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## Séminaires ISIR

Jan Koenderink

Jeudi 18/19 Juillet 2013

Campus Jussieu, 4 place Jussieu, Paris  
Salle de réunion H20

Le Jeudi 18 Juillet à 14h00 : « *Geometry Engines* »

Le Vendredi 19 Juillet à 11h00 : « *Pictorial Space* »

Le Vendredi 19 Juillet à 14h00 : « *Space-Time of Visual Awareness* »

### Abstracts:

#### *Geometry Engines*

Can geometry (space) be “embodied”? I suggest an account of singly isotropic differential geometry of fiber bundles that might be implemented as a cortex-like structure. In this account cortical cells are differential operators (which exhausts their “meaning”). Such a formalism suggests that certain properties of ensemble activity have invariant significance. A simple example is “shape from shading”.

#### *Pictorial Space*

Up to the close of the 20th c. the geometry of pictorial space had hardly been investigated due to the lack of suitable methods. Presently, novel methods allow one to collect measures of truly geometrical quantities. This has led to a fairly complete understanding of the geometry -a fiber bundle with singly-isotropic metric.

#### *Space-Time of Visual Awareness*

Is the space-time of visual awareness a priori (Kant), an approximately veridical representation of physical space-time due to perceptual-motor learning (Lotze, Helmholtz), or an idiosyncratic construction serving as a “user interface”? Some demos suggest the latter. The space of awareness is a global construction in an animal’s Umwelt that acts as a “glue” for locally coherent fragments.

### Biography:

Jan Koenderink: Graduated in Physics and Mathematics at Utrecht University, he has been successively associate professor in Experimental Psychology at the Groningen University, and professor at Utrecht University where he held a chair in the Department of Physics and Astronomy. In 2008, he was forced to retired, cofounded the Hemholtz Instituut at Utrecht, and is now an emeritus professor of Utrecht University. His main interests are the psychology and philosophy of perception, computer vision and ecological physics, in all cases both theoretically and empirically.

<http://www.gestaltrevision.be/en/about-us/contact/all-contacts/45-jan-j-koenderink>

Sous la co-tutelle de

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**Institut des Systèmes Intelligents et de Robotique**  
UPMC – CNRS / UMR 7222  
Pyramide Tour 55 - Boîte courrier 173  
4 Place Jussieu – 75252 PARIS cedex 05 – France  
Tél. +33 (0)1 44 27 51 31 / 51 41 – Fax +33 (0)144 27 51 45