Group 4: Project 1

1) Implement the divisive normalization equation for value as described in Louie et al. (2011). Show how this model can produce context-dependent modulation of value signals (see Figure 7).

2) Implement the spatiotemporal normalization equation proposed by Louie et al. (2015). Describe and simulate a hypothetical experiment that would test the joint effects of spatial and temporal context on neural coding of value.

3) Discuss the experimental and theoretical evidence for value normalization.

4) What is the relationship between value normalization and the "efficient coding" hypothesis?

References:

Louie, K., Grattan, L.E., & Glimcher, P.W. (2011). Reward value-based gain control: divisive normalization in parietal cortex. *Journal of Neuroscience, 31,* 10627-10639.

Louie, K., Glimcher, P.W., & Webb, R. (2015). Adaptive neural coding: from biological to behavioral decision-making. *Current Opinion in Behavioral Sciences, 5,* 91-99.