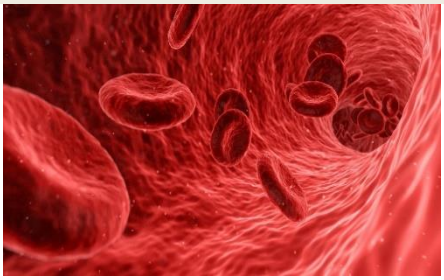
Healthcare Analytics

FORE School of Management
New Delhi

Analysing Healthcare data

Health sector has generally been generating large amount of data. Today, many hospitals are computerized leading to massive volumes of patient data, sensor data coming out of electronic instruments, medical claims and cost data, inventory & drugs data and HR data. Machine Learning, Deep Learning and Generative AI techniques offer a way to explore and make sense out of this data and make very useful predictions. Some questions that we try to answer pertain to Clinical problems, Pharmaceutical and research challenges, Patient behavior or Insurance and Costs such as: Classify fetal health in order to prevent child and maternal mortality; Predict lung function decline—Pulmonary Fibrosis Progression ; Predict Possibility of Heart Attack; Classify Pulmonary Embolism cases in chest CT scans; Predict the onset of diabetes based on diagnostic measures; Predict Age from X-rays; Predict if an infant is likely to develop autistic tendencies; Predict severity of epileptic seizure; Detect Malaria through Infected Cell Images; Detect Autism from a facial image; Identify acute intracranial hemorrhage and its subtypes; MRI Imaging Comparisons of Demented and Nondemented Adults

This program is unique in its breadth of coverage. We cover both Machine Learning and Deep Learning, almost in their entirety. Of the very few programs in Healthcare Analytics, none has this wide coverage.



1. Completely interactive and hands-on course
2. Students work with real data from Hospitals or research institutions.
3. Customization available for student groups.

We would like to highlight, at the very outset, that we cover ML&AI techniques using '*No-code*' approach. We use the best, highly reputed and industry standard Visual frameworks that generally use drag-and-drop approach to build ML workflows—to process data, build models, test them and then deploy for production use. All these tools are open-source, have very liberal licensing policies (*copy left*, so to say) and can be utilized even with very large data. We fully realize that many of our students are deeply busy in their core professional work and have little time to learn the intricacies of a programming language (such as python or R). And at the same time, they would like to apply the power of analytics to assist them in their work.

About the course

We have four modules: These are on Machine Learning and AI Techniques (ML & AI); Deep Learning and Natural Language Processing, and Capstone Project. These modules are totally hands-on, and practice based. These are online, live, and totally interactive lab-oriented Modules with the primary objective of disseminating techniques of Healthcare Analytics using Machine Learning & AI. These techniques enable one to apply them on data in one's research work or for teaching or in any medial application. Link to complete Program details is here.

Visual Tools used

We use KNIME, H2o.ai and Deep Learning Studio. All three have highly intuitive user interface to perform analytics. H2O.ai is named a Visionary in the 2023 Gartner Magic Quadrant. KNIME empowers health experts to be self-sufficient.

Program Requirements

It is a cross-discipline course. A participant can be from any discipline. There is no prior requirement of knowing any computer language. We teach python and our projects use python-based libraries. Python is easy to learn and to work with. Participants to the program earn PGPM Certificate from FORE. Students must have access to high-speed Internet (generally available now a days) and a lap-top with minimum of 16gb RAM. All software that we will work with are open-source and freely available. Students will also be provided with Virtual machines that have pre-configured software.

Program duration and venue

Program duration is 120 hours. Classes can be held online or in class-rooms. In online mode, classes can be held either on appointed weekdays or on Saturdays and Sundays--each class is of 2-hour duration. In class room mode full day classes are held and these can be held at FORE School of Management, New Delhi. We can also have a mix of offline and online classes.

Exercises and Projects

There is a heavy emphasis on exercises and projects. Students must experiment and implement systems themselves. Throughout the course students are to undertake several projects. We encourage students to use their organizational data to solve related problems.

Contacts

For any details, please feel free to contact either the Program faculty, Prof Ashok K Harnal, at 8750893093 (WhatsApp) or Prof Asif Zameer, Chair, Executive Education at 9871053303 (WhatsApp).

Program Faculty

Prof. Ashok Kumar Harnal

Ashok Kumar Harnal has worked extensively at multiple facets of Big Data Systems--Machine Learning, Deep Learning & NLP, Big-Data storage systems (Hadoop and NoSQL databases), Graph Databases, Streaming Analytics using Apache Spark, Apache Kafka, Confluent and Reinforcement Learning. He has been teaching Big Data technology since around last twelve years. Since last nine years Prof Harnal has been collaborating closely with University of California, Riverside, in a program on taking sessions on Big Data for Executives from around the World. We have trained officers from several organizations including RITES, NABARD, TechMahindra, Punjab National Bank, Central Bank of India and Union Bank of India Presently we are training officers in one another Bank. What is a matter of pride for us is that many of our students are at very high positions in Industry. We have successfully conducted three programs on Healthcare Analytics; two programs were of three months duration and one of nine months duration. During his stay in Min of Defence, he has executed three country-wide projects on Information Systems: (a) *Raksha-Bhoomi* to computerize land records (as old as 150 years); (b) Knowledge Management of land-title related files/maps in all Defence Estates offices; and (c) Setting up of a Disaster Management organization: Archival Unit and Resource Center (AU&RC), at Delhi and Pune for safe storage of land-title related records in paper and digital forms. He has published two books (both by Tata McGraw-Hill); One on *How to program games on Computers* and the other on *Linux Administration and Applications*. My GitHub site is here.

Prof. Amarnath Mitra

Dr. Amarnath Mitra is working as an Associate Professor in the area of Information Technology and Big Data Analytics at FORE School of Management, New Delhi. Prior to joining FORE, Dr. Mitra worked as Senior Quant Analyst at BioUrja Power LLC (Texas, USA). Dr. Mitra has over five years of industry experience as an analyst and researcher with substantial exposure of working with big & high frequency data and analytics. In academics, Dr. Mitra worked as full-time faculty for over six years in management institutes such as BML Munjal University Gurugram, IMI New Delhi and IBS Hyderabad. As guest/visiting faculty he has taught in several reputed institutions like SIBM Pune, NMIMS Hyderabad, IIIT Bhubaneswar among others. Dr. Mitra has taught subjects like Data Science, Predictive Analytics, Business Analytics, Quantitative Methods, Business Research Methods, Operations Research, Econometrics, among others.

Prof Shilpi Jain

Shilpi Jain is an Area Chair and Professor of Business Administration in the Information Technology & Big Data Analytics area at FORE School of Management. She teaches graduates and executives how to align an organization's business strategy and Information Technology (IT) strategy in a dynamic business environment for achieving financial stability, sustainable growth, and operational efficiency by using scalable & secured technologies and business analytics. She has held research positions in a variety of functional areas. During her stint at Infosys Research Labs, she has designed prototypes for virtual team training platform enabling paired programming, country risk analysis framework, and dynamic resource sharing across geographies. She chairs several executive education programs on e-commerce strategies, managing business on cloud, data summarization, and business storytelling with data. She has been presenting her research in conferences of repute like ICSE, PACIS, AMCIS, and ANZAM. Largely her current research is classified into two domains: 1) studying user behavior on digital channels and 2) team behavior in virtual settings. In the user behavior context, she and her co-authors designed applied and empirical research to explore user behavior on AI Conversational Agents, Social Media channels & e-Commerce, Digital Inclusion at the Grassroots level, and adoption of disruptive technologies. Apart from that she has worked extensively with virtual teams in the organizational setting and crowdsourcing contests. At present, she is a co-chair of a funded longitudinal policy research project which aims to evaluate the impact of internet connectivity in rural India and its influence on the regularization of Rural Telecom ISPs. Prof. Shilpi's research has been published in reputed academic and case research journals, including the Journal of Business Research, Behavior & IT, Ivey Business School, WDI Publishing, ACRC, and ACRJ, amongst others. She has presented her research at several top-tier conferences, such as ICSI, BAM, ICSE, PACIS, AMCIS, and ANZAM. Apart from conducting academic research, she concluded a policy research project titled "Digital inclusion and empowerment in Indian Handlooms In 2018. One of her teaching cases has received a 3rd place win at the WDI 25th Anniversary Case Writing Competition. And received an honorary mention in the Ivey Case Publishing Competition held in 2019.

About FORE School of Management (FSM)

Foundation for Organizational Research and Education (FORE) is committed to the advancement of Management Education, Research, Training and Consultancy. Incorporated in 1981, as a non-profit institution, FORE has been working with industry and academia for developing new domains of managerial thought and education and contributing to building leaders in today's global business environment.

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Located in the heart of South Delhi, FSM provides contextual learning and helps in the development of students as thinking professionals, who have the ability to meet the future challenges of tomorrow's corporate leaders. The programmes develop multiple skills including managerial decision-making, problem-solving, analytical reasoning, communications, creativity, and innovation. FSM has been designing, developing, and conducting innovative Executive Education (EE)/ Management Development Programmes (MDPs) for working executives in India for over three decades.

FSM takes pride in its professional and high-quality faculty, modern infrastructure, technology, and resources- be it in the fields of General Management, Data Science, Human Resource, Finance, Operations, Marketing, Information Technology, Economics, and International Business.

Customized Training Program

These Programs are designed according to the specific needs of the corporate. The pedagogy used in keeping with the background, experience and aspirations of participants as specified.

Long Duration Training Program(LDPs)

Along with the above, FORE does long-duration programs like PGPM (Executive Management program), Big Data Analytics, Marketing Analytics, Healthcare Analytics. These are online or blended programs of 3 months to 11 months.

Open Training Program (OTPs)

FSM Open Training Programs (MDPs) aim to equip business managers with knowledge, skills, and attitudes for effectively responding to global developments and competitive requirements. The emphasis is on developing the ability to apply learnings efficiently and improve decision-making.