The University of Hong Kong
Department of Psychology

Departmental Seminar

Two visual motion systems for the perception of the movements of oneself and others

Date: February 14, 2014 (Friday)
Time: 11:30 a.m. – 12:30 p.m.
Venue: Room 8.13, 8/F The Jockey Club Tower, Centennial Campus, HKU
Speaker: Professor Markus Lappe
The University of Muenster

The vision systems of most animals are exquisitely sensitive to motion on the retina. In the typical situations that an animal may encounter there are two primary sources of retinal motion. Retinal motion occurs either because oneself moves, or because another animal moves. My talk will be about the differences between these two situations. The first one, self-motion, gives rise to optic flow, a pattern of retinal motion vectors that allows to estimate self-motion and the 3D structure of the environment directly from an analysis of the motion vectors. This is possible because the rigidity of the world constrains the computations of the motion pattern analysis. The second case, that of another animal's movement, is known as biological motion. Computationally this is more difficult since the rigidity constraints on the motion pattern are smaller because of the many degrees of freedom of the animal's body. I will argue that biological motion perception does not uses motion pattern analysis in the way that optic flow does, but rather analyses motion on the basis of body structure templates. I speculate that the two types of motion use distinct mechanisms and brain pathways, but share some basic principles at the conceptual level.