Table of Contents

Resumen **i**

Abstract **ii**

Dedication **iii**

Acknowledgements **iv**

List of Figures **vii**

List of Tables **ix**

1 Introduction & Motivation **1**
1.1 The Information Diffusion Problem 1
1.2 Research Hypothesis 4
1.3 Goals & Results 5
1.3.1 Main Objective 5
1.3.2 Specific Objectives 5
1.3.3 Expected Results 5
1.4 Methodology 5
1.5 Thesis Structure 7

2 Related Work **8**
2.1 Information Diffusion 8
2.1.1 Game Theory Models 9
2.1.2 Contagion Models 10
2.1.3 Graph Models 11
2.1.4 Others 11
2.1.5 Previous Work Classification 12

2.2 Link Prediction 12

3 Proposed Methodology **15**
3.1 Data Selection and Preprocessing 15
3.1.1 Text processing based on text mining 17
3.1.2 Representation of the data 18
3.1.3 Latent Dirichlet Allocation 19
3.2 ETL for Model Input Data 21
3.3 Neurophysiological Model Setup 27
3.3.1 Leaky Competing Accumulator 27
3.3.2 Customization of LCA 28
3.4 Model Fitting 31

4 Experiments, Results and Evaluation **32**
4.1 Plexilandia's Data 32
4.2 Experimental Setup 34
4.3 Experimental Results 38
4.3.1 Sub-Forum 2 39
4.3.2 Sub-Forum 3 42
4.3.3 Sub-Forum 4 45
4.3.4 Sub-Forum 5 48
4.3.5 Sub-Forum 6 51
4.4 Discussion 53

5 Conclusion **56**
5.1 Future Work 57

Bibliography **58**

Annex A **65**

A Network Images **66**
A.1 Remaining Sub-Forum 2 Network Images 66
A.2 Remaining Sub-Forum 3 Network Images 69
A.3 Remaining Sub-Forum 4 Network Images 72
A.4 Remaining Sub-Forum 5 Network Images 74
A.5 Remaining Sub-Forum 6 Network Images 77
A.6 Others 80