

FLORIDA INTERNATIONAL UNIVERSITY
Miami, Florida

A WISE AND LEARNED DISSERTATION

A dissertation submitted in partial fulfillment of the
requirements for the degree of
DOCTOR OF PHILOSOPHY
in
COMPUTER SCIENCE
by
Roary Panther

2021

To: Dean John L. Volakis
College of Engineering and Computing

This dissertation, written by Roary Panther, and entitled A Wise and Learned Dissertation, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this dissertation and recommend that it be approved.

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and Dean of the University Graduate School

Florida International University, 2021

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DEDICATION

To my parents.

ACKNOWLEDGMENTS

Thanks, everyone!

ABSTRACT OF THE DISSERTATION
A WISE AND LEARNED DISSERTATION

by

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The text must not exceed 350 words or 35 lines.

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CHAPTER 1
INTRODUCTION

1.1 Motivation

Finite automata are among the simplest mathematical models of computation, and since the 1940s their theory has been one of the cornerstones of theoretical computer science. The seminal 1959 paper by Rabin and Scott [RS59] introduced *nondeterministic finite automata*, in which the state transitions are not necessarily uniquely determined by the current state and input symbol; instead the automaton is imagined to have a magical ability to “guess” the correct transition at each step.

As an illustration of L^AT_EX’s mathematics formatting, here is the definition of *Rényi entropy*:

$$H_\alpha(X) = \frac{1}{1-\alpha} \log \left(\sum_{x \in \mathcal{X}} P[X = x]^\alpha \right). \quad (1.1)$$

HERE IS A TEXT FIGURE.

Figure 1.1: The caption on this figure is so long that it cannot fit onto a single line, instead requiring a line break.

HERE IS ANOTHER TEXT FIGURE.

Figure 1.2: The caption on this figure is also extremely long, but in this case we have included an optional argument that gives an abbreviated version of the caption, which is what will be shown in the List of Figures.

CHAPTER 2
PRELIMINARIES

In this chapter we establish some notation and initial definitions; for the most part we follow traditional references such as [HU79].

2.1 Alphabets, Languages, and NFAs

This section is quite brief.¹

2.1.1 What is nondeterminism?

This one is even briefer.²

¹Too brief, no doubt!

²We've got a lot of work to do...

CHAPTER 3

YET ANOTHER CHAPTER

Now we have yet another chapter, with more wise and fascinating discoveries.

BIBLIOGRAPHY

- [HU79] John E. Hopcroft and Jeffrey D. Ullman. *Introduction to Automata Theory, Languages, and Computation*. Addison-Wesley, 1979.
- [RS59] Michael Rabin and Dana Scott. Finite automata and their decision problems. *IBM Journal of Research and Development*, 3(2):114–125, 1959.

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