

Social Networks and Information Retrieval Systems

UNIT I

Introduction, Empirical Background and Definitions - Examples of Social Networks and their Impact, Definitions, Measures and Properties: Degrees, Diameters, Small Worlds, Weak and Strong Ties, Degree Distribution, Homophily, Dynamics, Centrality Measures: Degree, Betweenness, Closeness, Eigenvector, and Katz- Bonacich. Erdős and Renyi Random Networks: Thresholds and Phase Transitions.

UNIT II

Random Networks - Poisson Random Networks, Exponential Random Graph Models, Growing Random Networks, Preferential Attachment and Power Laws, Hybrid models of Network Formation, Network topology and diffusion, Contagion in Networks, Complex contagion, Percolation and information, Epidemics and information cascades.

UNIT III

Social Issues : The Ethics of Social Information Retrieval , The Ethics of Social Information Retrieval. Social Networks for Information Retrieval : From Page Rank to Social Rank, Enhancing Reference-Based Search Engine Rankings, Adaptive Peer-to-Peer Social Networks for Distributed Content.

UNIT IV

Social Media recommendation, Multimedia indexing, Searching and Retrieval in large databases of social networks, Sentic computing for social media Analysis, Representation and Retrieval.

UNIT V

Introduction to Soft Computing, Components of Soft Computing, Importance of Soft Computing, Fuzzy Set Theory - Definition, Different types of fuzzy set Membership Functions, Fuzzy Set theoretic operations, Fuzzy Rules and Fuzzy Reasoning, Fuzzy Inference Systems, GA, Simulated Annealing, Particle swarm optimization, Neural Networks- Supervised Learning, Unsupervised Learning, Hybrid Systems - Neuro Fuzzy Modeling, Fuzzy c-means, Applications in Data Mining.

Text Books:

1. Christina Prell, Social Network Analysis: History, Theory and Methodology, SAGE Publications Ltd, 2011.
2. R.A. Baeza-Yates and B. Ribeiro-Neto, Modern Information Retrieval, 2nd edition, Addison-Wesley Longman Publishing Co., 2010.
3. J.S.R.Jang, C.T.Sun and E.mizutani, Neuro Fuzzy & Soft Computing, Pearson Education, 2004.

References:

1. Stanley Wasserman and Katherine Faus, Social Network Analysis: Methods and Applications, 1st edition, Cambridge University Press, New York, 1994.
2. Carrington and Scott (eds). The SAGE Handbook on Social Network Analysis SAGE, First Edition, 2011.
3. D: E. Goldberg, Genetic Algorithms in Search, Optimization, and Machine Learning, Addison Wesley, 1989.
4. Naeem Ramzan and Roelof van Zwol, Social media retrieval, Computer and Communication Networks, Springer , 2013.
5. Dion Goh and Schubert Foo, Social Information Retrieval Systems: Emerging Technologies and Applications for Searching the Web Effectively, Information Science Reference, New York, 2008.

Senate

1245

77