ARTIFICIAL NEURAL NETWORKS (3+0)

COURSE CONTENT

The concepts of the artificial neural networks, types of neural networks and their operation principles, the training algorithms, back-propagation, feed-forward and recurrent networks. Paper review activities on deep learning and machine learning is also introduced.

AIM OF THE COURSE

This course is prepared for the graduate students for learning the basic concepts and principles behind the ANNs. By completing this course they will be able to define and understand different types of ANNs and their use in different areas. They are expected to search and analyse a scientific paper on ANNs and their applications.

TEXT BOOK

Martin T. Hagan , "Neural Network Design"

Topics

1. Basic Concepts
2. Perceptrons
3. Supervised Hebbian learning
4. Optimization algorithms
5. Widrow-Hoff learning
6. Back-propagation
7. Generalization
8. Dynamic Networks
9. Associative Learning
10. Competitive Networks
11. Radial Basis Networks
12. Hopfield Networks
13. Discussions
14. Paper review

Grading

Midterm : 30%

Project : 40%

Final : 30%