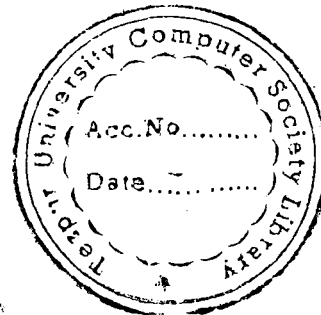


TABLE OF CONTENTS

	Page
1 Introduction	1
1.1 The definition of trust	1
1.2 Motivation	4
1.3 Problem Definition	4
2 Literature Survey and Related Works	5
2.1 Data Clustering	5
2.1.1 K-Means Clustering Algorithm	5
2.1.2 Fuzzy C-Means Clustering	6
2.2 Hidden Markov Models	6
2.3 Related Works	8
2.3.1 Beta Trust Model	8
2.3.2 Exponential Decay	10
3 Mathematical Background	11
3.1 HMM Basic Problems	11
3.1.1 Forward-Backward Algorithm	12
3.1.2. Baum Welch Algorithm	16
4 Proposed Model	19
4.1 HMM with Gaussian Outputs	19
4.1.1 Pseudo Code for Re-estimation Algorithms	20
4.2 HMM with a Mixture of Gaussian Outputs	23
4.2.2 Pseudo Code for Re-estimation Algorithms	24
5 Result and Observations	28
5.1 Single Gaussian Distribution Model	28
5.2 Model based on Mixture of Gaussian Distribution	29
6 Conclusion and Future Works	31
Bibliography	32



LISTOFFIGURES

FIGURE	Page
3.1 Showing the possible state transitions in an HMM having 4 states.	11
3.2 Illustration of the sequence of operations required for the computation of $\alpha_{t+1}(j)$	12
3.3 Implementation of the computation of $\alpha_j(i)$ in terms of a lattice of observations t and states i	13
3.4 Illustration of the sequence of operations required for the computation of $\beta_t(j)$	14
3.5 Illustration of the sequence of operations required for the computation of the joint event the system is in state S_i at time t and state S_j at time $t+1$	16
5.1 The Gaussian distribution of different states in the HMM.....	28
5.2 Plot of the PDF of the different Gaussian distributions over the range of trust values.	29
5.3 Comparison of the measure of $\gamma_t(i)$ of the two models	30