Frequency adaptation in a biologically plausible V1 network model

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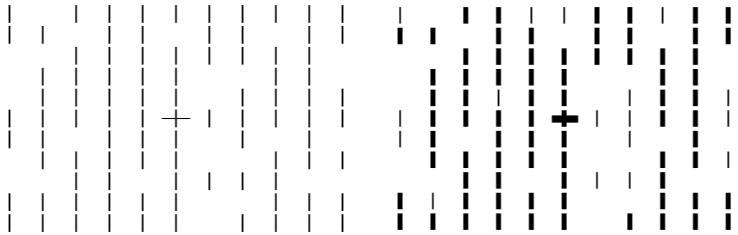
- Model

Z. Li “A saliency map in primary visual cortex”, Trends in Cognitive Sciences, Vol. 6, No. 1, page 9-16, 2002.

- Proposals

8. Firing rates of output cells in V1 signal saliency independently of their feature tuning



12. The receptive fields of V1 cells and their contextual influences are mechanisms to define a saliency map from visual inputs

Firing rate model: recurrent dynamics

$$\frac{dx_i}{dt} = -x_i - g_y(y_i) + \mathrm{J}_0 g_x(x_i) + \sum_j \mathrm{J}_{ij} g_x(x_j) + I_i$$

$$\frac{dy_i}{dt} = -y_i + \sum_j \mathrm{W}_{ij} g_x(x_j) + I_c$$

- Objectives

2. Introduce frequency adaptation into Li's model to obtain more biologically plausible results

3. Validate model within visual marking paradigm