Abstract: Hidden Markov Models (HMM) contains two interrelated models. The first is the state, and the second, is the observation model. HMM allows us to account for uncertainties regarding processes that change their behavior depending on the state the process is in. Inferences are focused on the changes in these states and the parameters of the process. We investigate a Bayesian framework to make HMM inferences using simulated data via code written in STAN, a newish Bayesian language. We will discuss the code and how it makes the inferences from HMM more efficient, discuss various extensions and attempts at applying it to real data.

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