

## Optimisation for Deep Learning Models (30 June- 4 July)

	9:00- 10:30	10:30-11:30	11:30-13:00	13:00-14:00	14:00-15:30	15:30-18:00
Day1	Introduction to Optimization in Deep Learning	Loss Surface Geometry and Challenges in Optimization	Impact of different optimizers on the training of DNN	Lunch	Hyperparameter tuning (Random, Grid, Bayesian)	Lab
Day2	Weight Initialization Strategies (Xavier, He, Orthogonal)	Activation Functions: Role in Optimization	Mini Batch Learning Rate Schedulers (Step, Cosine, One Cycle, etc.)		Second-Order Optimization (Newton, L-BFGS, K-FAC)	Lab
Day3	Overfitting in Deep Networks: Causes and Detection	Dropout, Weight Decay, Early Stopping	Model Compression Techniques		Transfer learning and Fine-Tuning	Lab
Day4	Recurrent Neural Networks	Convolutional Neural Networks	Graph Neural Network		Long Short-Term Memory	Lab
Day5	Text Classification & Sentiment Analysis	Language Modeling & Embeddings	Transformers and Attention Deep Dive(Encoder – Decoder)		Lab	Quiz