

NEWSLETTER

Autumn 2017

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Change in the CECOG organizing committee

After one year as editor of the CECOG Newsletter, Georgina Török has taken the position of secretary of the association. Starting from the present issue, her job is taken over by Laura Schlingloff, also a PhD student at Central European University's Department of Cognitive Science.

We would like to welcome Laura in the CECOG team and wish Georgina all the best with this new challenge!



Laura Schlingloff and Francesca Bonalumi

The 12th International Symposium of Cognition, Logic and Communication

31 October – 1 November 2017, Riga, Latvia

The 12th International Symposium of Cognition, Logic and Communication took place on October 31 and November 1, 2017 in the University of Latvia, Riga, Latvia, at the Faculty of Computing. This year's event was entitled 'Impact of Visuospatial Skills on Learning'. Symposium was co-organised by the Laboratory of Perceptual and Cognitive Systems at the Faculty of Computing and Faculty of Business management and economics of University of Latvia, and supported by the University of Latvia foundation and software company Accenture.

The core idea of the symposium was to explore and critically discuss the impacts of visuo-spatial skills on different areas of levels of learning. The conference took place in a multi-disciplinary setting (involving areas such as psychology, learning sciences, computer science, and the research on AI).

In the evening before the plenary and parallel sessions started, a panel discussion with prof. David Uttal (Cognitive Sciences, Psychology, Northwestern University, USA), prof. Bob Coecke (Computer Science, Oxford University, UK), prof. Mike Stieff (Learning Sciences, University of Illinois-Chicago, IL, USA), and prof. Jurgis Šķilters (Cognitive Science, University of Latvia) took place to discuss the interrelations of the AI research and the work on spatial cognition. The discussion was moderated by Dr. Uldis Bojārs (University of Latvia). Variety of conceptual and methodological misunderstandings and problems and some of the positive outcomes in the current work on AI were discussed.

On November 1, Conference opened the keynote "When, how, and why does spatial thinking matter in learning science and mathematics?" that was delivered by prof. David Uttal (Northwestern University, USA), who presented a comprehensive and critical summary of the work on the evaluating the visuo-spatial skills and their impact on learning. The keynote talk was also a part of the distinguished lecture series 'MadScience' supported and organized by the software company Accenture. Later in the afternoon prof. Uttal has also presented a comprehensive and deepening workshop on the research of visuo-spatial skills. Several ideas from his recent work were explored and discussed in detail (cp. e.g., Uttal, D. H., Meadow, N. G., Tipton, E., Hand, L. L., Alden, A. R., Warren, C., & Newcombe, N. S. (2013). The malleability of spatial skills: A meta-analysis of training studies. *Psychological Bulletin*, 139(2), 352-402).

Several parallel sessions varying on testing verbal and visual skills, implicit methods and color perception took place later during the conference.

The second keynote was delivered by prof. Bob Coecke (Computer Science, Oxford University, UK) who explained the intuitions behind the quantum visualisation approach linking his ideas with the categorical approach to quantum foundations in computing. He also explored the basic ideas from his most recent monograph Coecke, B., & Kissinger, A. (2017). *Picturing quantum processes*. Cambridge University Press. Prof. Coecke's keynote was also supported by software company Accenture.

The third keynote was delivered by prof. Mike Stieff (Learning Sciences, University of Illinois-Chicago, IL, USA) where some more critical issues were explored in respect to the impact of visuo-spatial skills on the learning. In the same time areas were highlighted that should be focused on more carefully in future. Prof. Stieff's talk nicely summarised the recent evidence and possible alternative explanations in the visualisation of chemistry and diagrammatic reasoning.

Conference was attended by scholars from different areas ranging from Psychology, Education, Computing, Mathematics to mention just a few.

Jurgis Skilters, Prof.
Chair of the Laboratory for Perceptual and Cognitive Systems
Faculty of Computing, University of Latvia

Understanding Social Cognition – Trends in Interdisciplinary Studies – 3rd Avant Conference

20-22 October 2017, Lublin, Poland

The conference was organised by Avant, a journal dedicated to current trends in interdisciplinary studies and cognitive science in particular. Fittingly, it took place in the Polish city of Lublin, which is known for its special blend of traditions, and at the recently established Center for the Meeting of Cultures. The conference had about a hundred speakers, representing the many disciplines that cognitive science comprises. The first day of the event included, among other presentations, a keynote talk by Daniel C. Dennett, a discussion of his new book, together with the book's translator into Polish, a screening of a documentary on Dennett, with the film's director attending, and an appropriately themed performance of experimental electronic music. All of which, unsurprisingly, also managed to draw the attention of the general public. The other two days continued with intense work, with up to three parallel sessions, adding to that a poster session, which covered various topics related to understanding other minds, from mindreading to distributed cognition. The conference was conveniently arranged for discussions on a smaller scale too, which were additionally facilitated by group excursions.

Paulius Rimkevičius

PhD student
Faculty of Philosophy, Vilnius University, Lithuania



Pictures: Andrzej Zykubek
<http://avant.edu.pl/trends3/>

X. Dubrovnik Conference on Cognitive Science

Communication, Pragmatics, and Theory of Mind

24-27 May, 2018, Dubrovnik, Croatia

Submission is now open!

We invite poster submissions from all areas of cognitive science.

Invited speakers:



Noah Goodman
(Stanford University)

Judit Holler
(MPI for Psycholinguistics)



Arthur M. Jacobs
(Freie Universität, Berlin)

Ira Noveck
(CNRS, Lyon)



Nausicaa Pouscoulous
(University College London)

Paula Rubio-Fernandez
(Massachusetts Institute of Technology)



Deirdre Wilson
(University College London)

VIII International Symposium on Intercultural, cognitive and social pragmatics – EPICS VIII

Sevilla, Spain (2-4 May 2018)

Abstract submission deadline: 1st December 2017

<http://www.congreso.us.es/epicsviii/>

ICCSCL 2018: 20th International Conference on Cognitive Science, Consciousness and Linguistics

Berlin, Germany (21-22 May 2018)

Abstract submission deadline: 15 December 2017

<https://www.waset.org/conference/2018/05/berlin/ICCSCL/home>

Evolang 2018

Torun, Poland (16-19 April 2018)

Early bird fee: 31 December 2017

<http://evolang.cles.umk.pl>

The Probabilistic Brain Workshop

Durham, UK (23-24 March 2018)

Workshop place limited

<https://sites.google.com/view/tpbw2018/home>

13th Conference of the European Human Behaviour and Evolution Association – EHBA 2018

Pécs, Hungary (4-7 April 2018)

Abstract submission deadline: 7 January 2018

<http://psychology.pte.hu/ehbea2018>

The 2nd Experimental Pragmatics in Italy Conference – XPRAG.it 2018

Pavia, Italy (30 May-1 June 2018)

Abstract submission deadline: 2nd February 2018

<https://sites.google.com/a/iusspavia.it/xpragit2018/home>

The 2nd Context, Cognition and Communication Conference

Warsaw, Poland (16-19 June 2018)

Paper submission deadline: 1st February 2018

<http://ccc-conference.org/index.html>

Interdisciplinary College 2018 – IK2018

Günne at Lake Möhne (9-16 March 2018)

Poster submission deadline: 1st February 2018

<https://www.interdisciplinary-college.de/>

MeeTo: from moving bodies to interactive minds

Turin, Italy (25-27 May 2018)

Abstract submission deadline: 10 Feb 2018

<http://www.intobrain.it/en/meeto-2018/>



Working group of virtual reality in neuroscience

National Institute of Mental Health, Prague, Czech Republic
Head of the Department: Mgr. et Mgr. Iveta Fajnerová, Ph.D.



The working group of virtual reality in neuroscience is part of the National Institute of Mental Health. The institution itself was established in 2015 and is oriented (along with clinical care) mostly on neuropsychiatric research, carrying on the long-term tradition of the Prague Psychiatric Centre (built in 1961).

Various working groups are focused on researching neurobiological mechanisms that lead to development of severe mental disorders (schizophrenia, depression, anxiety, dementia and stress reactions). Their work also includes development and testing of new diagnostic and therapeutic methods. Except biologically oriented research groups there are also groups like „new technologies in mental health improvement“ or „epidemiology of mental illness“. Our working group is part of the research programme „Applied Neurosciences and Brain Imaging“. Our team is led by Iveta Fajnerova (senior researcher) with several graduate students (research assistants or interns) mostly with background in psychology or neurobiology. Regarding the focus of our group, programmers and VR developers are also important members of the team.

The first research of our group focused on human cognitive enhancement (HCE) and explored the changes in cognitive functioning in relation to usage of navigation technologies (GPS devices) in daily life. The experiment focused on the effect of longterm use (10-12 weeks) of Smart glasses. We predicted that long-term use of this Augmented Reality glasses while navigating through real environment can elicit changes both in spatial memory performance and in brain activity, connectivity and morphology. One of the most interesting conclusions was that the more people rely on GPS or other navigation aid (see the GPS-like map in the left corner of virtual scene screenshots, Fig.1), the slower and the worse routes they are choosing in task where their own navigation ability is needed (manuscript in review).



Fig.1

Recently, the most important area of focus is the development of VR tasks for cognitive remediation of memory and executive functions in schizophrenia (although we are also planning to focus on different disorders, for example Mild cognitive impairment and Alzheimer’s disease). The tasks are designed in ecologically valid environments (city, office, shopping centre, interior of the family house).



Fig 2.

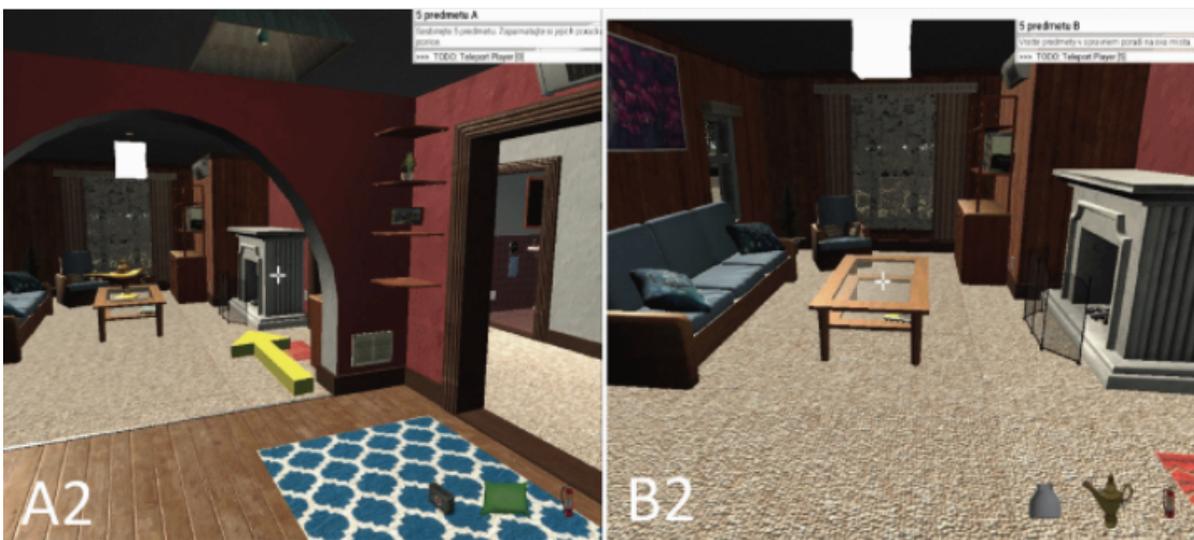


Fig.3

In case of other neuropsychiatric disorders, we also focus on obsessive-compulsive disorder, specifically on assessment of the response inhibition – the ability of inhibiting certain stimuli and conflict control affected by mental flexibility. In collaboration with the Institute of Physiology Czech Academy of Sciences we applied the virtual „arena“ task based on the Carousel maze task originally used in animals (see Fig.4). The patients are required to search for a hidden target with position changing in rather unpredictable manner between the two reference frames (arena and surrounding room). We aim to study to which extend the OCD patients are able to adjust their reactions to the new rules of the task (changed spatial position) and inhibit the already-learned behaviour.

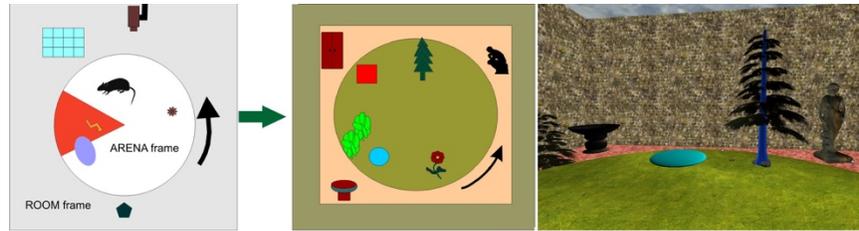


Fig.4

You can find more information (including the current projects and publications) on the group website www.brainvr.cz – unfortunately the English version is still under construction. Our work is funded from various national and international grants. Recently, our working group was also involved in exhibitions and festivals open to the wider public – we presented various VR clinical applications that are used for cognitive training or treating phobias (for example acrophobia), or for practicing meditation and mindfulness in virtual reality environment.

Anna Francová
Research Assistant

Selected publications:

[Development of a virtual supermarket shopping task for cognitive remediation of memory and executive functions in schizophrenia](#)

Plechata A., Fajnerova I., Hejtmanek L., Sahula V.

http://brainvr.cz/publication/2017/2017_plechata_fajnerova_hejtmanek_development_supermarket/

[The Virtual Episodic Memory Task: towards remediation in neuropsychiatric disorders.](#)

Fajnerova I., Oravcova I., Plechata A., Hejtmanek L., Vlcek K., Sahula V., Nekovarova T.

http://brainvr.cz/publication/2017/2017_fajnerova_oravcova_plechata_episodic_memory_task_remediation/

[A virtual reality task based on animal research—spatial learning and memory in patients after the first episode of schizophrenia](#)

Fajnerova I., Rodriguez M., Levcik, D., Konradova L., Mikolas P., Brom C., Stuchlik A., Vlcek K., Horacek, J.

http://brainvr.cz/publication/2014/2014_fajnerova_rodriguez_levcik_virtual_reality_task/

About CECOG: The Central European Cognitive Science Association (CECOG) is a civil association promoting cooperation in the field of cognitive science in Central Europe. The association was initiated at a meeting in August 2008 by the Budapest University of Technology and Economics and the University of Zagreb by Melita Kovacevic, Ilona Kovács, and Csaba Pléh. President: Gergely Csibra; managing organizers and local hosts of the DuCog series: Nevena Padovan and Paula Fischer; managing secretary of the association: Paula Fischer and Georgina Török.

Newsletter editors: Francesca Bonalumi and Laura Schlingloff. Contact: cecog@cecog.eu

Previous newsletters are available on our website – <http://cecog.eu/>