



Computer Society of India (CSI) Kolkata Chapter

Technically Sponsored

One Week

Faculty Development Programme (FDP)

On

Computational Intelligence for Optimization Problems

PROGRAMME COORDINATOR

Dr. Somnath Mukhopadhyay

Department of Information Technology, Calcutta Business School

Date: March 28 to April 01, 2016

**Venue: Calcutta Business School
Management Development & Research Centre**

CALCUTTA BUSINESS SCHOOL

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Computational intelligence is a set of computational methodologies and approaches to address complex real-world problems to which mathematical or traditional modeling can be useless for a few reasons: the processes might be too complex for mathematical reasoning, it might contain some uncertainties during the process, or the process might simply be stochastic in nature. Indeed, many real-life problems cannot be translated into binary language for computers to process it. It therefore provides solutions for such problems. CI therefore uses a combination of 5 main complementary techniques. The fuzzy logic which enables the computer to understand natural language, artificial neural networks which permits the system to learn experiential data by operating like the biological one, evolutionary computing which is based on the process of natural selection, learning theory, and probabilistic methods which helps dealing with uncertainty imprecision. Except those main principles, swarm intelligence and artificial immune systems, which can be seen as a part of evolutionary computation.

Research in Computational Intelligence covers a wide spectrum of methodologies from theoretical research, algorithms to applications for dealing with large, complex, and dynamic problems. One of the main applications of Computational Intelligence is optimization. This program is intended to cover a significant record of this development on optimization problems.

Objective

The objective of this program is to enlighten the faculties, researcher, scholars, students and engineers about the State-of-the-Art scenario regarding optimization techniques in Computational Intelligence Algorithms, latest tools and techniques which is applicable to almost all leading fields of research. The program will enlighten the researchers to apply the same in a multi-disciplinary research and engineering design. We hope that this program with promising ideas and outstanding research results will support further development of research and technologies in Computational Intelligence with applications.

Relevance: Based on the pitfalls of artificial intelligence, computational intelligence is an emerging field as a new computational paradigm. Traditional AI is incompetent to serve the increasing demand of search, optimization and machine learning. The contemporary models of non-traditional machine intelligence such as rough sets, fuzzy logic, artificial neural network, genetic algorithms, computational learning theory, chaos theory and quantum intelligence have proved their strength. The failure of classical AI has opened new avenues for non-conventional models in various engineering applications. These computational tools have given a rise to a new discipline called computational intelligence in the field of learning and teaching for the academicians and researchers.

Proposed topics

- o **Part I:** Evolutionary Computing
- o **Part II:** Neural Computing
- o **Part III:** Fuzzy Logic
- o **Part IV:** Hybrid models like Neuro-Fuzzy, Genetic Fuzzy System, etc.,
- o **Part V:** "Hands on Practice" using Neural Network Toolbox and Fuzzy Logic Toolbox using Matlab

Programme details

Date	Time	Topics	Venue
March 28, 2016 to April 01, 2016	10:00 AM to 5:00 PM	<ul style="list-style-type: none">● Introduction to Computational Intelligence ● Evolutionary Computing● Neural Computing ● Fuzzy Logic● Hybridization of Neural, Evolutionary and Fuzzy Computing● "Hands on Practice" using Neural Network Toolbox and Fuzzy Logic Toolbox using Matlab	Calcutta Business School

Resource Persons for the programme:

The coordinator, faculties of Calcutta Business School and eminent academicians from different institutions will deliver lectures and special talks. We will also conduct some practical sessions on the fields mentioned. The name and affiliations of the resource persons are given below.

1. Prof. J. K. Mandal, Professor, Dept. of Computer Science & Engineering, University of Kalyani, West Bengal, India
2. Prof Paramartha Dutta, Professor, Dept. of Computer and System Sciences, VisvaBharati University, West Bengal, India
3. Dr. Tandra Pal, Associate Professor, Department of Computer Science & Engineering, National Institute of Technology, Durgapur, West Bengal, India
4. Dr. Anirban Mukhopadhyay, Associate Professor, Dept of Computer Science & Engineering, University of Kalyani, West Bengal, India
5. Dr. Somnath Mukhopadhyay, Assistant Professor, Calcutta Business School, West Bengal, India

Registration fee:

Participation fees for faculties and students will be Rs. 3000 and Rs. 2000 respectively. Service tax is payable with the fee at the applicable rate. Please pay through RTGS/NEFT/ECS to our Savings A/C No. 001794600000085 with YES BANK, Russel Street Branch, Kolkata (IFSC Code. YESB0000017), under intimation to us with the Transaction number. Our PAN No. AAAAM0247J; Service Tax No. AAAAM0247JSD002. Or the participants need to send a crossed Demand Draft /Cheque drawn in favour of Calcutta Business School, payable at Kolkata. The fee includes FDP Kit, food during the programme and necessary course materials (Video recordings of the classes). The number of participants is around 40.

Accommodation: Desired participants will be provided paid lodging and dinner in the institute guesthouse.

How to apply: A filled in form of application in the prescribed format duly signed and sponsored by appropriate authorities with DD/Cheque should reach the coordinator by post. It is also mandatory to send a scanned application form and DD / Cheque through e-mail to som.cse@live.com / parthas@calcuttabusinessschool.org as selection will be intimated through mail.

Selection: First-Come-First-Select procedure will be adopted. Upon receiving application with DD / Cheque by post, selection will be intimated to the participant for making travel arrangements. The selected participants list will be notified in the institute web site www.calcuttabusinessschool.org and information will also be sent to their email.

Bus Facility: An AC BUS From/To Tullygung Metro Station To/From College Campus for the participants during the event.

About Calcutta Business School (CBS):

Promoted by a group of industrialists and academicians, CBS, an autonomous institution, commenced its journey in July 2008, offering an innovative and futuristic, fully residential 2 year Post Graduate Diploma in Management (PGDM) programme approved by AICTE. It is located on a sprawling 15 acre campus, about 7 kms south of IIM Calcutta. In addition to world-class full-time faculty, outstanding distinguished Professors and Visiting Professors from all over the world (24 from leading business schools in the USA and Australasia) provide the academic inputs. In the state-of-the-art 'intelligent campus' all students are provided with powerful laptop computing devices and high bandwidth wireless Internet connectivity. The pedagogy includes individual and team-based projects and case studies. The "Business Analytics" lab in the CBS campus is equipped with power computing workstations which are installed with most of the state-of-art analytics tools and software including SPSS, R, Python, CANOPY, Scientific Python, MATLAB and many SaS analytics tools. CBS has a tie-up with the global analytics leader SaS, and a six-months' programme on 'Data Science' and 'Big Data Analytics' is offered jointly by CBS and SaS institute, India.

Important dates : Submission of application through e-mail: **15-03-2016**
Application with DD should reach on: **21-03-2016**

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