

# PH.D. RESEARCH SYNOPSIS

on

## LATEX TEMPLATE

## Ph.D. RESEARCH SYNOPSIS

Submitted in partial fulfillment of the requirements for the degree of

**Doctorate of Philosophy**

in the

**Department of Computer Engineering**

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# Abstract

Brief Introduction to the Research Domain & Problem...here...

# 1 Introduction

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## 1.1 Fuzzy Logic

Brief Introduction to the Fuzzy Logic ...here...

You can make use of diagrams, if required. example is given in Fig. 1...

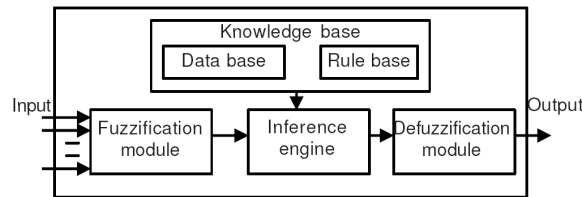


FIGURE 1: Structure of Fuzzy Rule-based System

## 1.2 General Purpose computing on Graphics Processing Unit (GPGPU)

Brief Introduction to the GPGPU Computing...here...

Sometime use of mathematical expression/equation is required. Refer (1) as an example

$$V = \sum_{i=1}^N I_i R_i \quad (1)$$

In line mathematical expressions can be written as  $V = \sum_{i=1}^N I_i R_i$ .

# 2 Historical Background

Give state of the art literature background in a chronological order...here...

Do mention research gaps along with what has been done, till date. An example is give below for your reference...

In (Mendel et al., 2006), authors advocate the use of Interval Type-2 (IT2) Fuzzy Sets (FSs) instead of ordinary FSs, i.e., Type-1 (T1) FSs. There are many reasons and one

of most significant reasons is that use of a *certain* line curve in T1 FS is not appropriate model *uncertain* words (FS). At the same time, the use of generalized Type-2 (T2) FSs in designing Fuzzy Logic Systems (FLSs) are computationally very intensive [Karnik et al. \(1999\)](#). Therefore, in the paper, they have put some efforts to simplify the understanding and use of IT2 FLSs.

However, overall result improvement achieved with IT2 FLSs are very less with respect to the increased computational efforts. On in depth study, it is felt that research investigations can be carried out to further increase the FLS performance.

### **3 Research Objectives**

List down all the research objectives ...here...

### **4 Research Methodology**

Give systematic approach/steps how research objectives will be achieved...here...

## References

- Karnik, N. N., Mendel, J. M., and Qilian, L.: 1999, *IEEE Transactions on Fuzzy Systems* **7(6)**, 643
- Mendel, J. M., John, R. I., and Liu, F.: 2006, *IEEE Transactions on Fuzzy Systems* **14(6)**, 808