

## **Dr. Pabitra Mitra**

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Date of birth: May 12, 1974.

### **Educational Qualifications:**

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<b>Degree</b>	<b>Institution</b>	<b>Year</b>	<b>Department</b>
Ph.D.	Indian Statistical Institute	2004	Computer Sc.
B.Tech	I.I.T. Kharagpur	1996	Electrical Engg.

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### **Professional Experience:**

- *Associate Professor, IIT Kharagpur, Nov 2010 – till date*
- *Assistant Professor, IIT Kharagpur, 2005 – 2010*
- *Assistant Professor, IIT Kanpur, 2004-2005*
- *Research Fellow, ISI Calcutta, 1998-2004*
- *Scientist, Center for Artificial Intelligence and Robotics, Bangalore, 1996-1998*

### **Awards:**

- Yahoo Faculty Award 2013
- IBM Faculty Award 2010
- Indian National Academy of Engineering Young Engineer Award 2008
- Royal Society UK India Science Network Award 2006

### **Teaching Experience:**

Taught undergraduate and post-graduate courses for past ten years in IITs.

### **Dissertations Supervised:**

PhD: 5 completed, 4 ongoing    Masters: 50 completed, 5 ongoing

### **Sponsored Projects:**

Completed: 5 (total value: INR 80 Lakhs), Ongoing: 3

### **Membership of Professional Bodies:**

Chair, IEEE Kharagpur Section, 2014  
Vice Chair and Treasurer, IEEE Kharagpur Section 2013  
Secretary and Treasurer, IEEE Kharagpur Section 2012

Executive Body Member, Information Retrieval Society of India

**Publications:** (Total citations: 4050, hindex: 24 src: google scholar)

**Book:**

S. K. Pal and P. Mitra, Pattern Recognition Algorithms for Data Mining, Chapman & Hall CRC Press, Boca Raton, FL, May 2004, ISBN: 1-58488-457-6

**Journal:**

1. M. Saha, P. Mitra, and A. Chakraborty, Fuzzy clustering based ensemble approach to predicting Indian monsoon, Advances in Meteorology (accepted), 2015
2. S. Bandhyapadhyay, T. Bhadra, P. Mitra, and U. Maullik, Integration of dense subgraph finding with feature clustering for unsupervised feature selection, Pattern Recognition Letters, Vol. 40, pp. 104-112, 2014.
3. A. Mandal, K. R. Prasanna Kumar, and P. Mitra, Recent developments in spoken term detection: a survey, International Journal of Speech Technology, pp. 1381-2416, 2013.
4. S. Bhattacharjee, P. Mitra, and S. K. Ghosh, Spatial interpolation to predict missing attributes in GIS using semantic kriging, IEEE Transactions on Geoscience and Remote Sensing, Vol. 52, No. 8, pp. 4771-4780, 2013.
5. B. Das, S. Mandal, P. Mitra, and A. Basu, Aging speech recognition with speaker adaptation techniques: A study on medium vocabulary continuous Bengali speech, Pattern Recognition Letters, Vol. 34, No. 3, pp. 335-443, 2013.
6. B. Das, S. Mandal, P. Mitra, and A. Basu, Effect of aging on speech features and phoneme recognition: A study on Bengali voicing vowels, International Journal of Speech Technology, 2012.
7. S. K. Saha, S. Narayan, S. Sarkar and P. Mitra, A composite kernel for named entity recognition, Pattern Recognition Letters, 2010.
8. R. Pal, A. Mukherjee, P. Mitra and J. Mukherjee, Modeling visual saliency using degree centrality, IET Computer Vision, 2010.
9. S. K. Saha, S. Sarkar, P. Mitra, Feature selection techniques for maximum entropy based biomedical named entity recognition, Journal of Biomedical Informatics, Vol 42, No. 4, pp. 905-911, 2009.
10. P. Majumder, M. Mitra, S.K. Parui, G. Kole, P. Mitra and K. Dutta, YASS: Yet another suffix stripper, ACM Transactions on Information Systems, October, 2007.
11. K.V. Arya, P. Gupta, P. Mitra and P.K. Kalra, Robust image registration using M-estimators, Pattern Recognition Letters, Vol. 28, No. 15, 1, pp. 1957-1968, November 2007.
12. S.K. Pal, B. Uma Shankar and P. Mitra, Granular computing, rough entropy and object extraction, Pattern Recognition Letters, Vol. 26, No. 16, pp. 2509-2517, December 2005.
13. P. Mitra, B. Uma Shankar and S. K. Pal, Segmentation of multispectral remote sensing images using active support vector machines, Pattern Recognition Letters, Vol. 25, No. 9, pp. 1067-1074, July 2004.
14. S.K. Pal, B. Das Gupta and P. Mitra, Rough Self Organizing Map, Applied Intelligence, Vol. 21, No. 3, pp. 289-299, December 2004.
15. P. Mitra, C. A. Murthy and S. K. Pal, A Probabilistic Active Support Vector Learning Algorithm, IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 26, No. 3, pp. 413-418, March 2004.
16. S. K. Pal and P. Mitra, Case Generation Using Rough Sets with Fuzzy Representation, IEEE Transactions on Knowledge and Data Engineering, Vol 16, No 3, pp. 292-300, March 2004.
17. S. K. Pal, S. Mitra and P. Mitra, Rough Fuzzy MLP: Modular Evolution, Rule Generation and

- Evaluation, IEEE Transactions on Knowledge and Data Engineering, Vol. 15, No. 1, pp. 14-25, January 2003.
18. P. Mitra, S. K. Pal and M. A. Siddiqi, Nonconvex Clustering Using Expectation Maximization Algorithm with Rough Set Initialization, Pattern Recognition Letters, Vol. 24, No. 6, pp. 863-873, February 2003.
  19. P. Mitra, C. A. Murthy and S. K. Pal, Density Based Multiscale Data Condensation, IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 24, No. 6, pp. 734-747, June 2002.
  20. P. Mitra, C. A. Murthy and S. K. Pal, Unsupervised Feature Selection using Feature Similarity, IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 24, No. 4, pp 301-312, April 2002.
  21. S. Mitra, S. K. Pal and P. Mitra, Data Mining in Soft Computing Framework: A Survey, IEEE Transactions on Neural Networks, Vol. 13, No. 1, pp 3-14, January 2002.
  22. S. K. Pal, V. Talwar and P. Mitra, Web Mining in Soft Computing Framework: Relevance, State of the Art and Future Directions, IEEE Transactions on Neural Networks, Vol. 13, No. 5 pp 1163-1177, September 2002.
  23. S. K. Pal and P. Mitra, Multispectral Image Segmentation Using the Rough Set-Initialized-EM Algorithm, IEEE Transactions on Geoscience and Remote Sensing, Vol. 40, No. 11, pp. 2495-2501, November 2002.
  24. S. Mitra, P. Mitra and S. K. Pal, Evolutionary Modular Design of Rough Knowledge-based Network using Fuzzy Attributes, Neurocomputing, Vol 36, pp. 45-66, 2001.
  25. P. Mitra, S. Mitra and S. K. Pal, Evolutionary Modular MLP with Rough Sets and ID3 Algorithm for Staging of Cervical Cancer, Neural Computing and Applications, Vol 10, pp. 67-76, 2001.
  26. P. Mitra, S. Mitra and S. K. Pal, Staging of Cervical Cancer with Soft Computing, IEEE Transactions on Biomedical Engineering, Vol. 47, No. 7, pp. 934—940, 2000.
  27. P. Mitra, Self Control of Chaotic Dynamics using LTI Filters, IEEE Transactions on Circuits and Systems-I, Vol. 47(11), pp. 1649-1652, 2000.

#### Conference:

1. S. Virinchi and P. Mitra, Similarity measures for link prediction using power law degree distribution, Proc. Intl. Conf. Neural Information Processing, (ICONIP), 2013.
2. A. De. M. S. De Sarkar, N. Ganguly, and P. Mitra, Local learning of item dissimilarity using content and link structure, Proc. ACM Conf. Recommender Systems (RecSys 2012), Barcelona, 2012.
3. P. Chhedha, M. Faruqui, and P. Mitra, Handling OOV Words in Indian-language - English CLIR, Proc. European Conference on Information Retrieval (ECIR 2012), pp. 476-479, 2012.
4. S. Mandal, B. Das, P. Mitra, and A. Basu, A Robust Bengali Continuous Speech Recognizer Using Triphone and Trigram Language Model, IC3 2011, pp. 556-558, 2011.
5. S. Das and P. Mitra, Author Identification in Bengali Literary Works, PReMI 2011, pp. 220-226, 2011.
6. S. Maiti, D. P. Mandal, and P. Mitra, Sentence Ranking for Document Indexing, PReMI 2011, pp. 274-279, 2011.
7. V. Ramanathan, S. Mishra and P. Mitra, Quadtree decomposition based extended vector space model for image retrieval, IEEE Workshop on Applications of Computer Vision, WACV, Hawaii, 2011.
8. B. Das, S. Mandal and P. Mitra, Bengali speech corpus for continuous automatic speech recognition system, Proc. Conf. Speech Database and Assessments (Oriental COCOSDA), pp. 51-55, Taiwan, 2011
9. S. Mandal, B. Das, P. Mitra and A. Basu, Developing Bengali Speech Corpus for Phone Recognizer

Using Optimum Text Selection Technique, Proc. Conf. Asian Language Processing (IALP), 2011 pp. 268-271, 2011

10. M. Desarkar, S. Sarkar and P. Mitra, Aggregating Preference Graphs for Collaborative Rating Prediction, Proc. ACM Conf. Recommender Systems (RecSys 2010), Barcelona, 2010.
11. P. K. Bhowmick, A. Basu, P. Mitra, Determining Reliability of Subjective and Multi-label Emotion Annotation through Novel Fuzzy Agreement Measure, Proc. Language Resources and Evaluation Conference, (LREC), Malta, 2010.
12. T. Dasgupta, A. Basu, P. K. Bhowmick and P. Mitra, English to Indian Sign Language Machine Translation: A Structure Transfer Framework, Proc. IICAI pp. 2055-2070, 2009.
13. S. K. Saha, P. Mitra, S. Sarkar, A Semi-supervised Approach for Maximum Entropy Based Hindi Named Entity Recognition, Proc. PReMI 2009, pp. 225-230, 2009.
14. P. K. Bhowmick, A. Basu, P. Mitra, A. Prasad, Multi-label Text Classification Approach for Sentence Level News Emotion Analysis, Proc. PReMI pp. 261-266, 2009.
15. R. Pal, J. Mukherjee, P. Mitra, An Approach for Preparing Groundtruth Data and Evaluating Visual Saliency Models, Proc. PReMI pp. 279-284, 2009.
16. S. Das, P. Mitra and S. Misra, Effect of Dialect on Low Bitrate Speech Coders, Proc. Conference on Speech and Computers, SPECOM 2009, St. Petersburg, Russia, 2009.
17. S. Das, S. Maity, K.S. Rao, P. Mitra, Strategies for selecting optimal text in Bengali ASR system, Proc. Conference on Speech and Computers, SPECOM 2009, St. Petersburg, Russia, 2009
18. V. Vijaya Saradhi, H. Karnick, P. Mitra, Topic Distillation using Support Vector Data Description, Proc. COMAD pp. 93-103, 2008.
19. S. Ghosh and P. Mitra, Proc. Combining Content and Structure Similarity for XML Document Classification using Composite SVM Kernels, Intl. Conf. Pattern Recognition (ICPR'08), Tampa, FL, 2008.
20. P. Banerjee, G. Garg, P. Mitra, and A. Basu, Application of Triphone Clustering in Acoustic Modeling for Continuous Speech Recognition in Bengali, Proc. Intl. Conf. Pattern Recognition (ICPR'08), Tampa, FL, 2008.
21. S. Debnath, N. Ganguly and P. Mitra, Feature Weighting in Content Based Recommendation System Using Social Network Analysis, Proc. WWW'08 (poster), Beijing, China, 2008.
22. S. K. Saha, P. Mitra and S. Sarkar, Word Clustering and Word Selection Based Feature Reduction for MaxEnt Based Hindi NER, Proc. ACL'08, Columbus, OH, 2008.
23. S. K. Saha, S. Sarkar; P. Mitra, A Hybrid Feature Set based Maximum Entropy Hindi Named Entity Recognition, Proceedings of the Third International Joint Conference on Natural Language Processing, January 2008, Hyderabad, India, pp 343--349
24. R. Pal, P. Mitra, J. Mukhopadhyay, ICam: Maximizes Viewers' Attention on Intended Objects, Proc. PCM 2008, pp. 821-824, 2008.
25. Pallavi P., H. Karnick, P. Mitra, Personalized Web Search Using Probabilistic Query Expansion, Proc. Web Intelligence/IAT Workshops, pp. 83-86, 2007.
26. U. Sajjanhar and P. Mitra, Distributive energy efficient adaptive clustering protocol for wireless sensor networks, Workshop on Data Intensive Sensor Networks, Intl. Conf. Mobile Data Management (MDM07), Mannheim, Germany, 2007.
27. B. Saha and P. Mitra, Fast incremental minimum cut based algorithm for graph clustering, Proc. SIAM Conference on Data Mining (SDM'07), Minneapolis, Minnesota, 2007.
28. Awekar, P. Mitra and J. Kang, Selective hyperlink induced topic search, Proc. 15th Intl. Conf. World

Wide Web (WWW'06), Edinburgh, Scotland, 2006.

29. P. Guha, A. Mukerjee, K.S. Venkatesh and P. Mitra, Activity Discovery from Surveillance Videos, Proc.18th International Conference on Pattern Recognition (ICPR), Vol. 1, pp. 433-436, Hong Kong (China), August 20-24, 2006.
30. N. Gupta, N. Mangal, K. Tiwari and P. Mitra, Mining quantitative association rules in protein sequences, Data Mining, LNAI 3755, pp. 273-281, 2006, Springer Verlag.
31. P. Goel, R. Biswas, A. Mukherjee and P. Mitra, Feature selection and function approximation for mutual funds, NIPS Workshop on Machine Learning in Finance, Whistler, British Columbia, 2005.
32. R. Mehta, P. Mitra and H. Karnick, Extracting semantic structure of web documents using content and visual information, Proc. 14th Intl. Conf. World Wide Web (WWW'05), pp. 298-299, Chiba, Japan, 2005.
33. G. Pandey, H. Gupta and P. Mitra, Stochastic scheduling of active support vector learning algorithms, Proc. ACM Symposium on Applied Computing (SAC 2005), pp. 38-42, Santa Fe, New Mexico, 2005.
34. P. Mitra and D. Dutta Majumder, Gene Selection and Clustering in Microarray Data, Proc. International Conference on Pattern Recognition (ICPR2004), Cambridge, UK, August 2004.
35. M. Banerjee, M. K. Kundu and P. Mitra, Corner Detection Using Support Vector Machines, Proc. International Conference on Pattern Recognition (ICPR2004), Cambridge, UK, August 2004.
36. S. K. Pal and P. Mitra, Case Generation: A Rough Fuzzy Approach, Proc. International Conference on Case Based Reasoning (ICCBR2001), pp. 236-242, Vancouver, July 2001.
37. P. Mitra, C. A. Murthy and S. K. Pal, Data Condensation in Large Databases by Incremental Learning with Support Vector Machines, Proc. International Conference on Pattern Recognition (ICPR2000), pp. 712-715, Barcelona, September 2000.
38. P. Mitra, S. Mitra and S. K. Pal, Modular Rough Fuzzy MLP: Evolutionary Design, Recent Advances in Rough Sets, Fuzzy Sets, Data Mining and Granular Computing, Lecture Notes in Artificial Intelligence, Springer-Verlag, pp. 128--136, 1999.
39. S. Satish, P. Srivastava and P. Mitra, A Fuzzy Logic Based Collision Avoidance System for Mobile Robots, Proc. International Conference on Robotics and Intelligent Systems, Bangalore, India, December 1997.