



Figure S3. **Spatial modulation of afferent excitatory drive from the population of simulated grid inputs is modified by modular realignment.** For each pixel in the environment, we compute the magnitude of the population rate vector of the grid responses (Equation 1). The spatial modulation of excitation due to the original environment A (left) used for the realignment examples (Figure 5) shows several distinct peaks and valleys [cf. Figure 5 of Almeida et al. (2009) *J Neurosci*, 29(23), 7504–7512]. The three realignments using two random modules have varying effects on the distribution of excitation across the environment (three right panels). With just two independently realigning modules, the relative effects of realignment on the spatial distribution of excitation are apparent from visual inspection.