

Contents:

1. Introduction	
1.1 State of the art.....	1
1.2 Motivation.....	2
1.3 Problem Definition.....	2
1.4 Aim and Objectives.....	3
1.5 Organization of the rest of the report.....	3
2. Basics of gene expression data analysis	
2.1 Basic Gene structure	4
2.2 Microarray experiment.....	5
2.3 Analysis of gene expression data.....	7
2.4 Representation of gene expression data.....	8
2.5 Proximity measures.....	12
3. Clustering	
3.1 Basics of clustering.....	16
3.2 Existing relevant clustering approaches.....	17
3.3 Cluster Validity measures.....	21
4. Concept of Gene Co expression networks	
4.1 Co-expression networks.....	23
4.2 Importance of gene Co-expression Networks.....	24
4.3 Co-expression network as a network model for gene co-expression.....	24
4.4 Other biological networks.....	25
4.5 Representation of Co-expression Network.....	26
4.6 Necessary properties of an inference algorithm for co-expression network.....	27
5. Existing approaches	
5.1 Existing approaches of modeling CEN.....	28
5.2 Problems in inferring co-expression networks.....	29

6. Our proposed approach towards a co-expression network	
6.1 Algorithm for the discretization of the data set (ADD).....	31
6.2 Algorithm to find highly correlated gene groups (ACG).....	33
6.3 Algorithm for deriving a co-expression network (ACN).....	34
7. Performance Evaluation	
7.1 Environment used.....	36
7.2 Dataset description.....	36
7.3 Results for three different datasets.....	38
8. Conclusion and future work	
8.1 Conclusion.....	53
8.2 Future work.....	53
Bibliography	