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Presents

Distinguished Lecture Programme (DLP)

Speaker:

Dr Nikhil R Pal



(FNASc., FNAE, FNA, FIFSA, FIEEE),
Indian Statistical Institute, Kolkata)

*Distinguished Lecturer,
Computational Intelligence
Society, (CIS) IEEE*

Date:

6th August, 2011

Time:

4:00 PM to 6:00 PM

Location:

Artificial Intelligence
Seminar Hall

University of Hyderabad,
Gachibowli

Organizer;

Dr Amit Kumar

Secretary
IEEE Hyderabad Section

Register by sending email to

amit.kumar@dnare.in

Title of the talk

***“Making your Fuzzy Rule Based Systems a little more
comprehensible”***

Abstract; While generating a fuzzy rule based system from data using exploratory analysis, there are many issues that must be addressed, particularly if we want to exploit the benefits of interpretability of fuzzy systems. There are several methods for generation of fuzzy rules, which may extract useful (in terms of accuracy) rules for high dimensional data also. But even for rules involving moderately large number of attributes, the comprehensibility is lost and hence the main attraction of fuzzy systems cannot be exploited. These issues are akin to dimensionality reduction/structure identification and interpretability of the systems. We shall present an “interesting” mechanism to deal with some of these issues in an integrated manner. A unique attribute of this approach is that it can exploit subtle non-linear interactions between features, the problem (that we intend to solve), and the tool (that is used to solve the problem). The proposed scheme can identify the attributes necessary to solve the problem at hand. It can also discard the bad (derogatory) and “indifferent” attributes, and thereby it enhances the “comprehensibility” of the system. The formulation is adapted to all three types of fuzzy systems: classification systems, Mamdani type systems and Takagi-Sugeno type systems. The effectiveness of these approaches is demonstrated using a set of applications.

About the Speaker; Prof Nikhil R. Pal is a Professor in the Electronics and Communication Sciences Unit of the Indian Statistical Institute. He has also served as a Chair Professor at the National Chiao Tung University, Taiwan and as a visiting professor at other universities/Institutes including RIKEN Brain Science Institute. He has coauthored, edited/co-edited several books. His current research interest includes bioinformatics, brain science, fuzzy logic, image and pattern analysis, neural networks, and evolutionary computation. He has served/been serving the editorial board /advisory board/ steering committee of several journals including the *International Journal of Approximate Reasoning*, *Applied Soft Computing*, *Neural Information Processing—Letters and Reviews*, *International Journal of Knowledge-Based Intelligent Engineering Systems*, *International Journal of Neural Systems*, *Fuzzy Sets and Systems*, *International Journal of Intelligent Computing in Medical Sciences and Image Processing*, *Fuzzy Information and Engineering : An International Journal*, and the *IEEE Transactions on Systems Man and Cybernetics—B*. He has served as the Editor-in-Chief of the *IEEE Transactions on Fuzzy Systems* for six years, 2005-2010. He has given many plenary/keynote speeches in different premier international conferences in the area of computational intelligence. He was the president of the *Asia Pacific Neural Net Assembly*. He was the Program Chair/Co-Chair of several International conferences including *2005 IEEE International Conference on Fuzzy Systems* and *2006 IEEE International Conference on Fuzzy Systems*. He was the General Chair of *2002 AFSS International Conference on Fuzzy Systems*, Calcutta, 2002 and the *11th International Conference on Neural Information Processing*, ICONIP 2004. He is the general Chair of the *2013 IEEE International Conference on Fuzzy Systems*, Hyderabad. He is a Fellow of the National Academy of Sciences, India (NASI), Indian National Academy of Engineering (INAE), Indian National Science Academy (INSA), International Fuzzy Systems Association (IFSA), and the Institute of Electrical and Electronics Engineers (IEEE), USA. He is an IEEE Computational Intelligence Society Distinguished Lecturer.