EE 6363: Adaptive Pattern Recognition
Spring 2007

Pre-requisites: Basic background in probability, linear algebra, and set theory

Textbook: Richard O. Duda, Peter E. Hart, and David E. Stork: Pattern Classification, 2nd Edition , Wiley and Sons, 2000

References:

1. Robert Schalkoff, Pattern Recognition : Statistical, Structural, and Neural Approaches, John Wiley & Sons, Inc., 1992
2. K. Fukunaga, Introduction to Statistical Pattern Recognition, Academic Press, 1990
3. Y-H Pao : Adaptive Pattern Recognition and Neural Networks, Addison-Wesley, 1989
4. C. T. Lin, and C. S. George Lee, Neural Fuzzy Systems : A Neuro-Fuzzy Synergism to Intelligent Systems, Prentice Hall, 1996

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Topics:

1. Machine perception, pattern recognition systems, learning and adaptation, adaptive pattern recognition

2. Statistical pattern recognition : Bayesian decision theory, maximum likelihood and Bayesian estimation, parametric and nonparametric techniques, linear discriminant functions

3. Unsupervised learning and clustering

4. Neural Networks and adaptive pattern recognition, linear network structure and mathematical representation, feedforward networks and backpropagation, the Hopfield approach, self-organizing networks and unsupervised learning

Several projects including a final project will be assigned.