

## HABILITATION BOARD DECISION ON THE NOMINATION FOR APPOINTMENT TO ASSOCIATE PROFESSOR

<b>Masaryk University</b>	
<b>Faculty</b>	Faculty of Social Studies
<b>Procedure field</b>	General Psychology
<b>Applicant</b>	Mgr. Čeněk Šašinka, Ph.D
<b>Applicant's home unit, institution</b>	Department of Information and Library Studies, Faculty of Arts, Masaryk University
<b>Habilitation thesis</b>	Cognitive Processing of Spatial Information in Respect to Various Visualisation Methods and Individual Differences

### Board members

#### Chair

prof. PhDr. David Šmahel, Ph.D. (*Faculty of Social Studies MU*)

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doc. PhDr. Radko Obereignerů, Ph.D. (*Palacký University Olomouc*)

prof. Ing. Igor Farkaš, Dr. (*Centre for cognitive science, Comenius University Bratislava*)

Prof. Dr. Wolfgang Kainz (*University of Vienna*)

### Evaluation of the applicant's scholarly/artistic qualifications

Čeněk Šašinka is a talented researcher with a research focus in the field of general psychology, however, his work is very interdisciplinary, reaching into the fields of cartography, informatics and education. His research mainly deals with the use of virtual reality (VR) and other new technologies in research (e.g. Eye trackers). Such research is necessarily highly applied, which is a very strong aspect of Šašinka's research profile. He is also the founder of HUME lab which is an Experimental Humanities Laboratory, a unique and innovative facility of Faculty of Arts, Masaryk University.

In line with his strong applied research profile, Čeněk Šašinka is exceptionally successful in receiving projects of Technology Agency of the Czech Republic (TAČR). He was principal investigator or co-investigator of six TAČR projects in various schemes (GAMA2, ÉTA, GAMA, SIGMA). In these projects, he was able to cooperate with researchers from different fields, such as dr. Jiri Chmelik from Faculty of Informatics or doc. Petr Kubíček from the Department of Geography, Faculty of Science MUNI. He was also principal investigator and co-investigator of two projects funded by Czech Science Foundation. Despite primarily focusing on research in visual cognition, Čeněk Šašinka is also active in other areas. Currently, for example, in the role of principal investigator, he is developing a solution for dyslexia reeducation using eyetracking technology in collaboration with the Department of Psychology at the Faculty of Social Sciences.

Čeněk Šašinka published 24 publications in the journals of Web of Science, 13 of them were published in international journals ranked Q1-Q2 in Web of Science. He published one study

in a Scopus indexed journal and five book chapters. Furthermore, he published 43 articles in journal proceedings, many of them from international conferences, such as International Conference on Cartography & GIS or Annual International Conference on Cognitive and Behavioral Psychology. Furthermore, he was invited as a keynote speaker to international conferences, such as to 30<sup>th</sup> International Cartographic Conference (2021). His publications were also well cited, he has got over 280 citations in Web of Science without self-citations and over 900 citations in Google Scholar.

In line with his research profile, he also has applied outputs – e.g. software for diagnostics and reporting applications for the score table and he co-created the platform for collaborative education in virtual environments eDIVE. He got the MUNI Innovation Award in the area of applied sciences (2021) for development of online psychodiagnostics methods, an adaptation of the software Hypothesis for the usage in praxis.

Čeněk Šašínska is also cooperating with many international scholars, such as professor Fabrikant (University of Zurich), Professor Tsai (National Chengchi University, Taipei,) etc. He has many interdisciplinary collaborations both inside and outside of the Czech Republic, which is evidenced by the composition of his publications and outputs. Also for that reason, there are more proceedings publications in his profile than is probably usual for the field of general psychology. It is because the high-quality conferences are a typical publication target for the field of informatics and sometimes also cartography.

**Conclusion:** The applicant's scholarly/artistic capabilities **meet** the requirements expected of applicants participating in a habilitation procedure in the field of general psychology.

### **Evaluation of the applicant's pedagogical experience**

Čeněk Šašínska was teaching at Department of Psychology and later at Department of Information and Library Studies, Faculty of Arts, Masaryk University from year 2010. He was teaching basic courses such as General psychology, Cognitive Psychology and also more specialized courses based on his expertise, such as Psychology of pictorial representation, Architectural psychology, Immersive virtual reality in humanities, Eye-tracking in humanities, Eye-tracking in psychological research, Psychology in cartography or Human Computer Interaction (HCI). His essentially interdisciplinary focus can therefore also be seen in the courses he is teaching.

He is successful mentor of the student's thesis: he led 12 successfully defended Bachelor's thesis and 39 defended Master's thesis. He was also mentor of one successful PhD student (Vojtech Jurik, Ph.D., topic of doctoral thesis "Interacting With 3D Geovisualizations: Cognitive Processing of Virtual Geographic Environments") and is currently leading one Ph.D. student. He was also a consultant of two other Ph.D. students who successfully defended their thesis.

Čeněk Šašínska also, within the scope of his expertise in Eyetracking and work at HUME Lab, consulted master's theses and research projects for students from other fields. For example, he led the internal project at MU, entitled 'Experimental Practicum: Design and Realization of Interdisciplinary Researches,' which enabled students to engage in experimental psychological research.

Čeněk Šašínska participated in creating of learning platforms based on immersive virtual reality for "Accredited training course for geography teachers" (certification 2021) and "Accredited training course for English language teachers" (certification 2021). He participated also in creating a software application for Geography Education.

**Conclusion:** The applicant's pedagogical capabilities **meet** the requirements expected of applicants participating in a habilitation procedure in the field of general psychology.

### **Habilitation thesis evaluation**

The thesis of Cenek Sasinka entitled "Cognitive Processing of Spatial Information with Respect to Various Visualization Methods and Individual Differences" were evaluated by three independent reviewers: Professor Benny Briesemeister (IU International University, Germany), Professor Arzu Çöltekin (University of Applied Sciences and Arts Northwestern Switzerland), and dr. Jiri Lukavsky (Institute of Psychology, Czech Academy of Sciences). All reviewers expressed their opinion that the thesis of dr. Sasinka fulfils requirements expected of a habilitation thesis in the field of general psychology.

Professor Briesemeister was very positive in his evaluation and stated that "the habilitation thesis demonstrates an impressive amount of research concerning the perception of maps and their different designs and functionalities, the cognitive processes involved, cultural differences regarding those processes, published in very prestigious international journals. These findings are accompanied by an updated methodological and theoretical framework that enables future research in that direction. He investigates the research questions from several angles and brings in different perspectives, which he combines into a holistic psychological model at the end."

Professor Briesemeister also stated following questions which should be answered in the presentation:

Given that especially within psychology there is a strong debate about replication biases, which of the results that were obtained would you expect to stand the test of time?  
Based on your results, would you argue that there is an effect of culture on top of effects of cognitive style? Or are possible effects explained with cognitive style alone?  
Often, the result has been that the optimal design is determined by the task at hand – would you agree that task/design interactions are the most promising field of research for the future in that field and if so, how would that relate to your model?

Prof. Arzu Çöltekin stated that the text of habilitation thesis is overall well written and thoughtful. She wrote that "the depth of reflection varies from chapter to chapter, but overall author clearly demonstrates expertise, experience and critical thought. At the end, a modified version of the Lens model is proposed as an encompassing theoretical framework which sounds plausible." She also had following questions which should be answered:

Somewhat connected to the above author states "Experimental research in the field of external graphical representations (maps) cannot be narrowed down to methods, techniques and task types that measure only partial sections of cognitive processes and isolated cognitive functions". Is this really different in other domains?  
Throughout the manuscript, it appears that author takes Kirsh's (2010) position that external representations enhance the cognitive power of an individual. We also hear opposing views on this topic, e.g., such representations become a crutch and thus weaken the spatial abilities. What would be author's response to the debate on the role of cognitive amplifiers / cognitive prosthetics to human intelligence?

Dr. Lukavsky positively appreciated the systematic work of dr. Sasinka on the development of methods and tools for further research, which are then further available to the professional

community. He also stated that the contribution of dr. Sasinka to the creation of individual studies in the habilitation thesis was very substantial - the contribution consisted in many areas from the conceptualization of the studies, to the analysis and writing of the texts. He also mentioned that three of studies in the thesis were published by the MDPI publisher, although it was in years 2016-2017. Dr. Lukavsky had following questions:

Where do you see the line between visualization as a tool to facilitate understanding and a tool that enables deception and erroneous conclusions?  
What are the limits of using the Lens Model described at the end of the thesis?

**Conclusion:** The applicant's habilitation thesis **meets** the requirements expected of habilitation theses in the field of general psychology.

### Secret ballot results

Number of board members	5
Number of votes cast	5
Number of votes in favour	5

### Board decision

Based on the outcome of the secret vote and following an evaluation of the applicant's scholarly or artistic qualifications, pedagogical experience and habilitation thesis, the board hereby submits a proposal to the scientific board of the Faculty of social studies of Masaryk University to

appoint the applicant associate professor of general psychology.

Date: 6<sup>th</sup> October 2023

prof. PhDr. David Šmahel, Ph.D.



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