Machine Learning

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Hidden Markov Model - An Introduction

- Hidden Markov model (HMM) is a powerful mathematical technique to study sequential data.
- The HMM of a system consists of a Markov process, in which its states are hidden (or latent). That is, these states are not directly observable. These states are called *latent states.*
- However, the system is visible indirectly via another set of states. These later states, are called the *observable states.*
- The observable states of the system are dependent upon the latent states of the underlying Markov process.
- This perspective is very useful in modeling several instances of sequential data, where a data point is indirectly dependent upon its immediately preceding data point.
- The applications of HMM are many and varied. Some of these are:
  - Cryptanalysis
  - Speech recognition
  - Time series analysis
  - Activity recognition
  - Bioinformatics
  - Metamorphic virus detection
  - and so on.