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Local gist vision of man-made objects

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Attention is usually modelled by sequential fixation of peaks in saliency maps. Those maps code local conspicuity: complexity, colour and texture. Such features have no relation to entire objects, unless also disparity and optical flow are considered, which often segregate entire objects from their background. Recently we developed a model of local gist vision: which types of objects are about where in a scene. This model addresses man-made objects which are dominated by a small shape repertoire: squares, rectangles, trapeziums, triangles, circles and ellipses. Only exploiting local colour contrast, the model can detect these shapes by a small hierarchy of cell layers devoted to low- and mid-level geometry. The model has been tested successfully on video sequences containing traffic signs and other scenes, and partial occlusions were not problematic.

A model of local gist vision has several advantages: (1) it is very fast, because it can exploit non-standard retinal ganglion cells instead of the more complex coding in area V1, (2) as for most low-level processes, it is parallel, (3) it can be used for global scene gist, biasing likely scenes by using detected objects, and already at semantic level, (4) the localized analysis, with object segregation, results in a spatial layout map for directing attention to objects, (5) it can serve reflexive behaviour, by a direct pathway in the dorsal data stream to the superior colliculus, which may also explain the phenomenon of blindsight, and (5) it can be used in the ventral data stream for a first object categorisation.

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UNIVERSITY
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Laboratory of Cognitive Sciences

CiMeC

October 27th - 29th, 2011

Rovereto Attention Workshop

Attention and Objects



**Palazzo Istruzione, Corso
Bettini 84, Rovereto, Italy**

October 27th - 29th 2011

Registrations are CLOSED!

For further information, please
write to cimec_events@Tunitn.it

For more than a century, cognitive scientists and neuroscientists have been trying to understand the properties of **selective attention and its underlying functional and neural mechanisms**. But because attention is a complex and multi-faceted phenomenon it has resisted simple definitions or explanations. A key function of attention is to direct the limited computational resources of the cognitive system to the potentially relevant objects in the external world. To explore and discuss this topic, this year the workshop will focus on **Attention and Objects**.

The workshop differs from larger conferences in so far as there are a small number of speakers (all invited) and there are no concurrent talks. In addition to the individual talks, there will be a poster session for students, post-docs and young researchers to present their work.

The workshop will run from 8 am of Thursday, October 27th to 1 pm of Saturday, October 29th 2011.

Programme

Click [here](#) to read the workshop programme and here to see the [brochure](#). The poster session programme is available [here](#) and in the Download Box on the right.

Invited speakers

[George Alvarez - Harvard University](#)
[Gustavo Deco - Universitat Pompeu Fabra](#)
[Lisa Feigenson - Johns Hopkins University](#)
[Pascal Fries - Ernst Strüngmann Institute and Max Planck Society](#)
[Ruth Kimchi - University of Haifa](#)
[Ernst Niebur - Johns Hopkins University](#)
[Chris Olivers - VU University](#)
[Stefan Treue - German Primate Center, Goettingen](#)
[Jeremy Wolfe - Brigham & Women's Hospital and Harvard Medical School](#)

DOWNLOADS

- Poster Abstracts
- Silvia Pagano
- Francesco Marinic
- Andrea Perlaro
- Alfredo Spagna
- Stefano Lasaponara
- Sara Nakhai
- Jana Estocinova
- Jaime Martins
- Francesca Rosafio
- Giacomo Veneri
- Schönwald Liane
- Simone Gazzellini
- Mauricio Rangel
- Sabrina Walter
- Gerly Kukk
- Emanuele Porcu
- Chiara Ferrari
- Maria Kuvaldina
- Marian Chen
- Andreas Wutz
- Nika Adamyan
- Davide Nardo
- Trauer Sophie
- Giovanni Anobile
- Sarah Hoar
- Luca Ronconi
- Dietmar Heinke
- Fabiano Botta

