Project 7: Magnitude estimation

1) Implement the magnitude estimation model described in Chapter 6 (section 2.1) of *Computational Foundations of Cognitive Neuroscience*. Simulate how bias (average difference between the true and estimated magnitude) and variance of magnitude estimates change as a function of the model parameters.

2) How might sample size (N) be realized neurally?

3) One way to model the effects of tonic dopamine manipulations is via the attentional incentive parameter (β). What do you predict will happen to magnitude estimation across different levels of tonic dopamine, for example with Parkinson's patients on and off dopamine medication? Describe how this could be related to the findings of Manohar et al. (2015).

References:

Manohar, S. G., Chong, T. T. J., Apps, M. A., Batla, A., Stamelou, M., Jarman, P. R., ... & Husain, M. (2015). Reward pays the cost of noise reduction in motor and cognitive control. *Current Biology, 25,* 1707-1716.