

December 11 and 16, 2009

The representation of space in biological and artificial systems

Prof. Ferdinando (Sandro) Mussa-Ivaldi

Department of Physiology
Department of Physical Medicine and Rehabilitation Department of Biomedical
Engineering Northwestern University Sensory Motor Performance Program
Rehabilitation Institute of Chicago

ABSTRACT OF THE TALK

I will discuss some of the following topics:

Neural models of extrapersonal space (affine and Euclidean) for navigation.

Tolman's cognitive map.

Place cells and grid cells.

Path integration problem. The Kalman's framework.

Extrapersonal space in manipulation.

Remapping of motor coordination. Redundancy.

Null-space/task space decomposition.

The integrability problem in nonlinear inverse kinematics.

Temporal influences on space representations.