Title of Project
TJHSST Senior Research Project Proposal
Computer Systems Lab 2009-2010

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October 5, 2009

Abstract

An abstract is a brief summarizing statement, usually between 75 and 150 words long. It gives the reader a synopsis of the problem, method, results, and conclusions of your document. The abstract takes the form of a paragraph, usually with 5-10 sentences. It appears atthe top of a journal article, just under the title, or on the page following the title page of a report. In the latter instance, the abstract appears on a page by itself.

Keywords: genetic algorithms, algorithmic composition

1 Introduction

Problem Statement and Purpose The introduction to your document should lead your readers into your paper and give them an idea of what to expect (also see Forecasting). It should not be simply a restatement of the abstract even though it will contain some of the same material.
These two backslashes in the LaTeX .tex code generate a newline.

1.1 What is research

Research tries to add something new to the body of knowledge in a particular field and seeks to find answers to a problem. This involves a systematic

and intensive study in which the primary aim is a fuller knowledge or understanding of the subject under study.

This text is inserted to demonstrate how to start a new paragraph. See the LaTeX .tex code.

2 Background

Provide enough information in a technical document to allow your reader to understand the specific problem being addressed and to provide a context for your own document. This background information may include (1) a historical summary of the problem being addressed; (2) a briefsummary of previous work on the topic, including, if appropriate, relevant theory; and (3) the specific reasons the document is being written.

Types of research include:

1. Applied Research
    - Research which studies the relationship and/or applicability of theories or principles to the solution of a problem for the purpose of producing results that may be applied to real world situations.
    - Research used to answer a specific question, determine why something failed or succeeded, and solve a specific, pragmatic problem.
2. Operations Research and Modeling
    - Application of mathematical models to study or plan a process designed to determine the most efficient way to do something. Often used to analyze complex real-world situations.
3. Primary (or original) research and Modeling:
    - Original research in which new data is actually collected from the natural world (via experiments, naturalistic observation, case studies, etc.) conducted to answer a research problem. Secondary research draws information from books, publications, or expert opinion.
    - Primary research requires: 1. knowing what has already been discovered on a subject (background) and 2. formulating a method to find out what you want to know.

4. Qualitative research

    - Concerned with understanding the processes which underlie various behavioural patterns through loosely structured, mainly verbal data rather than measurements. Analysis is interpretive, subjective, impressionistic and diagnostic.
    - An exploratory study, to explore an unknown sector, identify the main dimensions of a problem, draw assumptions, understand motivations. Or an operational study based on in-depth analysis of interviewee responses.

5. Quantitative research

    - Examines phenomenon through the numerical, projectable representations of observations and uses statistics to analyze results in an attempt to establish general laws and principles.
    - The numerical representation and manipulation of observations for the purpose of describing and explaining the phenomena that those observations reflect. Used in a wide variety of natural and social sciences, including physics.

6. Research and development

    - Aimed at discovering new knowledge in hopes that such activity will be useful in developing or creating research findings into new and improved prototypes, processes or services.

7. Secondary research

    - Finding out what others have discovered through original research and trying to reconcile conflicting vewpoints or conclusions, find new relationships between normally non-related research, and arrive at your own conclusion based on others' work.

8. Opensource development; Open Learning and research labs MIT

3 Goal

Describe the goal(s) of your project.

4 Design Criteria

Include design and decision criteria in feasibility reports, recommendation reports, proposals,and other documents that are concerned with the possible design of a product or, in some cases, a future course of action.

Design criteria are the explicit goals that a project must achieve in order to be successful.

5 Procedure

Describe in detail experiments or other methods of collecting data. The purpose of the procedure section is to allow a reader of the report to reproduce the experiment or data collection process. You should show that you clearly understand your task, have a logical time plan, say, by the research, design, programming, sub-testing and testing phases of your project.

6 Scope

Describe the scope of your project. Include a work plan, sometimes called a project plan. Preliminary project plans are also sometimes appropriate for feasibility. In addition, most progress reports refer to all or part of previously existing project plans.

A project plan outlines in specific detail how a project will be conducted, who will work on which part, and when and in what order each part will be accomplished.

7 Expected Results

What results do you expect to obtain from your project? How will the final results and analyses be presented (including visuals such as graphs and charts)?

What contributions can these results give to future researchers (next year's seniors who would like to do a similar project, for example)?

What time frame do you think you will need to accomplish the identified tasks and subtasks?

References

[1] R. Rosenfeld, "Biological Modeling Language", http://www.cs.cmu.edu/~blmt/, 2005.

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[4] Helmut Kopka and Patrick W. Daly, A Guide to LATEX, Addison-Wesley Publishing Co., Inc., 1993.

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