1 HMMs (10 points)

Do question 15.4.

2 HMM implementation (20 points)

Implement the matrix-vector version of the forward-backward algorithm as described in section 15.3.1 of the text.

1. Demonstrate that your code produces the same answers for the example from the class slides as what was worked out in the slides.
2. Demonstrate that your code produces the probabilities as what you computed by hand for your answer to question 1.

3 Viterbi Path (10 points)

Modify your answer to the previous problem to compute the Viterbi path.

1. Determine the Viterbi path for the example from class.
2. Verify that your code produces the same path that you computed by hand for your answer to question 1.

4 Value of Information (10 points)

Do problem 16.17.

5 Value of Information (10 points)

Prove that the value of information is always non-negative.

6 Game Theory (10 points)

Do problem 17.21.