

# My Super Thesis

John Doe

A Thesis  
in  
The Concordia Institute  
for  
Information Systems Engineering

Presented in Partial Fulfillment of the Requirements  
For the Degree of  
Doctor of Philosophy (Information and Systems Engineering) at  
Concordia University  
Montréal, Québec, Canada

May 2019

© John Doe, 2019

CONCORDIA UNIVERSITY  
School of Graduate Studies

This is to certify that the thesis prepared

By: **John Doe**

Entitled: **My Super Thesis**

and submitted in partial fulfillment of the requirements for the degree of

**Doctor of Philosophy (Information and Systems Engineering)**

complies with the regulations of this University and meets the accepted standards with respect to originality and quality.

Signed by the final examining committee:

_____	Chair
<i>Dr. Chair</i>	
_____	External Examiner
<i>Dr. External</i>	
_____	External to Program
<i>Dr. ExternalToProgram</i>	
_____	Examiner
<i>Dr. Examiner1</i>	
_____	Examiner
<i>Dr. Examiner2</i>	
_____	Thesis Supervisor
<i>Dr. Supervisor</i>	

Approved by \_\_\_\_\_  
Dr. GPD, Graduate Program Director

July 1, 2019 \_\_\_\_\_  
Dr. Amir Asif, Dean  
Gina Cody School of Engineering and Computer Science

# Abstract

## My Super Thesis

**John Doe, Ph.D.**

**Concordia University, 2019**

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should

contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

# Acknowledgments

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

# Contents

<b>List of Figures</b>	<b>viii</b>
<b>List of Tables</b>	<b>ix</b>
<b>1 Introduction</b>	<b>1</b>
1.1 Motivation . . . . .	1
1.2 Thesis Statement . . . . .	2
1.3 Objectives and Contributions . . . . .	3
1.4 Related Publications . . . . .	4
1.5 Outline . . . . .	4
<b>2 Related Wok</b>	<b>5</b>
2.1 Refactoring Detection Approach . . . . .	5
2.1.1 Detection Using Meta Data . . . . .	5
2.1.2 Detection by Static Source Code Analysis . . . . .	5
2.1.3 Real-time Detection . . . . .	5
<b>3 Then</b>	<b>7</b>
<b>4 Conclusion and future work</b>	<b>8</b>
<b>Bibliography</b>	<b>10</b>

<b>Appendix A</b>	<b>First Appendix</b>	<b>11</b>
<b>Appendix B</b>	<b>Concordia Logos</b>	<b>14</b>

# List of Figures

- B.1 Concordia University . . . . . 14
- B.2 Gina Cody School of Engineering and Computer Science (vertical) . . . . 14
- B.3 Gina Cody School of Engineering and Computer Science (horizontal) . . . 14



# List of Tables

# Chapter 1

## Introduction

Hello [?].

### 1.1 Motivation

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special

content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

## **1.2 Thesis Statement**

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there

no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

### **1.3 Objectives and Contributions**

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the

alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

## **1.4 Related Publications**

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

## **1.5 Outline**

The rest of the thesis is organized as follows...

# **Chapter 2**

## **Related Wok**

Leo Brodie [1] first mentioned the word “Refactoring” in his book “Thinking Forth”, originally published in 1984. In addition to describing refactoring techniques, the author also discussed many software development principles and practices.

Over the past few decades, various techniques for detecting refactoring activities have been proposed, implemented, and validated.

### **2.1 Refactoring Detection Approach**

#### **2.1.1 Detection Using Meta Data**

#### **2.1.2 Detection by Static Source Code Analysis**

#### **2.1.3 Real-time Detection**

Murphy-Hill et al. [6] tracked the usage history of refactoring commands available in Eclipse IDE using a plugin and found that developers had performed about 90

Negara et al. [7] developed CODINGTRACKER which infers refactorings from continuous code changes with the help of a refactoring inference plugin. Using their tool,

they constructed a large corpus of 5,371 refactoring instances performed by 23 developers working on their IDEs. Their approach reported a precision and recall of 93

Similar to CODINGTRACKER [7], GHOSTFACTOR [4] and REVIEWFACTOR [5] infer fully completed refactorings by monitoring the fine-grained code changes in real-time inside the IDE. On the other hand BENEFACTOR [3] and WITCHDOCTOR [2] offer code completion by detecting ongoing manual refactorings.

## **Chapter 3**

**Then**



## Chapter 4

### Conclusion and future work

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind

text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

This text requires a citation [1] [6] to embed the citation in the required position in the text.

# Bibliography

- [1] L. Brodie. *Thinking Forth*. Punchy Publishing, 2004.
- [2] S. R. Foster, W. G. Griswold, and S. Lerner. Witchdoctor: Ide support for real-time auto-completion of refactorings. In *Proceedings of the 34th International Conference on Software Engineering, ICSE '12*, page 222–232, Zurich, Switzerland, 6 2012. IEEE Press.
- [3] X. Ge, Q. DuBose, and E. Murphy-Hill. Reconciling manual and automatic refactoring. *Proceedings - International Conference on Software Engineering*, pages 211–221, 06 2012.
- [4] X. Ge and E. Murphy-Hill. Manual refactoring changes with automated refactoring validation. In *Proceedings of the 36th International Conference on Software Engineering, ICSE 2014*, page 1095–1105, New York, NY, USA, 5 2014. Association for Computing Machinery.
- [5] X. Ge, S. Sarkar, J. Witschey, and E. Murphy-Hill. Refactoring-aware code review. pages 71–79, 10 2017.
- [6] E. Murphy-Hill, C. Parnin, and A. P. Black. How we refactor, and how we know it. In *Proceedings of the 31st International Conference on Software Engineering, ICSE '09*, page 287–297, New York, NY, USA, 5 2009. Association for Computing Machinery.
- [7] S. Negara, N. Chen, M. Vakilian, R. Johnson, and D. Dig. A comparative study of manual and automated refactorings. volume 7920, pages 552–576, 07 2013.

# Appendix A

## First Appendix

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

$$\bar{x} = \frac{1}{n} \sum_{i=1}^{i=n} x_i = \frac{x_1 + x_2 + \dots + x_n}{n}$$

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need

for special content, but the length of words should match the language.

$$\int_0^\infty e^{-\alpha x^2} dx = \frac{1}{2} \sqrt{\int_{-\infty}^\infty e^{-\alpha x^2} dx} \int_{-\infty}^\infty e^{-\alpha y^2} dy = \frac{1}{2} \sqrt{\frac{\pi}{\alpha}}$$

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

$$\sum_{k=0}^{\infty} a_0 q^k = \lim_{n \rightarrow \infty} \sum_{k=0}^n a_0 q^k = \lim_{n \rightarrow \infty} a_0 \frac{1 - q^{n+1}}{1 - q} = \frac{a_0}{1 - q}$$

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

$$x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-p \pm \sqrt{p^2 - 4q}}{2}$$

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest

gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

$$\frac{\partial^2 \Phi}{\partial x^2} + \frac{\partial^2 \Phi}{\partial y^2} + \frac{\partial^2 \Phi}{\partial z^2} = \frac{1}{c^2} \frac{\partial^2 \Phi}{\partial t^2}$$

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

# Appendix B

## Concordia Logos



Figure B.1: Concordia University



Figure B.2: Gina Cody School of Engineering and Computer Science (vertical)



Figure B.3: Gina Cody School of Engineering and Computer Science (horizontal)