

Title



student name

lab name

Department of Computer Science and Information Systems

Faculty of Science and Engineering

University of Limerick, Ireland

Supervised by:

Prof. Dr. ...

Submitted to the University of Limerick for the degree of

PhilosophiæDoctor (PhD) 2023

Supervisor: Prof.
Chair of
Department of Computer Science and Information Systems
University *of* Limerick
Ireland

Internal Dr. ...
Examiner: Department of Computer Science and Information Systems
University *of* Limerick
Ireland

External Prof. Dr....
Examiner: Division of Software ...s
University
Country

Chair: Dr. ...
Department of Computer Science and Information Systems
University *of* Limerick
Ireland

Day of the defence: 2023

Signature from the head of PhD committee:

Declaration

I hereby declare that I have written this thesis without the prohibited assistance of third parties and without utilizing any aids other than those specified. Any ideas or information obtained directly or indirectly from external sources have been duly acknowledged. This thesis has not been previously submitted in an identical or similar form to any Irish or foreign examination board.

The thesis work was carried out under the supervision of Prof.
at the University of Limerick from 20xx to 20xx.

Student Name
Limerick, 20xx

Acknowledgements

I would like

To my

Abstract

The

Contents

List of Tables	xi
List of Figures	xiii
Presentation of Thesis	1
I Introduction	3
1 Introduction	5
1.1 Challenges in ...	5
1.1.1 Research Centre Context	5
1.1.2 Research Questions	5
1.2 Proposed Solution	5
1.2.1 Contributions Summary	5
1.3 Thesis Outline	6
2 Related Work	7
3 Design and Implementation	9
3.1 Platform ...	9
3.2 Research Methodology	9
3.2.1 Development Life Cycle	9
4 Results and Discussion	11
4.1 Research Contributions	11
4.2 Design Choices	11

CONTENTS

4.3	Benchmarking Code Generation	11
4.4	Validation Through External Engagements	11
5	Conclusion and Future work	13
II	The Papers	15
6	Paper I (AP1)	17
	paper title	17
	Publication Report	17
	Abstract	18
6.1	Introduction	19
7	Paper II (AP2)	21
	paper title	21
	Publication Report	21
	Abstract	22
7.1	Introduction	23
8	Paper III (AP3)	25
	paper title	25
	Publication Report	25
	Abstract	26
8.1	Introduction	27
9	Paper IV (AP4)	29
	paper title	29
	Publication Report	29
	Abstract	30
9.1	Introduction	31
10	Paper V (AP5)	33
	paper title	33
	Publication Report	33
	Abstract	34

CONTENTS

10.1 Introduction	35
III Appendixes	37
Exemplary Code	39
PhD Poster	40
Project Funding	40
Bibliography	41

CONTENTS

List of Tables

1	Research publications	2
---	---------------------------------	---

LIST OF TABLES

List of Figures

LIST OF FIGURES

Presentation of Thesis

This thesis has been prepared in the style of “Thesis by Publication”. Table 1 below includes a list of published papers that are integral to this dissertation. Selected publications are presented in Part II of the thesis and are labelled as AP1, AP2, etc. The papers labelled NA1 and NA2 are referenced and discussed within the thesis but not included as attachments in Part II. The provided labels will be used for citation later in the thesis. Considering the different bibliography styles of papers from various journals and publications, the individual bibliographies for each paper in Part II are not immediately attached at the end of each paper. Instead, all of the bibliographies are presented uniformly at the end of the thesis.

Presentation of Thesis

Label	Paper
AP1
NA1
AP2
AP3
NA2
AP4
NA3
AP5

Table 1: Research publications

Part I

Introduction

1

Introduction

1.1 Challenges in ...

1.1.1 Research Centre Context

1.1.2 Research Questions

1.2 Proposed Solution

1.2.1 Contributions Summary

1. INTRODUCTION

1.3 Thesis Outline

The dissertation is primarily organised into three parts.

Part I covers the fundamental concepts of dissertation, where *chapter 2* covers the related work, *chapter 3* describes the design and implementation, *chapter 4* discusses the results and contributions and *chapter 5* concludes and discuss the future work.

Part II presents the selected papers published as a part of this dissertation.

Part III primarily is an appendix, encompassing the code for Additionally, this section includes information about the funding agency and details additional activities conducted during this dissertation, such as the design of a poster for conference participation.

Attached to this dissertation is a memory stick containing the following items:

- *folder 1*: Contains the
- *folder 2*: Contains the
- *folder 3*: Contains the
- *folder 4*: Contains all
- *folder 5*: Contains extra materials

2

Related Work

2. RELATED WORK

3

Design and Implementation

3.1 Platform ...

3.2 Research Methodology

3.2.1 Development Life Cycle

3. DESIGN AND IMPLEMENTATION

4

Results and Discussion

4.1 Research Contributions

4.2 Design Choices

4.3 Benchmarking Code Generation

4.4 Validation Through External Engagements

4. RESULTS AND DISCUSSION

5

Conclusion and Future work

5. CONCLUSION AND FUTURE WORK

Part II
The Papers

6

Paper I (AP1)

tite

authors

Publication Report

- **Publication Date:** 08/2021
- **Journal:**
- **Publisher:**
- **DOI:**

Contributions Summary: *Conceptualization, all authors;*

6. PAPER I (AP1)

Abstract

abstract...

6.1 Introduction

6. PAPER I (AP1)

7

Paper II (AP2)

Title

authors

Publication Report

- **Publication Date:** 10/2022
- **Conference:** International ...
- **Venue:** ...
- **Book:**...
- **Publisher:** ...
- **DOI:** ...

Contributions Summary: *Conceptualization, All authors;*

7. PAPER II (AP2)

Abstract

The

7.1 Introduction

7. PAPER II (AP2)

8

Paper III (AP3)

tite

authors

Publication Report

- **Publication Date:** 08/2021
- **Journal:**
- **Publisher:**
- **DOI:**

Contributions Summary: *Conceptualization, all authors;*

8. PAPER III (AP3)

Abstract

abstract...

8.1 Introduction

8. PAPER III (AP3)

9

Paper IV (AP4)

tite

authors

Publication Report

- **Publication Date:** 08/2021
- **Journal:**
- **Publisher:**
- **DOI:**

Contributions Summary: *Conceptualization, all authors;*

9. PAPER IV (AP4)

Abstract

abstract...

9.1 Introduction

9. PAPER IV (AP4)

10

Paper V (AP5)

Title

authors

Publication Report

- **Publication Date:** 10/2022
- **Conference:** International ...
- **Venue:** ...
- **Book:**...
- **Publisher:** ...
- **DOI:** ...

Contributions Summary: *Conceptualization, All authors;*

10. PAPER V (AP5)

Abstract

The

10.1 Introduction

10. PAPER V (AP5)

Part III
Appendixes

Exemplary Code

if you want to include any pdf then give path here

Project Funding

This PhD is funded by the .

Bibliography