

# Table of Contents

<b>1</b>	<b>Introduction</b>	
1.1	Microarray Data Analysis	.....1
1.2	Coherent Pattern Identification: A Clustering Problem	.....2
1.3	Existing Approaches	.....3
1.4	Motivation	..... 3
1.5	Aim of our work	.....4
	1.5.1 Objectives of our work	.....4
1.6	Organization of the dissertation	.....4
<b>2</b>	<b>Background of the work</b>	
2.1	Proximity measurement for gene expression data	.....5
2.2	Comparison of Proximity measures	.....7
2.3	Cluster Validity Measures	.....7
2.4	Discussion	.....8
<b>3</b>	<b>Existing Work done on Clustering</b>	
3.1	Partitional Clustering	.....9
	3.1.1 K-Means Algorithm	.....9
	3.1.2 QT Clustering	.....10
3.2	Hierarchical Clustering	.....10
	3.2.1 UPGMA	.....10

3.3	Density based Clustering method	.....11
	3.3.1 DHC	.....11
3.4	Model based methods	.....11
	3.4.1 SOM	.....12
	3.4.2 SOTA	.....12
3.5	Graph based Clustering	.....13
	3.5.1 CLICK	.....13
	3.5.2 CAST	.....14
3.6	Discussion	.....15
<b>4</b>	<b>The Proposed Approach</b>	
4.1	Concepts and definitions in E-CAST	.....16
4.2	Overview of E-CAST algorithm	.....17
	4.2.1 Threshold Calculation	.....17
	4.2.2 Cluster Formation	.....18
4.3	Phase 1: The proposed graph based clustering algorithm	.....19
	4.3.1 Algorithm Description	.....20
4.4	Phase 2: Embedded Cluster Detection	.....22
	4.4.1 Algorithm description	.....23
4.5	Discussion	.....24

<b>5</b>	<b>Performance Evaluation</b>	
5.1	Environment	.....25
5.2	Dataset description	.....25
5.3	Results	.....26
<b>6</b>	<b>Conclusions and Future Work</b>	
6.1	Conclusions	.....48
6.2	Future work	.....48

## **References**