INFORMATION SOCIETY – IS 2012

CONFERENCE COGNITIVE SCIENCES: FROM WATCHING TO SEEING

October 8-9, 2012

This years' cognitive science conference is dedicated to *vision* - a cognitive phenomenon, the research of which stretches across the wide range of disciplines: from basic neurophysiological level, all the way to psychological, phenomenological and philosophical considerations. The title of the conference: *From Watching to Seeing*, is meant to encapsulate the attempt of cognitive science to breach the so called explanatory gap, i.e. the divide between third-person descriptions (events in neurological system) and first-person perspectives (reports on lived human experience).

The selection of participants reflects the variety of angles from which the visual processing can be researched as well as variety of levels on which related cognitive phenomena occur. Our key plenary speakers are covering two distinct angles:

- The contribution of dr. David Križaj, renowned neurophysiologist from University of Utah, will overview the path of the visual stimuli on its way from a simple electromagnetic signal to formation of a visual representation.
- The second invited contributor, dr. Liliana Albertazzi, philosopher and phenomenologist from University of Trento, presents an experimental phenomenology, its basics, position in research field and possible further developments.

  (See abstract of the plenary lectures below.)

The themes and presenters of this years' conference are covering the whole spectrum of perspectives, bracketed by the plenary contributors: neurophysiology (Hawlina), cognitive neuroscience (Pirtošek, Ravnik, Palmović, Bon, Brezovar, Levtsek, Bregant), artificial intelligence and computer vision (Gams, Tkalčič), psychiatry, psychology, phenomenology, philosophy and consciousness research (Škodlar, Smrdu, Albertazzi, Kordeš, Markič, Peruš).
(See the schedule of the conference below.)

Besides being able to bring together this exceptional group of contributors, our conference also succeeded building a bridge betweens Slovenian society for Cognitive sciences, University Medical Centre's and Institute Jožef Stefan.

Professor Zvezdan Pirtošek from the Department of Neurology is also contributing a PRECONFERENCE WORKSHOP: ***Functional Anatomy of Visual Structures in Brain.***
The workshop is intended for general public (no background knowledge is required) and will be held in Slovene. Number of places is limited to 25. It is free!

Applications to a preconference workshop at: kognitivni.sprehod@gmail.com

YOU ARE MOST CORDIALLY INVITED TO ATTEND THE CONFERENCE!

We believe that following the whole range of lectures will enable you to understand the entire path *From Watching to Seeing* more coherently.

FULL SCHEDULE

Monday, 8 October (Large lecture hall)

12:00	*Workshop* **Zvezdan Pirtošek:** Functional anatomy of visual structures in brain *Open for general audience (in Slovenian, free)*
14:00	*Conference opening* **Urban Kordeš**
Plenary lectures	*Chair: Urban Kordeš*
14:05-15:30	**David Križaj:** POLYMODAL SENSORY INTEGRATION IN THE VISUAL SYSTEM
	Liliana Albertazzi: EXPERIMENTAL PHENOMENOLOGY
1. session	*Chair: Urban Kordeš*
16:00-18:00	**Zvezdan Pirtošek:** EVOLUTION OF THE HUMAN VISUAL BRAIN
	Marko Hawlina: CORRELATION BETWEEN MACULAR MORPHOLOGY AND SENSITIVITY IN PATIENTS WITH REINITIS PIGMENOTSA AND HYPERAUTOFLUORESCENT RING
	Igor Ravnik: WHEN IT COMES FROM THE POSTERIOR BRAIN IN CHILDREN: EPILEPSY, MIGAINE OR OTHER BUSINESS RELATED TO PERCEPTION, NOT NECESSARILY VISUAL
	Borut Škodlar: VISUAL HALLUCINATIONS-A PHENOMENOLOGICAL PERSPECTIVE

Tuesday, 9 October (Large lecture hall)

2. session	*Chair: Maja Smrdu*
9:00-11:00	**Tanja Levstek:** EYE MOVEMENT CORRELATES FOR COMPLEX SUBTRACTION IN HEALTHY ADOLESCENTS
	Tina Bregant: ALPHA ACTIVITY IN YOUNG ADULTS AFTER PERINATAL MILD-MODERATE HYPOXIA
	Simon Brezovar: COGNITIVE AND ELECTROPHYSIOLOGICAL ASPECTS OF VISUAL ATTENTION DURING A HIGH-ALTITUDE EXPEDITION
	Jure Bon, Dejan Georgiev: CONTRALATERAL DELAY ACTIVITY IN VISUAL WORKING MEMORY RESEARCH

3. session	*Chair: Olga Markič*
11:30-13:30	**Mitja Peruš:** QUANTUM–NEURAL BACKGROUND OF CONSCIOUS VISUAL PERCEPTION
	Marijan Palmović: SUPPRESSION OF μ-RHYTHM AS A TRACE OF MIRROR NEURON SYSTEM
	Marko Tkalčič: AUTOMATIC DETECTION OF EMOTIONS
	Matjaž Gams: THE VISUAL TURING TEST
4. session	*Chair: Zvezdan Pirtošek*
16:00-18:00	**Olga Markič:** VISION: RETHINKING PHILOSOPHICAL ASSUMPTION
	Maja Smrdu: VISUAL HALLUCINATIONS-IMPORTANCE OF EXPERIENCE AND (EMOTIONAL) INTERPRETATION
	Liliana Albertazzi: MORPHOLOGY IN NATURE, ART AND COGNITION
	Urban Kordeš: VISUAL THINKING?
18:05 – 18:10	*Conference closing* **Zvezdan Pirtošek**

PLENARY LECTURES:

David Križaj: POLYMODAL SENSORY INTEGRATION IN THE VISUAL SYSTEM

In many, perhaps most, vertebrate species, vision represents a dominant sensory modality that is essential for orientation and communication with the outside world. An animal's ability to perceive the external world is conditioned by its capacity to extract and encode specific features of the visual image. Thus, the output of the vertebrate retina is not a simple representation of the 2D visual map generated by photon absorptions in the photoreceptor layer but rather is transmitted as an abstract representation that emphasizes species-specific behavioral needs.

The lecture will lead us through the complex path of the visual stimuli on its way from a simple electromagnetic signal to formation of a visual representation. The recently discovered retinal mechanosensitive ion channels will be used as an example through which molecular physiology could unify Greek phenomenology, modern neuroscience and medicine.

Liliana Albertazzi: EXPERIMENTAL PHENOMENOLOGY

Experimental phenomenology is the science of appearances. While apparently it does not differ from other branches of psychology, the role that phenomena play in experimental phenomenology safeguards it from being reduced to psychophysics and neuropsychology. Experimental phenomenology has been made classic by Gestalt studies and nowadays receives increasing attention from researchers working in perception and from a few frontier research fields dealing with virtual reality, computer graphics and embedded robotics. The

presentation focalizes on the main tenets, the present state of the art and envisaged future developments of experimental phenomenology.

PRECONFERENCE WORKSHOP:

Zvezdan Pirtošek: Funkcionalna anatomija vidnih predelov možganov
Functional anatomy of visual structures in brain

Na delavnici se bomo podali na potovanje po tistih delih možganov, ki so odgovorni za obdelavo vidne informacije.

V prvih 100 ms vidni dražljaj pride pot od mrežnice do vidne skorje v zadnjem (zatilnem) delu možganov. Kaj se dogaja na tej poti? Kako levo postane desno in zgoraj postane spodaj? Kako lahko oslepimo le v četrtini vidnega polja enega očesa? Slišali bomo, da v možganih ni le en sam, naši zavesti znan vidni sistem – obstaja še drug, prastar, skrit globoko pod možgansko površino. Kakšna potratnost! A zaradi te evolucijsko stare poti lahko kljub slepoti vidimo, pa tega ne vemo, in to celo jezno zanikamo.

Videli bomo, kako se v zatilno-senčničnih delih možganov iz zmede svetlobnih točk izgrajuje ne*kaj* - čudovita podoba jesenske pokrajine ali človeškega obraza. Kje mora biti poškodba, da se ta jesenska pokrajina izpere, postane siva, brez barv; in kje, da se tisti znan, ljubljen obraz zabriše v brezizraznost tisoč obrazov, ki jih ne bomo nikoli več prepoznali. Nekoliko višje, v zatilno temenskih predelih pa nastaja druga izkušnja – izkušnja protora, občutek *kje*. Če je prizadeta ta *kje* pot, bo svet okoli nas videti razsut in razdrobljen. In od kod moje vedenje, da se v natančni podobi mojega znanca, njegovem telesu in njegovem obrazu, pritajeno skriva nekdo drug, popoln tujec… . Od kod ta boleča vijoličnost utekočinjenega neba po zaužitem mamilu? In čisto na koncu – obrazi, temen tunel in onkraj oslepljujoča svetloba. Tudi vidni možgani?

***

Kontaktna oseba:
Maja Smrdu, maja.smrdu@psih-klinika.si