



Figure 1: Visual integration and the distribution of long-range projections. (a) Broad tuning in orientation and position introduce uncertainty in curve integration even if a single curve model (thick red curve) is assumed through the RF. Determining which nearby RF the curve continues through can be facilitated by interaction between neurons with mutually aligned, retinotopically close RFs. (b) A fundamental measurable property of long-range connection is their distribution in the orientation domain, that is, the percentage of connections between interconnected neurons as a function of preferred orientation (angular) difference. This graph shows the median distribution of lateral connections (distance > 500 μ m) of seven cell clusters in primary visual cortex of tree shrew (redrawn from Bosking et al., 1997, their Fig. 6c). Qualitatively similar (through coarser) measurements are available on primates as well (Malach et al., 1993). (c) Connectivity distribution of individual cell clusters reveals significant variability and qualitative differences between them. Shown here are distributions from two injection sites from Bosking et al. (1997).