TEQIP-III Sponsored Faculty Training on Future Skill Technologies
On
Artificial Intelligence and Machine Learning

08 Days (20/11/2020 – 27/11/ 2020)

Discipline of Mathematics
&
Discipline of Computer Science & Engineering
&
Discipline of Electrical Engineering

Indian Institute of Technology Indore

Course Coordinators

Dr. M. Tanveer
Dr. Aruna Tiwari
Prof. Ram Bilas Pachori
Dr. Md. Aquil Khan

Course Contents:

Artificial Intelligence is a major step forward in how computer system adapts, evolves and learns. It has widespread application in almost every industry and is considered to be a big technological shift, similar in scale to past events such as the industrial revolution, the computer age, and the smart phone revolution.

This course will give an opportunity to gain expertise in one of the most fascinating and fastest growing areas of Computer Science through classroom program that covers fascinating and compelling topics related to human intelligence and its applications in industry,

defence, healthcare, agriculture and many other areas. This course will give the participants a rigorous, advanced and professional graduate-level foundation in Artificial Intelligence which will help for innovative research for faculty members/ researchers/scientists and innovative software developments by industry professionals of different disciplines.

The lectures will cover following contents:

Module 01: Fundamentals of Modern AI
• History of AI
• Mathematical Basics (Linear Algebra, Probability)
• Classical AI (Search Algorithms)
• Basics of ML (Classification, Regression, Clustering)
Module 02: Deep Learning
• Neural Networks
• Back Propagation
• Deep Learning Architectures
• Training DNNs and Hyper Parameters
• Unsupervised Deep Learning
Module 03: Perception
• Problems related to
• Text
• Images
• Speech
Module 04: Planning
• Planning under Uncertainty
• Markov Decision Processes
• Partially Observable MDPs
• Multi Agent Systems

PRACTICAL SESSIONS:

The practical sessions are designed to provide users a familiarity with AI and ML systems. These sessions will utilize modern ML frameworks and programming tools such as Python notebooks. The participants will also learn to connect and work with computational servers for large-scale learning and evaluation tasks. The specific themes and problems include:

1. Training, Testing and Hyper-parameter tuning
Most modern AI systems are developed based on learning from large datasets.

The participants will learn the art of training and evaluation of ML algorithms.

2. Neural Network Learning, Classification and Regression

These problems will require the development of system that does classification and regression tasks using neural network models.

3. Deep Learning in Text, Image and Speech

Here, we will explore various perception problems using text, image and speech data. The participants will be able to develop basic recognition modules for these input modalities.

4. Developing Intelligent Agents

In this part, the participants will get hands-on training in development of autonomous agents that modify their behavior based on its environment

5. In addition, there will also be a Mini Project, where the participants will develop a practical and complete AI system and understand various aspects of problem formulation, data collection and annotation, model selection, training and evaluation, and deployment of such a system.

Who should attend?

- Professionals working in R & D organizations and industries.
- Faculty from Engineering/Polytechnic colleges.
- Research scholars, post graduate students

Course Fees:

No registration fee for faculty members from TEQIP institutes

- Rs. 5,000* (for industry personnel)
- Rs. 3,000* (for faculty members)
- Rs. 2,000* (for students)

    *including service tax

Mode of Payment:
For Online Payment
http://www.iiti.ac.in/page/e-payments

Bank Transfer:

Beneficiary Name: Registrar IIT Indore
Bank Name: Canara bank
Branch: IIT Indore, Khandwa Road, Simrol, Indore
Account number: 1476101027440
IFS Code: CNRB0006223

Number of Seats: Limited

Important Dates:

The soft copy of completely filled registration form (along with online payment slip for the course fee) should be sent to the following e-mail ID on or before November 19, 2020.

Address for correspondence:

Dr. M. Tanveer
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Indian Institute of Technology Indore
Khandwa Road, Simrol, Indore, MP.
E-mail: mtanveer@iiti.ac.in
Phone: 09413259268 (Mobile)

REGISTRATION FORM

(Please fill and send through e-mail)

Name:

Designation:

Institution/Organization:

Address:

Are you a faculty member from TEQIP Institiute? (Yes or No)

E-mail id:

Phone/Mobile No.:

Payment details (for participants from non TEQIP institutes)

Bank Name:

Reference ID:

Amount transferred:

Date of transaction:

Any other relevant information:

Signature of the applicant with date