Speaker       Michael E. Goldberg, MD, David Mahoney Professor of Brain and Behavior in the Departments of Neuroscience, Neurology, Psychiatry, and Ophthalmology, Columbia University College of Physicians and Surgeons  
Time           4pm, Departmental Tea immediately following.  
Date           Friday, 27 February 2009  
Place          Singleton Auditorium, 46-3002  
Title          On the agnosticism of spikes: saccades and attention in the lateral intraparietal area of the monkey.  
Host           Bob Desimone  

Abstract: 

There has been a debate about the role of the parietal cortex in the generation of movements. The lateral intraparietal area (LIP) is important in the brain’s processing of eye movements, and the LIP version of the debate is whether it actually drives the movements (‘intention’) or selects targets for further processing (‘attention’). Under different circumstances, both concepts are correct: If a distractor appears while a monkey plans a memory-guided saccade elsewhere, the monkey’s attention, as measured by perceptual threshold, moves from the goal of the saccade, and then returns. The activity of neurons in LIP predict the monkey’s attention even when the locus of attention is away from the saccade goal. Conversely, under conditions of visual search, the activity of LIP neurons predicts the goal and reaction time of eye movements. I will propose that LIP represents a priority map of visual space. The oculomotor system uses this map to choose the target of the next saccade, when saccades are appropriate. The visual system uses the same map to determine the locus of visual attention. The map is created by the combination of visual, oculomotor and cognitive signals. It is sharpened by lateral inhibition, and describes the world in visual, rather than in motor coordinates.