Course Instructor: Dr Chiranjib Sur

Course Webpage: https://chiranjibsuruf.github.io/courses/da312.html

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Objectives:

Prerequisites:

Course Code: DA312

Course Name: Advanced Machine Learning Laboratory

Credits: 0-0-3-3

Syllabus: Familiarization with TensorFlow/PyTorch; Implementation of MLP: Training Issues with Deep Networks, Applications; Autoencoders: Practical Applications; CNN: Constructing small networks to classify MNIST/CIFAR10, training issues; CNN: Realizing popular architectures, experiments with ImageNet scale data; Object/Face detection and localization; RNN and LSTM: training on sequences; Application in NLP: sentence representation using LSTM; Multimodal applications: vision and language.

Textbooks:

- Zhang, Aston, Zachary C. Lipton, Mu Li, and Alexander J. Smola, Dive into deep learning, 2021.

- Ian Goodfellow, Yoshua Bengio and Aaron Courville, Deep Learning, MIT Press, 2016.

- Michael A. Nielsen, Neural Networks and Deep Learning, Determination Press, 2015.

References:

- C. M. Bishop, Pattern Recognition and Machine Learning (Information Science and Statistics), 2nd Edition, Springer, 2011.

- S. O. Haykin, Neural Networks and Learning Machines, 3rd Edition, Pearson Education (India), 2016.