PhD Proposal Guidelines

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1   Introduction

A PhD proposal is a document used to inform your PhD committee and any other members of the academic community about your planned dissertation research. The goals of the proposal are to:

1. Convince your committee that you are aware of the history and current forefront of research and knowledge, a.k.a. the State-of-the-Art, in your chosen field.

2. Describe important research topics and/or concepts in your chosen field for which there is a signficant lack of knowledge.

3. Describe a plausible approach to significantly advancing the state of knowledge of those topics and/or concepts. The approach can lead to defining new concepts.

4. Describe the evaluation methods that will be used to understand your contribution to the state of knowledge in your chosen field.

Briefly put, the proposal should convince the committee that you are aware of the State-of-the-Art, that you have identified important problems that need to be solved, and that your proposed technical approach is a reasonable approach to contributing to the State-of-the-Art.

This document describes a suggested outline of a proposal that addresses these goals.

2 Proposal Outline

The conceptual chapters in the proposal are discussed here but not the parts of the proposal that are self-evident (e.g. List of Figures, References, etc.).

2.1 Introduction

The Introduction should be a very short chapter that gives a high-level description of the research focus and questions. It should also briefly describe the remaining chapters. The introduction should motivate your area of research and help convince your committee it is an important area of study.

2.2 Literature Review

The literature review should be a thorough description of research relevant to your research focus and questions. It should be written in a way that satisfies items 1 and 2 in the Introduction. It should not only consist of a sequence of descriptions of papers; a coherent synthesis of the concepts in the literature should be be part of this chapter. A common set of notation should be used when describing material from multiple sources.

You can end the literature review with a summary of the gaps in the literature that relate to your research focus and a high level summary of how your approach will address these gaps.

2.3 Conceptual Approach

This chapter should precisely describe the conceptual approach that you are proposing. You should focus on using mathematical notation, pseudo-code, diagrams, and other writing devices to ensure precision and conceptual understanding.

2.4 Experimental Design

This chapter should precisely describe the proposed methods for evaluating your algorithms, the proposed data sets, and the algorithms used to conduct the experiments.

2.5 Preliminary Results

This chapter should precisely describe preliminary experiments that provide evidence that your proposed approach has a reasonable chance of making a significant contribution to the State-of-the-Art.

2.6 Tasks

This chapter should describe what activities are required to achieve the goals of the proposal. It can be in tabular form and can be thought of as an informal Gantt chart. A rough timeline should be given with approximate completion dates for the activities. You may have already completed some activities. This table is a representation of a soft contract between you and your committee

with regards to determining whether you have conducted enough research and that your research has produced some positive (but not necessarily all) contributions.