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Attentional modulation of stimulus competition in a large scale model of the visual pathway CALIN BUIA, University of North Carolina at Chapel Hill, PAUL TIESINGA, University of North Carolina at Chapel Hill — Neurons in cortical area V4 are sensitive to shape and have large receptive fields. In a typical visual scene there are multiple objects in the V4 cell's receptive field, only a few of which may be behaviorally relevant. The visual system is capable of selecting relevant objects by increasing the neural response to them and reducing the response to non-relevant objects. Neuronal synchrony may play an important role in this process. Using a large-scale network model of the visual pathway, we study the emergence of shape selectivity in V4, the competition between different objects for control of the firing rate of individual V4 neurons, the attentional modulation of this stimulus competition and the role of synchrony.

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