

### HMM Reading #1: **Hidden Markov Model for Stock Trading**

This article views how a HMM can be applied to “predict economic regimes and stock prices,” and comes to the conclusion that the use of HMM with two to six states tested with several criteria, comparing its results with the historical average return (HAR) model, and then applying both the HMM and HAR model to trade stock and confronting the results leads to an approach that “outperforms” the traditional method of “predicting and trading stocks.” The most important idea from this paper is the power that Hidden Markov Modeling has in comparison to techniques that have been used in the past to predict events that will happen in the future. Though in this text it is applied to stock trading, that it outperformed two other predictive techniques for stock trading (HAR model and “Buy & Hold”) demonstrates how valuable HMM can be when applied to different fields.

### HMM Reading #2: **Gene finding and the Hidden Markov models**

This article describes the process for finding genes in prokaryotes and eukaryotes, and states that in prokaryotes, through the use of attributing significance to the different possible ORFs of a sequence of DNA, the codons of the genome can be found. For eukaryotes, however, it claims that the primary method for finding genes is the use of Hidden Markov Models. Here, HMM is used to detect “eukaryotic genes and their segmentation into exons and introns,” and by training the HMM using supervised and unsupervised learning, the results can be refined. Though this article does not completely describe the method they are used due to the “complexity” behind them, the article still reveals the strength that HMM has in predicting otherwise complex data.

Final Project Reading: <https://www.washingtonpost.com/health/2020/04/06/coronavirus-stay-at-home-by-state/>

This article provides information regarding the dates of stay-at-home orders for each state, as well as other restrictions that apply to each state. For states where no restrictions have been applied as of April 20<sup>th</sup>, it simply states that no statewide stay-at-home orders have been enacted; The states with no statewide stay-at-home orders as of April 20<sup>th</sup> are Arkansas, Iowa, Nebraska, North Dakota, Utah, and Wyoming, while Oklahoma has no statewide stay-at-home orders “except for older and immunocompromised people.” Knowing the start date for stay-at-home orders provides information that can be used to find correlations between the effects of these orders and various other factors, such as the rate of infection before and after those orders.