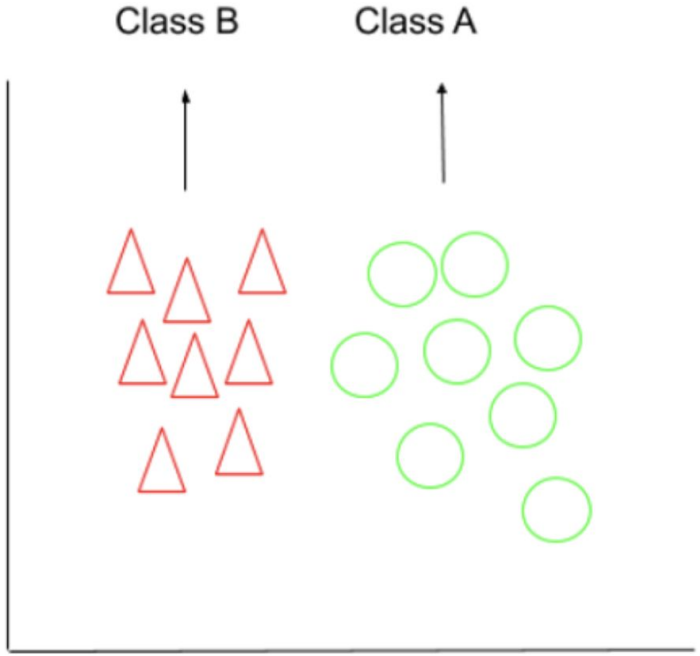
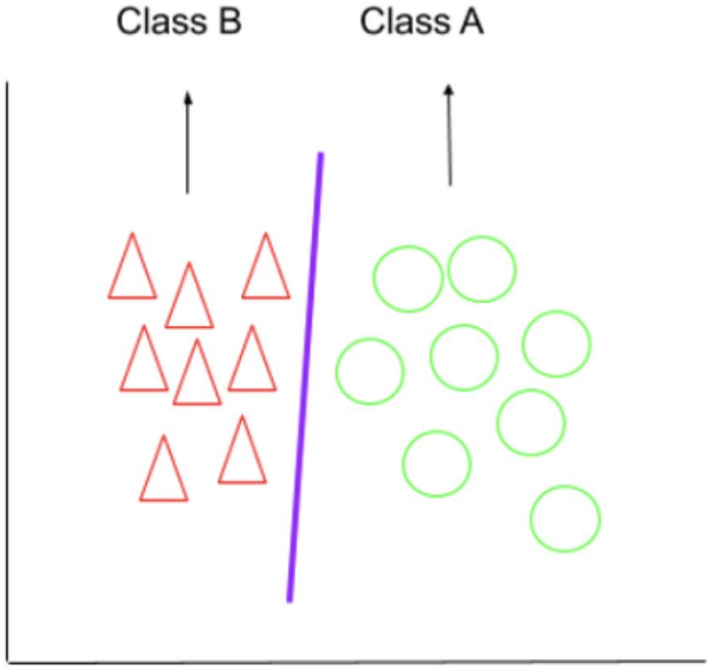
MIDS W207
Applied Machine Learning

Week 8
Live Session Slides

Support Vector Machines

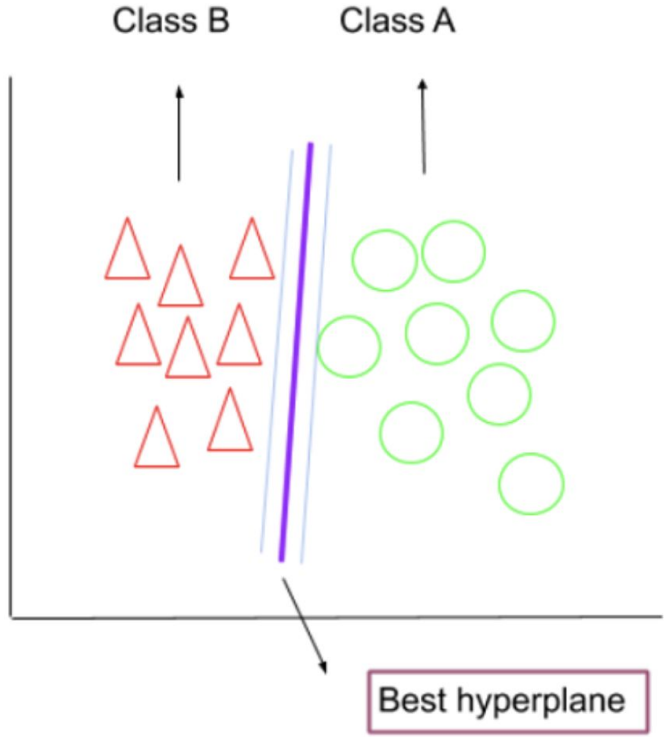


Class A and B

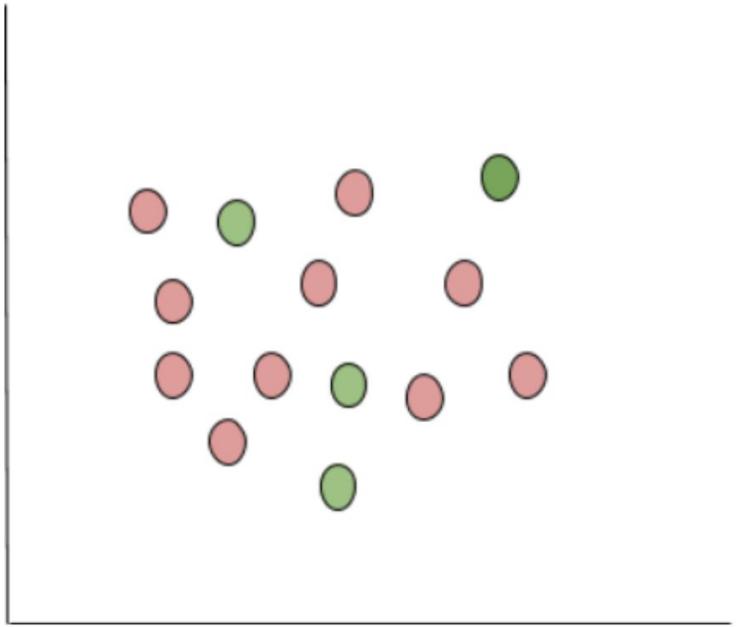


Labelled Data

Support Vector Machines



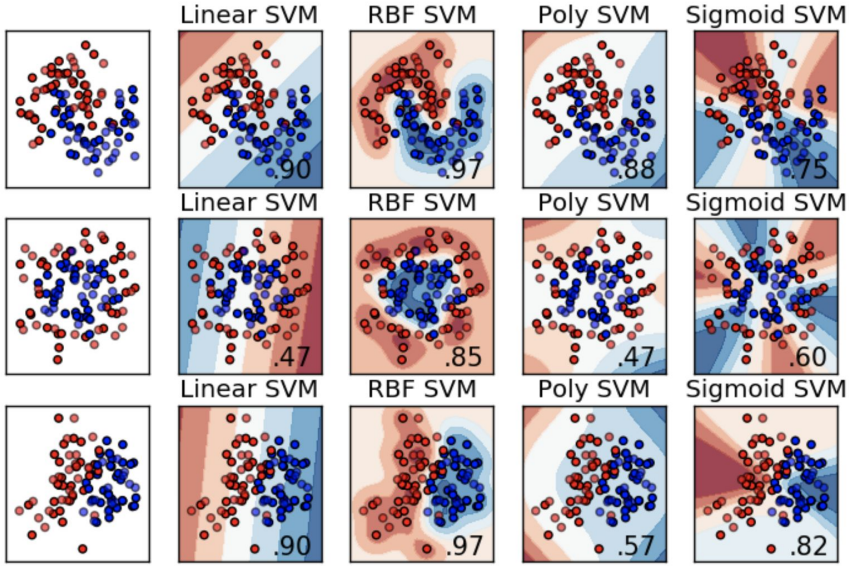
Support Vector Machines



Linearly non-separarable dataset

Support Vector Machines: Kernel Trick

Cover's theorem - "given a set of training data that is not linearly separable, with high probability it can be transformed into a linearly separable training set by projecting it into a higher-dimensional space via some non-linear transformation"

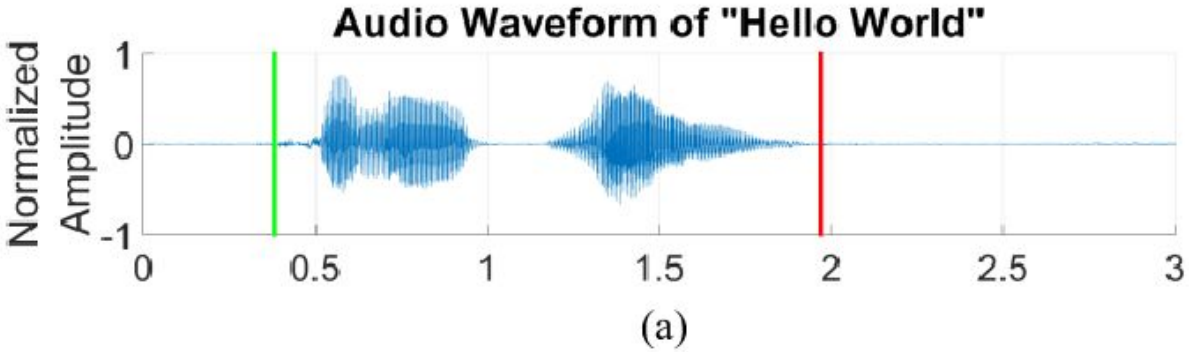


Support Vector Machines: Kernel Trick

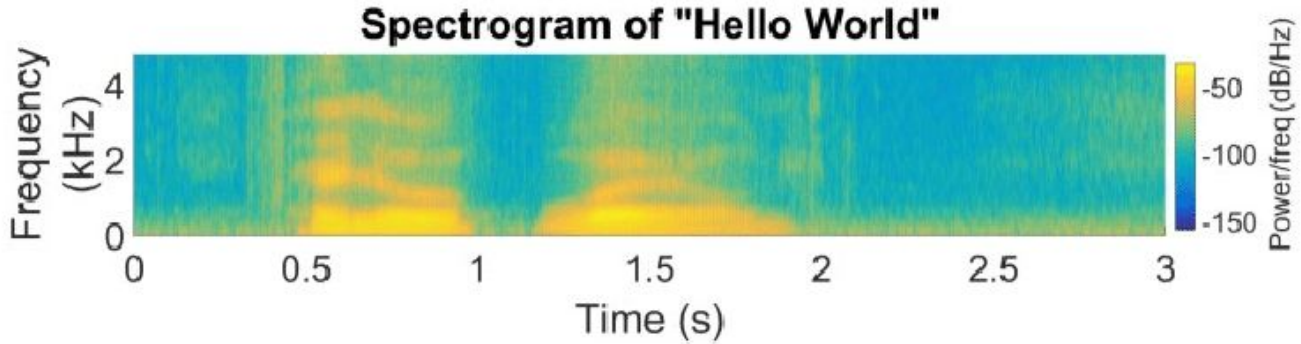
Type of Kernel	Used for
Polynomial Kernel	Image Processing
Gaussian Kernel	General-purpose kernel; used when there is no prior knowledge about the data
Radial Basis Function (RBF)	General-purpose kernel; used when there is no prior knowledge about the data
Hyperbolic tangent kernel	Used in neural networks
Sigmoid kernel	proxy for neural networks
ANOVA radial basis kernel	Regression functions
Linear splines kernel in 1-D	Dealing with large sparse data vectors, text categorization

Code Review

Speech Recognition

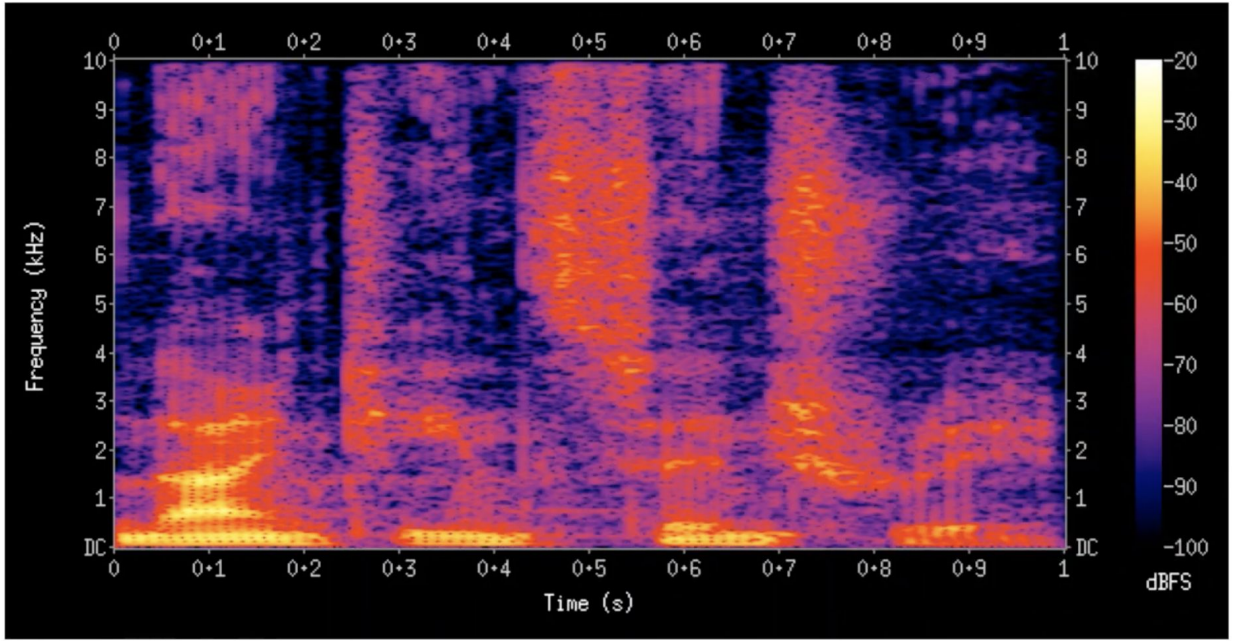


(a)

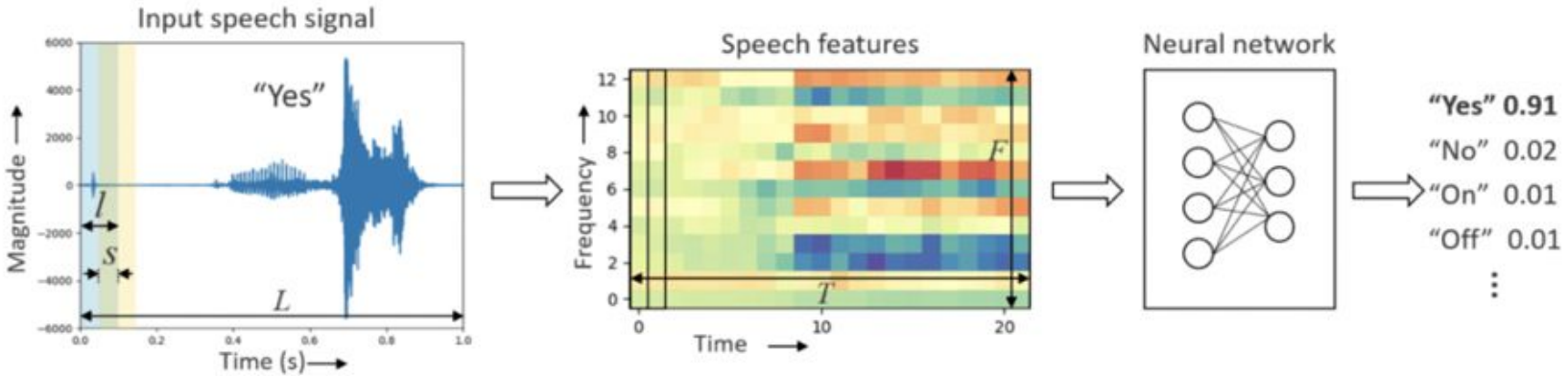


(b)

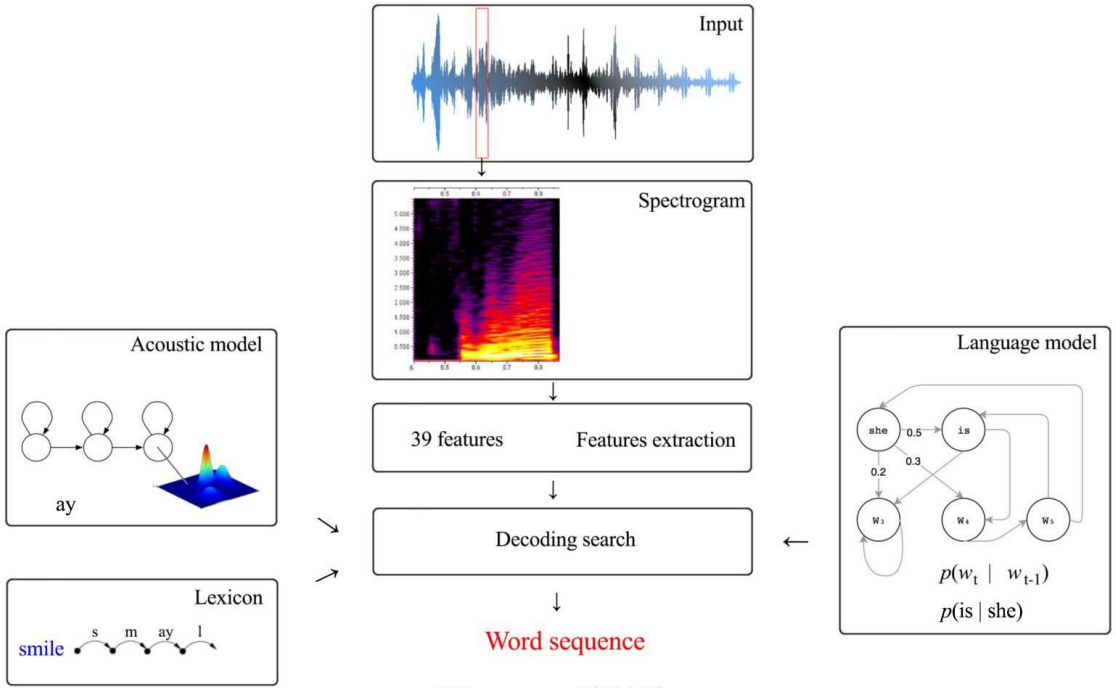
Speech Recognition



Speech Recognition



Speech Recognition



Article Review

Breakout Session Exercise