About the Speaker

Prof. Carlos Artemio Coello Coello received a PhD in Computer Science from Tulane University (USA) in 1996. He is currently full professor with distinction (Investigador Cinvestav 3F) at CINVESTAV-IPN in Mexico City, Mexico. Dr. Coello has done pioneering research work in an area which is now known as "evolutionary multi-objective optimization", mainly related to the development of new algorithms. He is an IEEE Fellow for "contributions to multi-objective optimization and constraint-handling techniques". He is also the recipient of the prestigious 2013 IEEE Kiyo Tomiyasu Award and of the 2012 National Medal of Science and Arts in the area of Physical, Mathematical and Natural Sciences. His publications currently report over 29,000 citations, according to Google Scholar (his h-index is 67).

Course Coordinators

Prof. Pushpak Bhattacharyya is a Professor of Computer Science and Engineering at IIT Bombay and currently the Professor and Director of IIT Patna. He was a Visiting research fellow in Massachusetts Institute of Technology in 1990. He is well known for his contributions to natural language processing and has several distinctions in that field. He has also currently been appointed as Vijay and Sita Vashee Chair Professor at IITB. He is the fellow of INAE and the president of ACL.

Dr. Asif Ekbal is currently a faculty member of the department of Computer Science and Engineering at Indian Institute of Technology Patna, India. His current research interests include Natural Language Processing, Machine Learning Applications, Information Extraction and Biotext Mining. He is the recipient of the Best Innovative Project Award from the INAE.

Dr.Sriparna Saha is currently a faculty member of the Department of Computer Science and Engineering, Indian Institute of Technology Patna, India. Her current research interests include pattern recognition multi-objective optimization and biomedical information extraction. She is the recipient of the Lt Rashi Roy Memorial Gold Medal from ISI Kolkata, Google India Women in Engineering Award, 2008,Junior Humboldt Research Fellowship, NASI-Young Scientist Platinum Jubilee Award-2016 etc.

IITP-AI-NLP-ML GROUP

The Artificial Intelligence-Natural Language Processing-Machine Learning (AI-NLP-ML) group (http://www.iitp.ac.in/~ai-nlp-ml/) at IIT Patna has started its official journey in June, 2015. The group is dedicated to explore the frontiers of Artificial Intelligence, Machine Learning and Natural Language Processing under the able guidance of Prof. Pushpak Bhattacharyya. The group also consists of other two faculty members, Dr. Asif Ekbal and Dr. Sriparna Saha, and around 20 members including research scholars, research engineers, lexicographers, B.Tech & M.Tech students. Several industry sponsored projects are currently being undertaken. Elsevier, the renowned scientific literature publishing company has set up the **Elsevier Centre of Excellence for Natural Language Processing** to conduct research and development in some of the novel areas of AI, NLP and ML. Another company, ezDI has set up the **Sushrut-eZDI Research Lab** on Health Informatics, which is dedicated towards developing products for health care and contribute to research having significant outcomes.AI-NLP-ML group recently signed MoU with **Accenture Pvt. Limited** for research on Question-Answering, Multilingual Support and Virtual Agent.

ORGANIZING COMMITTEE

Dr. Pushpak Bhattacharyya
Director, IIT Patna

Dr. Asif Ekbal
Asst. Professor,
IIT Patna

Dr. Sriparna Saha
Asst. Professor,
IIT Patna

Registration Link:-
http://www.gian.iitkgp.ac.in/GREGN/index

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Global Initiative of Academics Networks(GIAN) Workshop

ON

MULTI-OBJECTIVE OPTIMIZATION

15th - 22nd December, 2016

Organized By
IITP-AI-NLP-ML GROUP

Department of
Computer Science and Engineering,
Indian Institute of Technology, Patna
Bihta, Bihar, India.

About the 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 excellence.

Scope of the WORKSHOP

Multi-objective optimization is an area within Operation Research that is concerned with the solution of problems having two or more (normally conflicting) objective functions that need to be optimized simultaneously. Multi-objective optimization has a tremendous practical importance, since almost all real world optimization problems are ideally suited to be modeled using multiple conflicting objectives.

This course will cover the fundamental concepts related to multi-objective optimization, as well as different approaches to solve these problems and also a number of standard techniques that are used throughout to solve optimization problems and to assess performance of multi-objective meta-heuristics. Although the course will emphasize the research work done on multi-objective evolutionary algorithms, it will also put light on other bio-inspired meta-heuristics theory. Course participants will learn these topics through lectures and hands-on experiments. Also case studies and assignments will be shared to stimulate research motivation of participants

About IIT Patna

Indian Institute of Technology Patna is an autonomous institute of education and research in science, engineering and technology located in Bihta, 35km from Patna. As of today, IIT Patna has 10 academic departments that offer B.Tech, M.Tech and PhD programs. The faculty members 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 national and international journals of repute. Recently, IIT Patna has been ranked as the **10th best engineering college** in the recently released ranking by the Human Resource Ministry, Govt. of India.

Registration Fees

The Participation fees for attending the workshop is as follows:

Participant from abroad:	US $200
Industry/Research Organization:	Rs. 10,000
Academic Institutions Faculty/Staff:	Rs. 6,000
Student/Research Scholar:	Rs. 1,000

**Participation fees for SC/ST candidates will be 50% of above mentioned fees.

The above fee includes all instructional materials, tutorials, and 24 hours Internet facility. The participants will be provided with food and accommodation on payment basis.

How to Apply

Please follow the link for Registration process and for further details of this workshop: http://www.gian.iitkgp.ac.in/GREGN/index

Workshop Registration Deadline Preferably: **15th October, 2016.**

Topics to be Covered

1) Basic concepts (Pareto optimality, ideal vector, nadir point, utopian point, etc.).
2) Multi-Objective Evolutionary Algorithms (Pareto-based, aggregating functions, decomposition methods, indicator-based, other)
3) Techniques to maintain diversity (fitness sharing, clustering, adaptive grids, etc.)
4) Test problems (ZDT, DTLZ, WFG, Okabe's test problems, etc.)
5) Performance indicators (unary and binary indicators)
6) Other bio-inspired meta-heuristics (Particle swarm optimizers, tabu search, scatter search, artificial immune systems, differential evolution).
7) Incorporation of user's preferences in multi-objective optimization
8) Open research problems