Pattern Classification

for

postgraduates

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INDEX

- Introduction

    - What is Classification?

        * Let's start with an example — Female sermon and Male sermon.

- Bayesian Classification – I

    - What if we know only prior density of each class?
    - How conditional posterior distribution probability improves liklyhood of classes?
    - Bayesian Decision Theory.
    - Classiffication by *likelyhood-ratio*.

- Bayesian Classification – II

    - When class-conditional distribution of obserbations is Gaussian pdf?

        * One-dimensional case.
        * Two-dimensional case.
        * Higher-dimensional case.

- Bayesian Classification – III

    - When we know class-conditional distribution $p(\mathbf{x}|\omega)$ but don't know some of its parameters $\boldsymbol{\theta}$?

        * Maximam likelihood parameter estimation.
        * Bayesian parameter estimation.

- Bayesian Classification – IV

    - When we don't know know class-conditional distribution $p(\mathbf{x}|\omega)$?

        * Parzen window approach.
        * Probabilistic Neural Network implementaion of Parzen window approach.
        * k_m-nearest neighbor approach.

- Bayesian Belief Network.

- Hidden Markov Model.

- Fuzzy Logic Classification.