Hidden Markov Models

Rapid Learning Session 2014

1 Introduction

1.1 What is a hidden Markov model?

1.2 What kind of data is well modeled by a HMM?

1.3 Well known examples of HMMs in practice

2 Algorithms

2.1 Formal Definition of a HMM

2.2 Interpretation

2.3 The Baum-Welch Algorithm

2.4 The Viterbi Algorithm

2.5 Caveats

3 Exercise 1

3.1 Problem Statement

3.2 Estimating emission probabilities for individual states

3.3 Estimating transition probabilities between states

4 Exercise 2

4.1 Problem Statement

4.2 Estimating HMM parameters with the Baum-Welch algorithm

4.3 Predicting the most likely state sequence using the Viterbi algorithm