Sample title page for the research report:

The VLSI Approach to Computational Complexity[*]

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Research Paper for ECS-40534
Fault-Tolerant Design of Digital Systems
Fall 200X

ABSTRACT

The rapid advances of VLSI and the trend toward the decrease of the geometrical feature size, through the submicrom and the subnano to the subpico, and beyond, have dramatically reduced the cost of VLSI circuitry. As a result, many traditionally unsolvable problems can now (or will in the near future) be easily implemented using VLSI technology. In recent years, the cost of VLSI components has decreased exponentially. Hence, the applications of an exponential number of processors does not cause any cost increase, and the application of only a polynomial number of processors leads to substantial cost saving. A system having an exponential number of processors will be able to solve many NP-complete problems in polynomial time. Furthermore, plotting processor costs as a function of time reveals that the const of VLSI processors will soon become negative. Undoubtedly, this rend will create a competition for solving the same problem with more processors. We conclude that with the rapid advances of VLSI technology anything is possible and that the worth of a research paper is directly proportional to the number of processors in the system being proposed.

KEYWORDS: Computational complexity, Concurrency, Massive parallelism, Negative-const elements, NP-complete problems, Parallel Processing, VLSI[*]

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[*] Copied, with some modifications, from a piece of the same title written by Danny Cohen in VLSI Systems and Computations, Computer Science Press, 1981, pp. 124-125.

State University of New York – New Paltz
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CSE-40534 – Fault-Tolerant Design of Digital Systems

Research Report Format

Page 1.
Title page should contain all of the following (see the sample title page):
Title of the paper: max 20 word (make it short, yet descriptive)
Name of author
Phone number and email address for quick contact
"Research Paper for ECS-40534"
"Fault-Tolerant Design of Digital Systems"
"Fall 200X"
"ABSTRACT"
Body of abstract (summary of important contributions and/or result)
"Keywords:" followed by 5 to 10 keywords and key phrases describing the content

Pages 2-k.
"1. INTRODUCTION"
Give background on the topic (provide context and include references on prior work), justify your interest in the topic, prepare the reader for what he/she will find in later sections, and summarize (in a few sentences) your main findings and contributions. This section should be kept relatively short. If it exceeds, say, 3 pages, you many wish to break it up by including an additional title such as "2. REVIEW OF PRIOR WORK" or "2. NOTABLE APPLICATIONS OF …" for the section.

Pages (k+1) -l.
Body of the paper should consist of sections dealing with various aspects of the investigation (e.g., theory, applications, design issues, tradeoffs, evaluation, experiments, comparisons with other methods or approaches) as appropriate. Don't be afraid to compare, criticize, and generally leave your mark on the paper. There is no general rule, except that subdivisions must be coherent and of reasonable length. Avoid the extremes of single-paragraph and 10-page sections. For very long sections, consider dividing up or moving some details to an appendix. Reasonable length: 10-20 pages.

Pages (l+1) - m.
"5. CONCLUSION"
Give a brief summary (in a few sentences) of what has been presented and accomplished. Emphasize the advantages and disadvantages of the proposed approach, technique, or design. Discuss possible extension of the work and any interesting / open problem that you can think of. This section should be fairly short.

Pages (m+1) - n
"REFERENCES"
Provide complete bibliographic information for each reference (see any paper in *IEEE Transaction on Computers* for examples). As a rule of thumb, citing 5-20 references is reasonable in a research paper; review or survey-type papers tend to have much more

extensive bibliographies and original contributions breaking new ground may have fewer references. However, do not take this rule too seriously.

Figures/Tables   If possible, include each figure or table close to where it is first referenced in the text. Each figure or table must have a number and a descriptive caption. Elements of figures (boxes, curves, axes) and tables (columns and/or rows) must be clearly labeled, with units shown where appropriate.

Special Notes   I will keep all submitted papers and will return to you any comments on a separate sheet. Please make a copy of the paper for yourself before submitting. Plagiarism, in any form (outright copying for failure to properly credit ideas) will not be tolerated and will result in a failing grade.