic08] Piccoli, R. F. B. "Um algoritmo determinístico para adaptação automática de documentos de conteúdo variável", Master's Thesis, Faculdade de Informática – PUCRS, Porto Alegre, RS, Brasil, 2008, 104p.
- [Pla81] Plass, M. F. "Optimal pagination techniques for automatic typesetting systems", Ph.D. Thesis, Stanford University, Stanford, CA, USA, 1981, 80p.
- [Ski98] Skiena, S. S. "The algorithm design manual". New York, NY, USA: Springer-Verlag New York, Inc., 1998, chap. 6, pp. 139–161.
- [Wik09] Wikipedia. "Wikipedia:featured pictures — Wikipedia, the free encyclopedia". Capturado em: http://en.wikipedia.org/wiki/Featured_pictures, Nov 2009.

APPENDIX A – MEU PRIMEIRO APÊNDICE

APPENDIX B – MY SECOND APPENDIX

ATTACHMENT A – Meu primeiro anexo

ATTACHMENT B – My second attachment