

P847: Readings on Information Optimization (To be discussed in class Nov 25)

Read the two papers on oscillators:

1) Gregor, T., Tank, D. W., Wieschaus, E. F., & Bialek, W. (2007). Probing the limits to positional information. *Cell*, 130(1), 153-164.

2) Tkačik, G., Callan, C. G., & Bialek, W. (2008). Information flow and optimization in transcriptional regulation. *Proceedings of the National Academy of Sciences*, 105(34), 12265-12270.

Paper 1 is some of the most accurate quantitative measurements of morphogen gradients. Paper 2 shows that by optimizing mutual information, that the observed input-output relationship measured in (1) is near optimal.

Come prepared to discuss each figure. Are the results sound? what are the conclusions? what questions remain unanswered?