Tentative Schedule: Deep Learning with Generative AI for Computer Vision November 8-19, 2024 (online live streaming mode)

Date	Day	2:30-3:00 PM	3:00-4:30 PM	Break	6:00 PM-8:00 PM	
November 8, 2024	Friday	**Inaugural session**	**Lecture(L)1**: Evolution of AI and Deep Learning**:** **Prof. Aparajita Ojha, PDPM IIITDM Jabalpur**		**Lab (LA) 1**: Brief introduction to Python, Jupyter Notebook, Google Colab, Keras, and Pytorch: **Dr. Poornima Singh Thakur, ABV IIITM Gwalior**	
November 9, 2024	Saturday	**L2**: Artificial Neural Network (ANN) Part 1: Introduction, forward and backward propagation: **Dr. Santosh Kumar Vipparthi, IIT Ropar**			**LA2**: Training a neural network for classification problem and evaluating its performance using standard measures **Dr. Samir Jain, alfaTKG Integrated Sol. Pvt Ltd.**	
November 10, 2024	Sunday	**Holiday**				
November 11, 2024	Monday	**L3**: ANN Part 2: Regularization and optimization, problems in training deep neural networks: exploding and vanishing gradient problems, Deep belief networks**: Dr. Santosh Kumar Vipparthi**			**LA3:** An Application of neural networks in health monitroing problems, python programmnig for a regression problem using ANN: **Dr. Samir Jain**	
November 12, 2024	Tuesday	**L4:** Convolution neural network(CNN): Part 1: Introduction, convolution operation, types of convolution operations typically used CNN for classification problems: **Prof. Pritee Khanna, PDPM IIITDM Jabalpur**			**LA4:** Building a CNN based emotion detection system: **Dr. Shiwangi Mishra, Asterbyte Software System**	
November 13, 2024	Wednesday	**L5**: CNN Part 2: Standard CNN architectures: VGG, Inception Net etc, and attention mechanism in CNNs : **Dr. Prashant Patil, IIT Guwahati**			**LA5**: Buidlnig a medical image segmentation model using CNN with transfer learning approach: **Dr. Samir Jain**	
November 14, 2024	Thursday	**L6**: Transformer networks, Vision Transformers and their self-attention mechanism**: Dr. Shiv Ram Dubey, IIIT Allahabad**			LA6: Fire/smoke identification in images using a Vision transformer based image classifier: Dr. Poornima Singh Thakur	
November 15, 2024	Friday	**L7**: Introduction to Autoencoder, Types of autoencoders and their plications, Variational autoencoders as generative models: **Prof. Pritee Khanna**			**LA7**: Deep learning models' explainability: **Prof. Aparajita Ojha**	
November 16, 2024	Saturday	**L8**: Generative AI, Discriminative and generative models, Generative Adeversarial Network (GAN), Different types of GAN and their applications, Transformers in generative modeling: **Dr. Prashant Patil**			**LA8**: Deepfake image detection **Dr. Mohan Karnati, NIT Raipur**	
November 17, 2024	Sunday	**Holiday (Quiz 4 - 5 PM)**				
November 18, 2024	Monday	**L9**: Deep learning applications: Image and video restoration for automated applications: **Dr. Prashant Patil**			**LA9:** Training a GAN for data augmentation: **Dr. Poornima Singh Thakur**	
November 19, 2024	Tuesday	Inderwater image enhancment using deep learning models: **Dr. Santosh Kumar Vipparthi**			**L11**: Image and video quality assessment : deep learning models: **Dr.Vinit Jakhetiya, IIT Jammu**	**Valedictory: 7:30 PM to 8:00 PM**