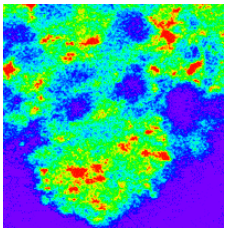
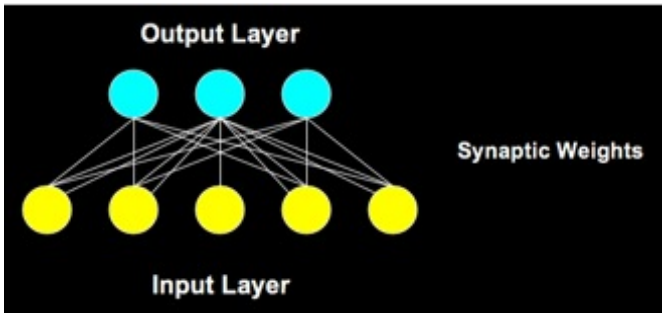
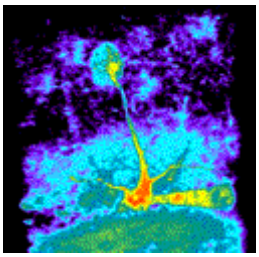
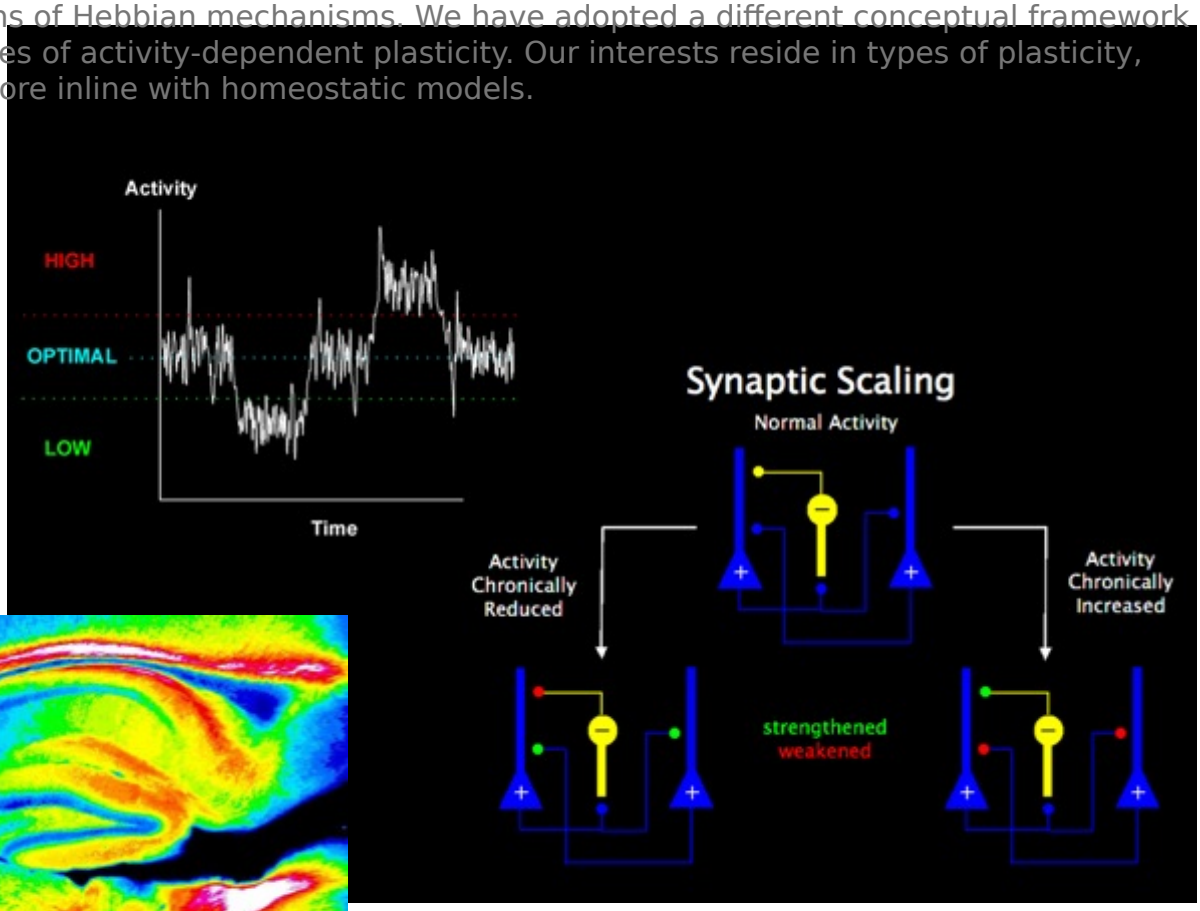






Studies of activity-dependent plasticity have been (and still are) dominated by investigations of Hebbian mechanisms. We have adopted a different conceptual framework for our studies of activity-dependent plasticity. Our interests reside in types of plasticity, which are more inline with homeostatic models.



activity occur. We investigate hippocampal synapses as one model to explore homeostatic mechanisms.

Our primary model, however, is the rodent olfactory system. Here, we can more easily control sensory experience. In fact, we are able to study the exact circuits responsible for encoding known sensory stimuli - we can have near absolute control of any given odor stimulus - even giving odor stimuli contextual values (learning). These advantages are quite powerful. We study olfactory glomeruli, which are neuronal relay stations - the synapses in these structures are responsible for initially processing incoming odor information. We are testing our hypothesis that the stability (or instability) of environmental cues (odors in this case) can trigger homeostatic mechanisms thereby underlying sensory gain control.