Machine Learning for Signal Processing

Semester - Aug-Dec  
Type - Elective  
Credits - 3:1  
Instructor - Sriram Ganapathy

Course Objectives - The goal of this course is to develop techniques which can enable machines to understand complex real-world signals like text, speech, images, videos etc. This course will cover methods which analyze, classify and detect the underlying information modalities present in real-world signals. This course consists of descriptions of signal processing tools for learning patterns in image and speech signals as the description of a class of machine learning tools which have been successfully used for these signals. There will be an emphasis on the application to image and speech recognition with roughly about 25% of the course driven from this perspective. This will be enforced by a final project submission on one of these applications.


Grading Details
Assignments (10%)  
Midterm exam. (20 %)  
Final exam. (50 %)  
Project (20 %)

Pre-requisites
1. Random Process/Probablity and Statistics  
2. Linear Algebra/Matrix Theory  
3. Basic Digital Signal Processing/Signals and Systems

Textbooks

References