Electronics & ICT Academy

(Under Ministry of Electronics and InformationTechnology(MeitY),Govt.of India)

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Online Faculty Development Programme

on

Machine Learning for Image, Audio and Video Analysis

In Association with

GITAM (Deemed to be University), Visakhapatnam

Dates:26 June –01, July2023

Date	Time	Topic
Day-1 (26-06-2023)	10:00 am -10:15 noon	***INAUGURATION***
	10:15 am -01:00 pm	Introduction to AI and machine learning,Supervised, Unsupervised and Reinforcement Learning Introduction to Image, Audio and Video, History, Image Formation, Image Representation,Linear Filtering, Image in Frequency Domain, Image Sampling, Edge Detection, From Edges to Blobs and Corners, Scale Space, Image, Pyramids and Filter Banks
	01:00 pm-02:00 pm	***LUNCH BREAK***
	02:00 pm -03:00 pm	Introduction to Python (pandas and NumPy)
	03:00 pm -05:00 pm	Hands-on Practice
Day-2 (27-06-2023)	10:00 am -01:00 pm	Feature Detectors: SIFT and Variants, Image Segmentation, Other Feature Spaces, Human Visual System, Feature Matching, Hough Transform, From Points to Images: Bag-of-Words and VLAD Representations, Image Descriptor Matching, Pyramid Matching, From Traditional Vision to Machine Learning
	01:00 pm -02:00 pm	***LUNCH BREAK***
	02:00 pm -03:00 pm	Regression: Linear Regression and Logistic Regression,
	03:00 pm -05:00 pm	Hands-on Practice
Day-3 (28-06-2023))	10:00 am -01:00 pm	Bayesian Learning: Bayes theorem, Concept learning, Bayes Optimal Classifier, NaïveBayes classifier, Support Vector Machine (SVM): Types of support vector kernel – (Linear kernel, polynomial kernel and Gaussian kernel), Hyperplane – (Decision surface), Properties of SVM and Issues in SVM
	01:00 pm -02:00 pm	***LUNCH BREAK***
	02:00 pm -03:00 pm	Decision Tree Learning: Decision tree learning algorithm, Inductive bias, Inductive inference with decision trees
	03:00 pm -05:00 pm	Hands-on Practice
Day-4 (29-06-2023)	10:00 am -01:00 pm	Instance-Based Learning: k-Nearest Neighbour Learning, Locally Weighted Regression, Radial basis function networks
	01:00 pm -02:00 pm	***LUNCH BREAK***
	02:00 pm-03:00 pm	Case-based learning
	03:00 pm -05:00 pm	Hands-on Practice
Day-5 (30-06-2023)	10:00 am -01:00 pm	Reinforcement Learning: Introduction to Reinforcement Learning, Learning Task, Example of Reinforcement Learning in Practice, Learning Models for Reinforcement
	01:00 pm -02:00 pm	***LUNCH BREAK***
	02:00 pm-03:00 pm	Deep Generative Models: An Introduction, Generative Adversarial Networks, Variational Auto encoders, Combining VAEs and GANs, Beyond VAEs and GANs: Other Deep Generative Models
	03:00 pm - 05:00 pm	Hands-on Practice
Day-6 (01-07-2023)	05Hours	***PROJECT WORK***

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