CEP Short-term course

Deep Learning for Digital Health: Technology and Business

07th February – 08th February, 2024

Organized by

Department of Electrical Engineering
Indian Institute ofTechnology Patna,

Bihta, Bihar PIN-801106

Coordinator

Dr. Maheshkumar H Kolekar

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IITPatna

Co-Coordinator

Dr. Meghana Dutta,

Assistant Professor of Economics, IIT Patna

ABOUT IIT PATNA

IIT Patna is an institute of National importance incorporated by an Act of the Indian Parliament in 2008. It is ranked 21st among engineering collegesin India by the National Institutional Ranking framework in 2021. IIT Patna's campus is located at Bihta, 35 km from Patna and 20 km from Ara,at a 501 acres site. The nearest railway station is Bihta, 2 km from the campus. IIT Patna has good road connectivity to and from Patna and Ara. The nearest airport to reach IIT Patna campus is Jai Prakash Narayan Domestic Airport, Patna, which is located 5 km southwest of Patna.

ABOUT SHORT-TERM COURSE

Due to the increasing number of patient data, manual analysis and monitoring of such data is becoming less feasible and more complex. Advanced computing technologies such as artificial intelligence (AI), machine learning (ML) and deep learning (DL) has enabled the healthcare sectors to gain deeper insights from patient data. AI has the ability to successfully process and analyze large variety of data which is far beyond our capacity and has the potentialto transform many aspects of patient care. This has led to an increasing demand of bigdata analytics. **AI in healthcare** has enabled the innovation of several advanced technologies in the field of patient monitoring systems, breast cancer risk predictionsand even ICU death predictions. Advanced computing is changing how life sciences organizations approach healthcare research and delivery, offering new opportunities for improvingoutcomes while reducing costs and risks. This also has effect on business which help them predict medicine demand, demand for hospitalization facilities, bed turnover, insurance premium pricingetc.

AI is playing an important role in transforming both health and healthcare in and out of clinical setting. It is the future of public health, and acts as a bridge that connects healthcare delivery from a personal level to a system level. Thus, with the help of AI it is possible to support doctors, physicians, administrates, hospital owners, drug manufacturers as well as customer service representatives by offering themproper assistance, automation of clinical documents, patient medical history and preferences, image analysis, disease diagnosis, virtual observation and patient outreach, inventory management.

The proposed course will give the participants an overall idea of present status of applications of AI for healthcare. Participants will get opportunity to interact with experts from IITs, DRDO, AIIMS Patna, CDAC Patna and hospitals such as IGIMS Patna and PARAS Patna.

This course provides a unique platform for multi-disciplinary knowledge exploration, amalgamation and augmentation of engineering with clinical science andhow technology aids the health care market and healthcare business. This course helps the faculty to integrate AI and healthcare to cater the needs of students in pursuit of their urge for knowledge.

OBJECTIVE OF THE COURSE

- To provide an in-depth knowledge with practical applications through theoretical session blended with hands-on experiments.
- To enhance the skills of participants to make them well equipped with the current state-of-the-art technologies.
- To provide thorough application oriented and problem-based learning with real life examples.
- To equip the faculty to make utmost competent to capture the knowledge urge of modern-day students.

COURSE CONTENTS

The course will cover the basic concepts of AI in healthcare. Various applications of biomedical signals in different field such as cognitive assessment, brain

computer interfacing will be discussed. Application of biomedical signal in disease prognosis and diagnosis will

be explained with results. The course includes technical discussion on the following:

- Introduction to biomedical signals
- Application of biomedical signals in healthcare
- Filtering in medical signal analysis Introduction to AI, ML, DL
- Machine and Deep learning applications in healthcare
- How ML can be used for predicting pricing, inventory management
- How to forecast future demand for specific healthcare services based on patient records

Medical doctors/practitioners from AIIMS Patna, PARAS hospital, Indira Gandhi Institute of Medical Science Patna are also invited to deliver talk and share their experiences.

ORGANIZING COMMITTEE

PATRON

Prof. T N Singh, Director, IIT Patna

COORDINATOR

Dr. Maheshkumar H Kolekar, Associate Professor, EE, IIT Patna

CO-COORDINATOR

Dr. Meghna Dutta, Assistant Professor of Economics, IIT Patna

EXPERTS/SPEAKERS

Eminent faculties/ scientists from IITs, DRDO, CSIR, NITs, IIITs, AIIMS Patna, PARAS Hospital Patna, IGIMS Patna, reputed Universities, hospitals and industry experts. Tentative list of speakers is as follows:

- Prof. Vikram Gadre, IIT Bombay, Mumbai
- Dr Sushil Chandra, INMAS, DRDO, New Delhi
- Dr. Maheshkumar H Kolekar, IIT Patna
- Dr. Meghna Dutta, IIT Patna
- Dr Kamlesh Jha, AIIMS Patna

Dr Tribhuwan Kumar, HoD, Physiology, AIIMS Patna

FEE PAYMENT

Fill up the google form and upload the proof of payment in the upload section in the form.
Fee Payment:
A/c Name: CEP-IIT PATNA
A/c No: 40968673047
IFSC: SBIN0017164
You can also pay via SBI Collect link
https://www.onlinesbi.sbi/sbicollect/
Educational Institutions **select** Indian institute of Technology Patna, Payment Category (**Registration fee for CEP on DLDH**)

Students: Rs 1000
Faculty: Rs 1500
Industry Delegates: Rs 2000
Free for Medical Practitioners

COURSE REGISTRATION FORM

Online link to the registration form is attached below. Please submit the course fee as mentioned before submitting the form.

Registration form link:

https://forms.gle/A2GJ5VyhWoMfLm3s8

ACCOMODATION

Accommodation of participants will be arranged in guest house/hostels on affordable charges. Participant has to pay the charges of accommodation and food.

ADDRESS FOR COMMUNICATION

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DIRECTION