

TEQIP-3

Technical Education Quality Improvement Programme

**TEQIP-III SPONSORED ONLINE
WORKSHOP**



on

Artificial Intelligence and Machine Learning Application in Healthcare

September 03-07, 2020



Organized by

Department of Computer Science Engineering
&
Electronics and Communication Engineering
National Institute of Technology Meghalaya, India

Course Coordinator

Dr. Bunil Kumar Balabantaray
Assist. Prof., CSE,
&
Dr. Satyendra Singh Yadav,
Assist. Prof., ECE
NIT Meghalaya

Introduction

As machine learning and AI are becoming more common in digital ages, the health care industry continues to evolve. Business Insider Intelligence has stated the projected growth of 48 percent of AI expenditure in health care between 2017 and 2023. The enabler of AI is machine learning.

Machine learning is the subfield of computer science that, according to Arthur Samuel, gives "computers the ability to learn without being explicitly programmed." In 1959, Samuel, an American pioneer in computer gaming and artificial intelligence, at IBM coined the term "machine learning."

AI and ML helps in some of fulfilling some of the growing demand in the field of health care e.g. clinical decision support, wearable technology, robotic surgery, artificial body organ etc.

Systematic and focused introductory lectures, including hands-on sessions, will be delivered over five days, which helps participants to segue into this exciting field of emerging technology. This course has been specially designed for the students, researchers, faculties, and industry personnel to provide them with an introductory yet exhaustive knowledge. It is expected that the course will help in enabling the participants to contribute to the academics, researches and industry in the field of AI-ML.

Broad Scope

The topics to be covered in the course will range from preliminaries, basic of Artificial intelligence and machine learning along with the mathematics behind it, application of it to improve health-care and to solve several real life case studies. The course features theory lectures as well as hands-on laboratory session on the development of various AI/ML based algorithms to solve real-world problems in health care.

Target Audience

The course is suitable for Faculty Members, Research Scholars, Students and Industry Professionals.

No registration fee will be charged from the participants. Certificate will be issued at the end of the workshop.

How to apply

To register, please visit:

https://docs.google.com/forms/d/e/1FAIpQLSfNbTIFxDqaRQ1JMVe9cSoo2E7xPIBU8fTXNhdNTs5XJI8CNA/viewform?usp=sf_link

More Info: <https://www.nitm.ac.in>

Last Date for Registration: 2 Sep. 2020, 5 PM

Course Contents

- ❖ Introduction to Artificial intelligence
- ❖ Introduction to Machine learning
- ❖ Application of AI and ML in health care
- ❖ Machine learning algorithms
- ❖ Fundamentals of Artificial Neural Network
- ❖ Recurrent neural network, belief network
- ❖ Deep Learning
- ❖ Hand-on session on train network, import and export network model and data.
- ❖ Hands-on Session on Real Case Studies
- ❖ State-of-the-art Research Highlights

Patron

Prof. B. B. Biswal
Director, NIT Meghalaya

Conveners

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About NIT Meghalaya

The National Institute of Technology (NIT) Meghalaya is one among the thirty NITs in India established under the NIT Act 2007 (Amended 2012) of the Parliament of India as Institutes of National Importance with full funding support from the Ministry of Human Resource Development, Government of India. The nearest railway station is Guwahati. From the railway station, one can travel by bus or shared taxi to Shillong. It takes about 3 hours to reach Shillong. After reaching Shillong, one can hire local taxi to reach the campus at Bijni Complex, Laitumkhrah.

Course Schedule

Dates	10:00 AM to 11:30 AM	11:30 AM to 12.00	12.00 Noon to 01.30 PM	01:30 PM to 2:30 PM	02:30 PM to 4 .00 PM	4:15 PM to 4:30 PM
03.09.2020 (Thursday)	Registration and Inauguration	Break	Session 1 Applications of ML algorithms for brain disease diagnosis Prof. Ram Bilas Pachori, IIT Indore	Lunch	Session 2 Introduction to AI, ML and Medical Imaging Dr. Deepak R Nayak, MNIT Jaipur	Discussion
04.09.2020 (Friday)	Session 3 Applications of ML algorithms for heart disease diagnosis Prof. Ram Bilas Pachori, IIT Indore	Break	Session 4 ML Techniques for Biomedical Image Processing Dr. Ratnakar Dash, NIT Rourkela	Lunch	Session 5 Deep Learning Architecture Dr. Pallab Maji, NVIDIA, India	Discussion
05.09.2020 (Saturday)	Session 6 State-of-the-art Research Highlights in Deep Learning Dr. Deepak R Nayak, MNIT Jaipur	Break	Session 7 Introduction to DL and CNN and its Application to Healthcare Dr. Ratnakar Dash, NIT Rourkela	Lunch	Session 8 Hands on session on train network, import and export network model and data Dr. Pallab Maji, NVIDIA, India	Discussion
06.09.2020 (Sunday)	Session 9 Hands-on Session-I on Real Case Studies Dr. Pallab Maji, NVIDIA, India	Break	Session 10 Adversarial Learning Framework Dr. Deepak Kumar Panda, Mercedes Benz, India	Lunch	Session 11 Hands-on Session-II on Real Case Studies Dr. Deepak R Nayak, MNIT Jaipur	Discussion
07.09.2020 (Monday)	Session 12 Hands on for AI & Machine Learning Algorithms Mr. Chintan Raiyani, SAP Lab, India	Break	Session 13 Hands-on Session-III on Real Case Studies Dr. Deepak R Nayak, MNIT Jaipur	Lunch	Session 14 Semantic Segmentation for Biomedical Images Dr. Deepak Kumar Panda, Mercedes Benz, India	Vale diction