Aplicação de Processamento Paralelo na Solução do Problema da Soma dos Subconjuntos

Fernando Concatto[1]

[1]Bacharelado em Ciência da Computação – Universidade do Vale do Itajaí (UNIVALI)
Caixa Postal 360 – CEP 88302-202 – Itajaí – SC – Brasil

fernandoconcatto@edu.univali.br

Resumo. *O Problema da Soma dos Subconjuntos é um problema computacionalmente difícil, demandando tempo exponencial para ser resolvido. Este trabalho buscou aplicar técnicas de processamento paralelo na busca de soluções para o problema, com a intenção de identificar o ganho de desempenho por thread utilizada. //TODO finalizar*

1. Introdução

Um problema computacional pode ser interpretado como uma questão a ser respondida, geralmente possuindo *parâmetros*, ou *variáveis*. O problema deve ser definido a partir da descrição de todos os seus parâmetros e do estabelecimento de quais propriedades a resposta ou *solução* deve ser composta para ser considerada uma resposta válida para o problema. Uma *instância* do problema é obtida ao atribuir valores a todos os seus parâmetros [Garey and Johnson 1979].

Algoritmos são procedimentos passo-a-passo que resolvem problemas. Dado um problema, um algoritmo *resolve* tal problema se ele sempre produz uma solução para qualquer uma de suas instâncias. Um objetivo bastante comum na busca de soluções para um problema é o desenvolvimento de um algoritmo *eficiente*, que resolve o problema no menor tempo possível. O campo da Teoria da Complexidade de Algoritmos busca estudar e classificar os algoritmos, identificando a quantidade de recursos computacionais necessária para executar um algoritmo. Geralmente, a complexidade de um algoritmo é definida pela quantidade de operações básicas que o mesmo demanda para resolver o problema. Esta quantidade é usualmente estabelecida em termos do tamanho da instância do problema [Arora and Barak 2009, Garey and Johnson 1979].

2. First Page

The first page must display the paper title, the name and address of the authors, the abstract in English and "resumo" in Portuguese ("resumos" are required only for papers written in Portuguese). The title must be centered over the whole page, in 16 point boldface font and with 12 points of space before itself. Author names must be centered in 12 point font, bold, all of them disposed in the same line, separated by commas and with 12 points of space after the title. Addresses must be centered in 12 point font, also with 12 points of space after the authors' names. E-mail addresses should be written using font Courier New, 10 point nominal size, with 6 points of space before and 6 points of space after.

The abstract and "resumo" (if is the case) must be in 12 point Times font, indented 0.8cm on both sides. The word **Abstract** and **Resumo**, should be written in boldface and must precede the text.

3. CD-ROMs and Printed Proceedings

In some conferences, the papers are published on CD-ROM while only the abstract is published in the printed Proceedings. In this case, authors are invited to prepare two final versions of the paper. One, complete, to be published on the CD and the other, containing only the first page, with abstract and "resumo" (for papers in Portuguese).

4. Sections and Paragraphs

Section titles must be in boldface, 13pt, flush left. There should be an extra 12 pt of space before each title. Section numbering is optional. The first paragraph of each section should not be indented, while the first lines of subsequent paragraphs should be indented by 1.27 cm.

4.1. Subsections

The subsection titles must be in boldface, 12pt, flush left.

5. Figures and Captions

Figure and table captions should be centered if less than one line (Figure 1), otherwise justified and indented by 0.8cm on both margins, as shown in Figure 2. The caption font must be Helvetica, 10 point, boldface, with 6 points of space before and after each caption.

Figura 1. A typical figure

In tables, try to avoid the use of colored or shaded backgrounds, and avoid thick, doubled, or unnecessary framing lines. When reporting empirical data, do not use more decimal digits than warranted by their precision and reproducibility. Table caption must be placed before the table (see Table 1) and the font used must also be Helvetica, 10 point, boldface, with 6 points of space before and after each caption.

6. Images

All images and illustrations should be in black-and-white, or gray tones, excepting for the papers that will be electronically available (on CD-ROMs, internet, etc.). The image

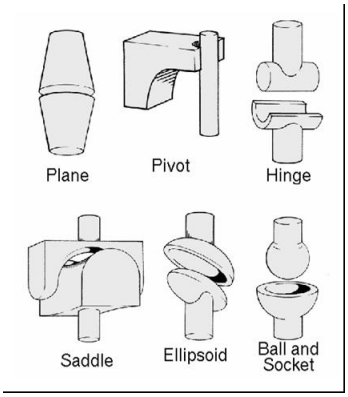

Figura 2. This figure is an example of a figure caption taking more than one line and justified considering margins mentioned in Section 5.

Tabela 1. Variables to be considered on the evaluation of interaction techniques

	Value 1	Value 2
Case 1	1.0 ± 0.1	$1.75 \times 10^{-5} \pm 5 \times 10^{-7}$
Case 2	0.003(1)	100.0

resolution on paper should be about 600 dpi for black-and-white images, and 150-300 dpi for grayscale images. Do not include images with excessive resolution, as they may take hours to print, without any visible difference in the result.

7. References

Bibliographic references must be unambiguous and uniform. We recommend giving the author names references in brackets, e.g. [Knuth 1984], [Boulic and Renault 1991], and [Smith and Jones 1999].

The references must be listed using 12 point font size, with 6 points of space before each reference. The first line of each reference should not be indented, while the subsequent should be indented by 0.5 cm.

Referências

Arora, S. and Barak, B. (2009). Computational Complexity: A Modern Approach. *Annals of Physics*, (January):579.

Boulic, R. and Renault, O. (1991). 3d hierarchies for animation. In Magnenat-Thalmann, N. and Thalmann, D., editors, *New Trends in Animation and Visualization*. John Wiley & Sons ltd.

Garey, M. R. and Johnson, D. S. (1979). Computers and Intractability: A Guide to the Theory of NP-Completeness (Series of Books in the Mathematical Sciences). *Computers and Intractability*, page 340.

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