

## TABLE OF FIGURES

Figure 1 Schematic Diagram of Relationship of Each Parameter in The System .....	3
Figure 2 Origins of Cancer: Loss of Normal Growth Control [http://www.cancer.gov/cancertopics/understandingcancer/cancer].....	9
Figure 3 The processes to Obtain Microarray Data [http://www.ebi.ac.uk].....	11
Figure 4 Neuron Model [11].....	14
Figure 5 Multi-Layer Feed Forward Network Architecture [11].....	15
Figure 6 Diagram of Sigmoid Activation Function [11].....	16
Figure 7 General Block Diagram of Proposed Framework .....	25
Figure 8 Block Diagram of Training Stage.....	26
Figure 9 Block Diagram of Process to Build PCA Model.....	27
Figure 10 Block Diagram of Training ANN with MBP Process .....	29
Figure 11 Block Diagram of Testing Stage .....	30
Figure 12 Block Diagram of Dimension Reduction Process .....	30
Figure 13 Block Diagram of Forward Propagation Process .....	31
Figure 14 Block Diagram of Model Selection using K-Fold Cross Validation.....	32
Figure 15 Experiment Result of PCA+MBP: Number of Hidden Neurons vs Accuracy .....	38
Figure 16 Experiment Result of PCA+MBP: Number of Hidden Neurons vs Training Time .....	39
Figure 17 Experiment Result of PCA+MBP: Number of Principal Component vs Accuracy .....	40
Figure 18 Experiment Result of PCA+MBP: Number of Principal Component vs Training Time.....	41
Figure 19 Accuracy Comparison of PCA+MBP Best Model vs MBP Best Model .....	43
Figure 20 Training Time Comparison of PCA+MBP Best Model vs MBP Best Model.....	43
Figure 21 Accuracy Comparison of PCA+MBP and PCA+BP in Ovarian Cancer Data .....	46

---

Figure 22 Training Time Comparison of PCA+MBP and PCA+BP in Ovarian Cancer Data ..... 46

Figure 23 Accuracy Comparison of PCA+MBP and PCA+BP in Colon Cancer Data ..... 47

Figure 24 Training Time Comparison of PCA+MBP and PCA+BP in Colon Cancer Data . 48

Figure 25 Accuracy Comparison of PCA+MBP and PCA+BP in Leukemia Data ..... 48

Figure 26 Training Time Comparison of PCA+MBP and PCA+BP in Leukemia Data ..... 49

Figure 27 Accuracy Comparison of All Systems Best Model ..... 51

Figure 28 Training Time Comparison of All Systems Best Model ..... 52