Day	10:00 - 11:30	11:30 - 11:40	11:40 - 13:10	13:10-14:00	14:00-15:30	15:30-15:40	15:40 - 17:10
July 25, 2022	Business problem to ML problem formulation - Vector representation; The Five Steps of Supervised Learning; Types of Data; Types of Mapping; Loss functions; Use case scenarios	Tea Break	ML Methodology - Gradient descent; Multi variate linear regression; Multi-class classification (Logistic regression); Standard ML Metrics & Plots	Lunch Break	Code and data demonstrations in SKLEARN - Data sets for conceptual and real for text, numerical, image, audio and video types; Classification models; Model comparison	Tea Break	Data complexities - Noise in data, missing values, class imbalance, wrong labels; Preprocessing; Production data deviations and setting alarms
July 26, 2022	Concept of automatic differentiation; Parametric and non-parametric methods; Decision Trees - Classification and Regression		Ensemble methods - random forests, gradient boosting; Bias and Variance trade off; Cross validation; Hyper parameter search; Feature reduction - PCA		Code and demonstration - Random forests, AdaBoost and GradientBoost, Bias and Variance, PCA, Feature selection and reduction		Unsupervised learning - clustering association and recommendation systems
July 27, 2022	Introduction to Neural Networks, Back propagation, Weight initialization and update		Introduction to convolutional neural network, mathematical formulation, filter update process		Convolutional Neural Networks for Computer Vision: Image Classification, Encoder-Decoder Networks for Image Segmentation, Object Detection using Conv Nets, GANs		Code demonstration using Pytorch - Neural Networks
July 28, 2022	Code demonstration using Pytorch - Convolutional Neural Networks		Introduction to reinforcement learning, Markov decision process, Policy evaluation, Optimal control, Bellman Equation, Value Iteration, Policy Iteration		Reinforcement learning setting, Learning from sample trajectories, Q-learning, SARSA, TD-learning, Eligibility traces, Function approximation techniques, Deep learning, Solving tic-tac-toe game using RL		Facts and Myths about ML/DL capability; Deductive reasoning; The idea of vector transformations as fundamental to deep neural networks
July 29, 2022	Industry Sessions on ML/DL		IIT Tirupati faculty projects in machine learning and demonstrations		Hands-on production maintenance issue of an ML model & debugging		Quiz and discussion