

1096-62-2312 **Nguyet T Nguyen*** (nnguyen@math.fsu.edu), 165 Crenshaw #12, Tallahassee, FL 32310.
Hidden Markov Model for High Frequency Data.

Hidden Markov Models (HMM) are used for both single and multiple observation time series data. In particular, HMMs are used to predict the hidden regimes of these observations. Therefore they are widely applicable in many different areas such as speech recognition systems, computational molecular biology, and financial economic predictions.

We use HMMs for multiple observation data and for single observation data to predict the economic regimes and stock prices. We find that the HMMs for multiple observation data dominate the HMMs for single observation data in the prediction of daily stock prices and of monthly economic regimes. Our new application of HMMs for high frequency data gives impressive results. HMMs can predict a stock bid price in the next second with a relative error less than 0.001. (Received September 17, 2013)