Module Name: (A.5) Machine Learning

Aim

This module aims to introduce the main principles of traditional machine learning algorithms as well as modern deep learning models and their applications.

Learning Objectives

The main learning objectives include the ability to understand the operational principles of the machine learning algorithms and to use them towards developing intelligent systems.

Learning Outcomes

On successful completion of this module, students should be able to:
- Analyze scientific research papers and describe machine learning algorithms.
- Construct and pre-process datasets.
- Understand and apply Deep Learning models.
- Understand and apply Natural Language Processing algorithms.
- Apply pattern recognition algorithms in order to distinguish different patterns.
- Apply machine learning algorithms using Python, Scikt-Learn, Keras and Tensorflow.
- Build a machine learning system.
- Analyze the performance of a machine learning system.

Bibliography

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[3] Scholkopf and Smola, Learning with Kernels, 2002.

[4] Y. LeCun, Y. Bengio, G. Hinton, "Deep learning", nature 521 (7553), 436-444, 2015.

[5] Ian Goodfellow, Yoshua Bengio, Aaron Courville, "Deep Learning", MIT Press, 2016.

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