TITLE OF YOUR DISSERTATION IN HERE

By

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A Dissertation submitted to the Graduate Faculty of the

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Doctor of Philosophy

Computer Science

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This dissertation for Doctor of Philosophy degree by

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ABSTRACT

Abstract goes here. A thesis or dissertation is a document submitted in support of candidature for an academic degree or professional qualification presenting the author's research and findings. In some contexts, the word thesis or a cognate is used for part of a bachelor's or master's course, while dissertation is normally applied to a doctorate, while in other contexts, the reverse is true. The term graduate thesis is sometimes used to refer to both master's theses and doctoral dissertations.

DEDICATION

Dedication goes here. This dissertation is dedicated to my family.

ACKNOWLEDGMENTS

Acknowledgments goes here. First, thanks and praise be to God (Allah)

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INTRODUCTION

1.1 Overview

Dissertations normally report on a research project or study, or an extended analysis of a topic. The structure of a thesis or dissertation explains the purpose, the previous research literature which impinges on the topic of the study, the methods used and the findings of the project. Most world universities use a multiple chapter format : a) an introduction, which introduces the research topic, the methodology, as well as its scope and significance; b) a literature review, reviewing relevant literature and showing how this has informed the research issue; c) a methodology chapter, explaining how the research has been designed and why the research methods/population/data collection and analysis being used have been chosen; d) a findings chapter, outlining the findings of the research itself; e) an analysis and discussion chapter, analysing the findings and discussing them in the context of the literature review. When cite you should do [1].

In some U.S. doctoral programs, the ”dissertation” can take up the major part of the student’s total time spent (along with two or three years of classes), and may take years of

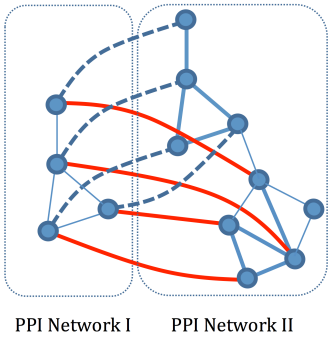

Figure 1.1: The required complexity or quality of research of a thesis or dissertation can vary by country, university, or program, and the required minimum study period may thus vary significantly in duration.This figure is adapted from [2].

full-time work to complete. At most universities, dissertation is the term for the required submission for the doctorate, and thesis refers only to the master's degree requirement.

Finally, Chapter **??** introduce TTT.

REFERENCES

[1] W. P. Adams and T. A. Johnson, "Improved linear programming-based lower bounds for the quadratic assignment problem," *DIMACS Series in Discrete Mathematics and Theoretical Computer Science*, vol. 16, pp. 43–75, 1994.

[2] A. E. Aladağ and C. Erten, "Spinal: scalable protein interaction network alignment," *Bioinformatics*, vol. 29, no. 7, pp. 917–924, 2013.

Appendix

APPENDIX TITLE

Here we provide a table listing links to available aligners surveyed in this dissertation, Table 1. In addition, this appendix shows the datasets and evaluation metrics used by each aligner surveyed, Table 2. We exclude the evaluation metrics used exclusively by multiple global aligners as they are outside the scope of this survey.

Finally, Table 3 reports the particular settings and parameters we used in computing these alignments. We made every effort to use the settings recommended in the documentation for these aligners, or the settings reported to be best in the original publication of these aligners. When no best settings were reported, we used the settings given in examples in the documentation.

Table 1: Links to Available Aligners.

Aligner	Link
IsoRank	http://groups.csail.mit.edu/cb/mna/
GRAAL	http://bio-nets.doc.ic.ac.uk/GRAAL_suppl_inf/
MI-GRAAL	http://bio-nets.doc.ic.ac.uk/MI-GRAAL/
C-GRAAL	http://bio-nets.doc.ic.ac.uk/C-GRAAL/
NETAL	http://bioinf.modares.ac.ir/software/netal/
PINALOG	http://www.sbg.bio.ic.ac.uk/~pinalog/
NetCoffee	http://code.google.com/p/netcoffee/
SPINAL	http://code.google.com/p/spinal/
GHOST	https://github.com/Kingsford-Group/ghost2
PISwap	http://groups.csail.mit.edu/cb/piswap/webserver/
SMETANA	http://www.ece.tamu.edu/~bjyoon/SMETANA/
NATALIE 2.0	http://www.mi.fu-berlin.de/w/LiSA/Natalie
MAGNA	http://www3.nd.edu/~cone/NA/MAGNA.zip
Optnetalign	http://github.com/crclark/optnetaligncpp/
L-GRAAL	http://bio-nets.doc.ic.ac.uk/L-GRAAL/

Table 2: Summary of Datasets and Evaluation Metrics Used by Each Aligner

Aligner	Datasets	Metric
IsoRank	IsoBase	GO
GRAAL Family	IntAct with noise	EC, LCCS, GO
GHOST	IntAct	EC, ICS, GO
Græmlin	DIP and IntAct	GO
PINALOG	IntAct	GO
NATALIE	IntAct, MIPS, HPRD, DIP	EC, GO
NATALIE2.0	STRING	EC, GO
SMETANA	IsoBase and NAPAbench	GO
BEAMS	IsoBase and NAPAbench	GO

Table 3: Summary of Settings and Parameters Used to Produce Results

Aligner	**Settings and Parameters Used**
NETAL	-a 0.0001 -b 0 -c 0.5 -i 2
PINALOG	No user-provided parameters
SPINAL mode 1 and 2	alpha = 0.7
GRAAL	alpha = 0.8
C-GRAAL	No user-provided parameters
MI-GRAAL	-p 23
GHOST	For the extractor, k = 3, except for *H. Sapiens*, where the extractor ran out of memory, in which case we used k = 2. For the aligner, matcher: linear, nneighbors: all, beta: 1.0, ratio:8.0, searchiter: 10.
NATALIE	-if1 5 -if2 5 -of 9
IsoRank	–K 30 –thresh 1e-4 –alpha 0.9 –maxveclen 1000000