

Gujarat Technological University

Graduate School of Engineering and Technology

A Report on Expert Session

Fundamentals of Machine Learning and its Applications in Decision Making

(Date: 4th January, 2022)

The expert session (online mode) was organized by GTU-Graduate School of Engineering and Technology under its **Skill Enhancement Program Series**.

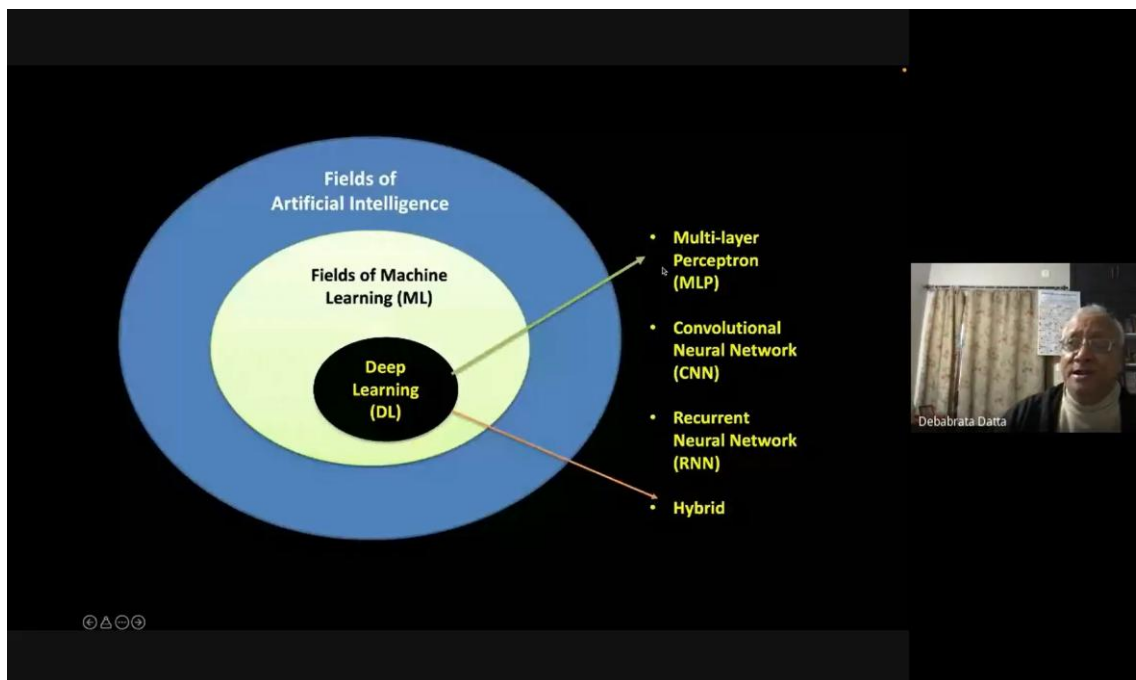
The resource person for this expert session was **Dr. Debabrata Datta** who is Senior Scientist-H (retired) & Former Head, Radiological Physics & Advisory Division at Bhabha Atomic Research Centre, Mumbai.

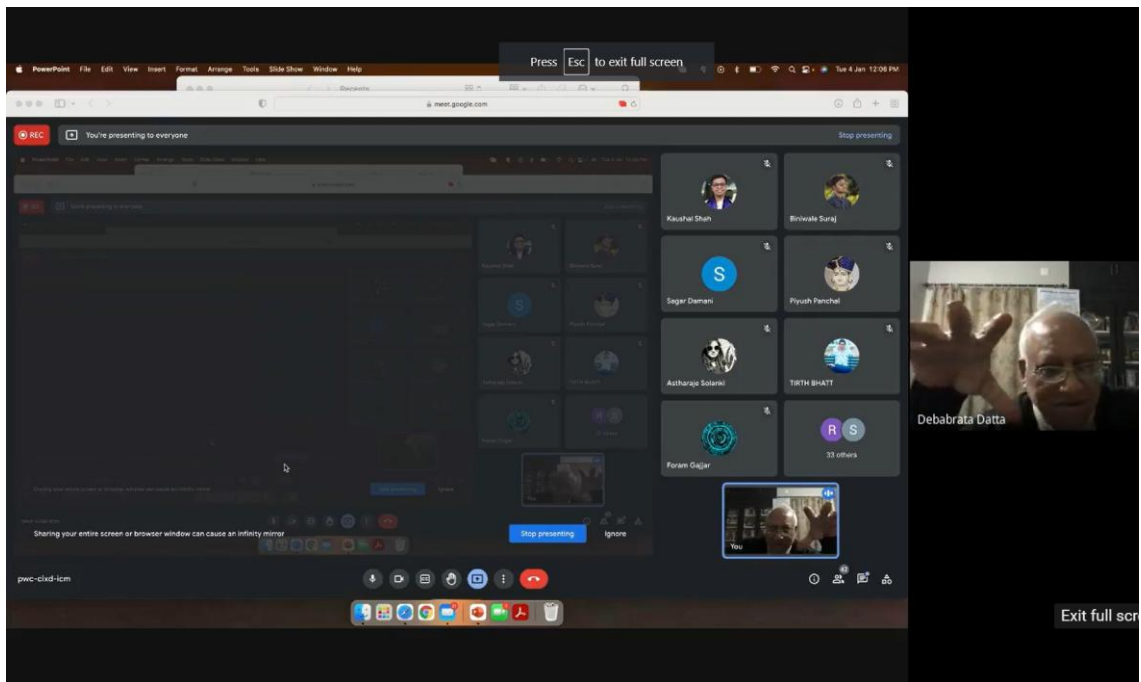
Objectives

- To provide the importance of ML algorithms in present applications.
- To provide insights of using ML for decision making.

Participants

Around 42 students of GSET (**PG Diploma in Data Science and M.E.-Cyber Security**) were joined and took advantage of this online expert session.





Fundamentals of Machine Learning and its Application in Decision Making (2022-01-03 at 21:10 GMT-8)

ANOVA Table

Source	Degree of freedom	Sum of squares (variation)	Mean square (variance)	F statistic
Regression (Model)	1 = DFR	SSR $\sum (y_{fit} - \bar{y})^2$	MSR = SSR/DFR = 152.12	MSR/MSE = 128.91
Residual (Error)	N-2 = DFE	SSE $\sum (y_i - y_{fit_i})^2$	MSE = SSE/DFE = 1.18	
Total	N-1 = DFT	SST $\sum (y_i - \bar{y})^2$	MST = SST/DFT = 9.125	

The screenshot also shows a video feed of a participant named Debabrata Datta in the bottom right corner. The bottom of the screen displays a video player interface with a play button, a progress bar at 45:26 / 1:49:54, and settings icons.

Content covered in brief

1. Fundamentals of Machine Learning
2. Supervised, Unsupervised and Reinforcement Learning with Applications
3. Bayesian Learning with Applications
4. Expectation Maximization Algorithm
5. Issues in Machine Learning (Overfitting and Underfitting)
6. Confusion Matrix, ROC Curve
