Course Structure

07 September 2025 09:48

[8–10 weeks] : Tentative

Module #① Introduction to deep learning (DL)

- Difference b/w ML, DL, AI, GenAI, LLM, Agentic AI, DS, RAG, NLP
- Use cases of DL in the industry
- (domain wise) ↔ examples
  - → Supply chain
  - → Healthcare
  - → BFSI etc.

Module #2 Introduction to Artificial Neural Networks (ANNs)

- connecting the dots between the human nervous system and neural networks } Intuition
- gradient descent algorithms (GDAs)
  - → Batch
  - → Mini-Batch
  - → Stochastic

  } writing our own codes for GDAs leveraging maths.
- Single Layer Perceptron (SLP)
- Multiple Layer Perceptron (MLP)
- Parameters in ANNs → weights, biases
- Activation Functions (AFs)
  - relu, sigmoid, softmax, tanh etc.

Building a proper ANN from scratch.

- using IRIS dataset

Module #③ Neural Network Framework

- Introduction to TensorFlow
- Introduction to Keras

} (sequential Modelling Approach)

MNIST database: Handwritten digits recognition hands on.

Module #④ Convolutional Neural Networks (CNNs)

Module #⑤ Natural Language Processing (NLP)

Module #⑥ Recurrent Neural Networks (RNNs)

Module #⑦ Long short term Model. (LSTM)

- Miscellaneous topics