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Nimit Kumar

Research Interests

- Machine Learning (Kernel-based Learning, Statistical Learning Theory, Neuro-Fuzzy Systems, and Biologically-inspired models of Learning).
- Data Mining, Pattern Recognition and Computer Vision.

Education

July 2004: Bachelor of Technology in Electrical Engineering from Indian Institute of Technology, Kanpur, INDIA. (GPA – 5.8/10)

Undergraduate Thesis: Learning in Hilbert Spaces

Work Experience

- **Technical Staff Member**, IBM India Research Lab, New Delhi
  (August, 2005 - present)
- **Research Trainee**, IBM India Research Lab, New Delhi
  (August, 2004 – July, 2005)
  Working on Semi-supervised Learning and Machine Learning Applications to Text and Semi-structured Data Mining
- **Member**, Neural Networks Lab (**www.iitk.ac.in/karmaa**), IIT-Kanpur
  (May, 2003 – July, 2004)
  Worked on industrial projects sponsored by Indian Space Research Organization (ISRO) on System Identification of Inertial Systems and developed solutions using Neural and Fuzzy Networks
- **Summer Intern**, National Chiao-Tung University, Hsinchu, Taiwan
  (May-July, 2002)
  Worked on integration of Support Vector Machines and Neuro-Fuzzy Inference System

Professional Membership

- Reviewer for IEEE Transactions on Fuzzy Systems
- Reviewer for IEEE Transactions on Neural Networks
- Reviewer for IEEE Transactions on Systems, Man and Cybernetics – B
- Member of IEEE, IEEE Computational Intelligence Society and IEEE Systems, Man and Cybernetics Society.

Patents, Publications and Talks

Patents

- "*A System and a Method for extraction of factoids from web documents*," with S. Joshi, R. Krishnapuram, S. Negi, K. Mehta and S.R. Holmes, to be submitted to US-PTO by IBM.

Journals

- "*Learning with Generalized-Mean Neuron Model*,"R.N. Yadav, Nimit Kumar, P.K. Kalra, J. John, accepted in Neurocomputing, Elsevier.
- "*Support-Vector-Based Fuzzy Neural Network*,"Chin-Teng Lin, Chang-Mao Yeh, Sheng-Fu Liang, Jen-Feng Chung, Nimit Kumar, accepted for publication in IEEE Transactions on Fuzzy Systems.
- "*Visual-Motor Coordination using a Quantum Clustering based Neural Control Scheme*," Nimit Kumar and L. Behera, Neural Processing Letters, Vol. 20, No. 1, pp. 11-22, August 2004.

Refereed Conferences

- "*Semi-supervised Clustering with Metric Learning using Relative Comparisons*," Nimit Kumar, K. Kummamuru, Deepa Paranjpe, accepted at the IEEE International Conference on Data Mining (ICDM), 2005.
- "*Multi-Layer Neural Networks Using Generalized-Mean Neuron Model*," R.N. Yadav, Nimit Kumar, Prem K. Kalra, Joseph John, accepted for presentation and publication at the International Symposium on Communications and Information Technologies (ISCIT), 2004.
- "*Handwritten Devanagari Script Segmentation using Support Vector Machines*," Gaurav Agrawal, Kshitij Kumar, Amitabha Mukerjee, Nimit Kumar, accepted for presentation and publication at the 2004 International Joint Conference on Neural Networks (IJCNN), 2004.
- "*A Quantum Clustering based Neural Control Scheme for Visual-Motor Coordination*," Nimit Kumar and L. Behera, proceedings of the 5th International Conference on Advances in Pattern Recognition (ICAPR), 2003.
- "*A Novel Neural-Network-Based Image Resolution Enhancement*," Her-Chang Pu, Chin-Teng Lin, Sheng-Fu Liang, Nimit Kumar, proceedings of the IEEE International Conference on Fuzzy Systems (FUZZ-IEEE), 2003.
- "A Novel Approach for Person Authentication and Content-based Tracking in Videos using Kernel Methods and Active Appearance Models," Nimit Kumar, Vibhanshu Abhishek and Gagan Gautam, proceedings of the IEEE International Conference on Systems, Man and Cybernetics, 2003.

Talks & Presentations

- "*On Single Neuron Models and Capacity of the Single Neuron*," Nimit Kumar, R.N. Yadav and P.K. Kalra, poster presentation at the International Symposium on Building the Brain, 2003, National Brain Research Centre, Gurgaon, INDIA.
- "*On Neuro-Fuzzy Ststems and their use in Intelligent Control*," invited talk in the Symposium on Artificial Neural Networks at Bhabha Atomic Research Centre (BARC), Mumbai.
- "*Statistical Learning Theory*," invited talk in the Short-Term Course on Computational Neuroscience held jointly with National Brain Research Centre at IIT Kanpur.
- "*On the use of Adaptive Kernels in Kernel-based Learning Theory*," invited talk in the IEEE Student Lecture Series organized by the IEEE Student Branch, IIT Kanpur

Major Achievements and Awards

- **Summer School on Robust Methods in Speech Recognition, University of Magdeburg, Germany** (2003) - one of the 17 students selected globally to participate in the two-week long Summer School
- **Indian National Mathematics Olympiad** (INMO 1999) - I was selected as one of the 30 students from all over the country for the one month long **International Maths Olympiad** (IMO 1999) training camp.
- **National Talent Search Examination** (NTS Examination) - I was selected for a one time scholarship by the organizing board of the National Talent Search Examination.

Extracurricular Activities

- I have learnt various Dances (Latino, Ballroom, Hip-Hop) and love to teach colleagues in office and to friends whenever I get enough time
- Involved in choreographing stage shows; recently organized a dance performance with a team of 12 people at the IBM Research cultural evening
- Coordinator, Hospitality (responsible for arranging the stay of all visiting teams from different parts of the country) Cell of Antaragni (IIT-Kanpur Cultural Festival), 2003.
- Choreographer and member of IIT-Kanpur Dance Club (2000-2003)

References – Provided upon request