Foreign Faculty

Dr. Sukhamay Kundu, is an associate professor in School of Electrical Engineering and Computer Science of Louisiana State University, USA. He has a PhD from University of California, Berkeley. He has received several awards- such as Teaching Excellence Award, Innovative Teaching Award, etc. His current research interests are Software Modeling and analysis, Fuzzy Techniques, Graph Algorithm, Data mining, clustering and machine learning. He got Fulbright Scholar awards twice in (1994, 2004).

Course Coordinators and Contact Person

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About GIAN

Govt. of India approved a new program titled Global Initiative of Academic Networks (GIAN) in Higher Education aimed at tapping the talent pool of scientists and entrepreneurs, internationally to encourage their engagement with the institutes of Higher Education in India so as to augment the country's existing academic resources, accelerate the pace of quality reform, and elevate India's scientific and technological capacity to global

About IIT Patna

Indian Institute of Technology Patna, established in Aug 2008, is an autonomous institute of education and research in science, engineering and technology located in Bihta, 35 km from Patna. As of today, IIT Patna has 10 academic departments that offers B.Tech, M.Tech, MSc and PhD programs.

The faculties of this institute come with academic and research training from various institutes of excellence within the country and abroad. The recent publication records of the faculty with several practical constraints appear to be outstanding. It includes many reputed national and international journals.

About CSE

The department has three major programs- B.Tech CS, M.Tech CS and PhD. Additionally, there is a M.Tech in Mathematics and Computing program jointly with Mathematics dept. The CSE department is equipped with several research labs. The faculty members of the department are engaged with various research, teaching and administrative activities. The department also has a liaison with reputed national and international Universities.

Government of India
Ministry of Human Resource Development

Global Initiative of Academics Networks (GIAN) Workshop

ON

Fuzzy Techniques for Intelligent Decision Making

GIAN

IIT PATNA

11th -15th Dec 2017

Organized By

Department of Computer Science and Engineering, Indian Institute of Technology, Patna

Course Overview

All physical observations and measurements, including human perceptions, are fraught with uncertainty or errors. Randomness is also a form of uncertainty. Words do not have exact meanings; even simple words like green and good have different shades of meaning and some impreciseness. Proper modeling of uncertainty is therefore of paramount importance for intelligent decision making, which includes data mining (analysis), machine learning (knowledge extraction), and inferencing. Fuzzy techniques provide a useful alternative to the probabilistic and statistical approach. Indeed, many things do not fall in the realm of the later. In particular, fuzzy techniques allow a way of building "soft" evaluation or decision when our inputs are not simple and precise true-false type facts. As one can expect, fuzzy techniques sometimes can be combined with probabilistic techniques in new and unconventional ways to better model many applications.

There have been several new recent advances in fuzzy techniques, with important applications in handling large and imprecise data, intelligent decision-making, including successful applications in machine learning and data mining. This short course will introduce some of the new developments. The course will stimulate interest in this exciting area for both students and researchers, and introduce them to some key ideas making them ready to explore the techniques further, develop new results, and find useful and interesting applications.

Each new topic is dealt with in three phases: Development of key concepts and results, illustrative examples and applications, and a list of research questions.

Objectives

- The primary objective of this course is to create interests and develop expertise in fuzzy-techniques and its many important applications in intelligent decision making, in particular.
- Introduce the need for fuzzy-thinking and how the concept of fuzziness can better handle many useful practical problems.
- Show the techniques of deriving fuzziness from probability.
- Teach fuzzy techniques and applications in decision-making, data-mining, and machine learning.
- Show fuzzy techniques in data-mining and machine learning.

Schedule

Day 1	Lecture 1 : Fuzzy thinking; intervals and other form of uncertain values; applications Lecture 2 : Fuzzy sets and relations, fuzzy transitivity; transitive closure Lecture 3 : Fuzzy clustering of linear and multidimensional data; applications; research questions
Day 2	Lecture 4 : Fuzzy preference "<"-relation Lecture 5 : Probability-based fuzzy "<"-relation Lecture 6 :Min-transitivity of fuzzy "<"-relation applications; research questions
Day3	Lecture 7 :Fuzzy regression models Lecture 8 :Alternative models and comparisons Lecture 9 : Problem solving session: regression models, Fuzzy regression models
Day 4	Lecture 10 : Fuzzy group decision-making by consensus on preference-relation Lecture 11 : Fuzzy group decision-making by consensus on individual weights Lecture 12 : Applications; research questions
Day 5	Lecture 13 : Fuzzy decision trees Lecture 14 : Decision-tree pruning and refinement; Lecture 15 : Problem solving session: Fuzzy group decision-making, Fuzzy decision trees

Each of the above lecture is of 1 hour duration

How to Register?

Step 1: One Time Registration: In order to register for any GIAN course, candidates will have to get registered at the GIAN Portal of IIT Kharagpur using the following steps.

1.1 Create login and password at http://www.gian.iitkgp.ac.in/GREGN/index
1.2 Login and complete the registration form
1.3 Select course to be attended
1.4 Confirm your application and payment information.
1.5 Pay Rs 500 (non-refundable) online through payment gateway.
1.6 Download and print your "pdf file" of your enrollment application form for your personal records and copy of the same to be sent to course coordinator.

Step 2: Institute Registration: Contact course coordinators.

-The registration fees is as below. SC/ST candidates will get 50% relaxation.

Participants from Abroad	USD 100
Participants from Industry/Research Organization	Rs 4000
Faculty	Rs 2000
Students & Research Scholars	Rs 1000

Account Details: For paying the registration fees, following account details of IIT Patna can be used. Please keep a copy of the transaction.

Account Name	Indian Institute of Technology Patna
Account No.	30957551934
IFSC Code	SBIN0017164
Bank Name	State Bank of India
Branch Name	IIT Patna, Bihta Campus
MICR No.	801002005

Who can attend?

- Executives, engineers and researchers from reputed industry and government organizations including R&D laboratories.
- Students at all levels (BTech/MSc/MTech/PhD) or Faculty from reputed academic institutions and technical institutions.