Stochastic Processes for Data Science

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Overview

Data science, machine learning and artificial intelligence are now ubiquitous in engineering applications as well as in everyday life. They rely on powerful algorithms which can sometimes be regarded as opaque black boxes fed with input data and producing output for analysis. This course intends to provide solid foundations in random processes towards a thorough understanding of such algorithms.

The primary objectives of the course are as follows:

i) To allow the participants to master fundamental concepts in stochastic processes.
ii) To provide exposure to various applications in machine learning and data science.
iii) To gain experience from concrete application examples.
iv) To practice experiments and simulations based on the computer codes provided.

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.

Modules	A. Lectures: Participants will learn the theoretical aspects B. Tutorials: Hands on experience in R
When	**May 25 – 29, 2020 (5 days)**
You Should Attend If…	▪ You are an Executive, engineer in data related industries, researcher, employee of service and government organizations where data need to be modelled. ▪ You are a Student at all levels (BTech/MSc/MTech/PhD) or a Faculty from reputed academic institutions and technical institutions. ▪ You have knowledge of basic mathematical skills (calculus, probability, linear algebra) at the Bachelor level will be expected from all participants.
Fees	**Participants from abroad : 100 USD** **Student participants: 1000 INR** **Faculty participants: 3000 INR** **Industry participants: 5000 INR** **Research Organizations: 3000 INR** The above fee include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. **Modes of payment:** Online transfer: Account Name: CCE IIT Madras Acc. No: **36401111110** Branch: SBI, IIT Madras Branch, Chennai IFSC Code: SBIN0001055 Swift Code: SBININBB453 Note: The participants should be mentioned the purpose of GIAN while the transaction and have to send the transaction details to gian@iitm.ac.in **OR** Demand draft in favour of "**CCE IIT Madras**" payable at **Chennai**. The demand draft is to be sent to the course coordinator at the address given below. Address of the Course Coordinator: **Dr. Neelesh S Upadhye** Department of Mathematics, IIT Madras Chennai 600036 Tamil Nadu Tel: +914422574632 Email: neelesh@iitm.ac.in

Accommodation	The participants may be provided with hostel accommodation, depending on availability, on payment basis. Request for hostel accommodation may be submitted through the link: http://hosteldine.iitm.ac.in/iitmhostel/
Registration Procedure	Please follow the following steps for the registration: 1. Go to GIAN website (http://www.gian.iitkgp.ac.in/GREGN/index) First time users need to register and pay a one-time fee of INR 500/ 2. Enroll for the course: Stochastic Processes for Data Science. Once you enroll for the course, an Enrollment/Application number will be generated, and the course coordinators will be notified.

The Faculty

Prof. Nicolas Privault is with the School of Physical and Mathematical Sciences at the Nanyang Technological University (NTU) in Singapore. His research interests include Stochastic Analysis, Probability, and Mathematical Finance. Currently, he is the Programme Director of the Master of Science in Analytics at NTU.