

Selected papers

from International Conference

Spatial Cognition 2020/1

University of Latvia, Riga

August 2 - 4, 2021

Edited by

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Preface

We are delighted to present a selection of the talks from Spatial Cognition 2020/1 conference that took place August 2- 4, 2021, at the University of Latvia, Riga. The conference was organized online and partially transferred from 2020. Due to the continuing COVID-19 pandemic, we had postponed the conference planned for August 2020, and all contributed papers appeared in (Šķilters et al., 2020). All poster presentations and keynotes were transferred to 2021. Despite the challenging and unpredictable circumstances, we are glad that both the 2020 and 2021 activities were successful.

Spatial Cognition 2021/1 conference was organized by the Faculty of Computing, University of Latvia and Lab for Perceptual and Cognitive Systems in particular. The conference was introduced by three satellite events – a symposium on Developing Geospatial Expertise (organized by Heather Burte, Jung Eun Hong, and Michael N. DeMers), a tutorial on ‘Spatial Cognition and Artificial Intelligence: Methods for In-The-Wild Behavioural Research in Visual Perception’ (organized by Mehul Bhatt, Jakob Suchan, Vasiliki Kondyli, and Vipul Nair), and a Workshop on Eye Tracking research in screen-based solutions (organized by Tobii Pro company).

The conference program was rich and cross-disciplinary, which was also reflected in the keynotes: Prof. Sara Irina Fabrikant from Zurich discussed the impact on navigation of geographic information displays; Prof. Steve Franconeri from Northwestern explored the relations between visualizations of natural scenes and artificial data representations; Dr. Laure Rondi-Reig from the Sorbonne gave an overview of her research on cerebellar networks of spatial cognition in rodents and humans.

High quality cross-disciplinary studies were presented in the set of contributed talks and posters ranging from classical spatial cognition topics such as navigation, cognitive maps, orientation to spatial processes and knowledge, and foundational questions concerning symmetry and environmental geometry. Reports presented in the conference also covered spatial cognition in non-human animals and in the settings of VR and AI. Different scales of space – small visual scope, large navigable scope, and hybrid spaces – were represented among the papers and posters.

The bi-annual Spatial Cognition conference series is among the most influential in the cross-disciplinary field of spatial cognition. It started in 1997 and took place in various venues in Germany and USA. 2020 was a sad year for the spatial cognition community because one of the main guiding forces behind the conference series – Christian Freksa (July 26, 1950- November 12, 2020) – suddenly passed away. The 2021 edition of Spatial Cognition honors him. Starting from 2021 a Christian Freksa award will be assigned to the best contributions (“Christian Freksa Best Talk” was the title for the best contribution in 2021 conference).

After careful selection, we have accepted several papers for publication: Max Kinaterder and Emily A. Cooper (National Research Council Canada, Canada / University of California, Berkeley, USA): Assessing Effects of Reduced Vision on Spatial Orientation Ability Using Virtual Reality; Snejana Shegheva and Ashok Goel

(Georgia Institute of Technology, USA): The Role of Symmetry in Geometric Intelligence; Jeremias Stüber, Lina Junctorius and Annette Hohenberger (University of Osnabrück, Germany): Tracking Non-Visual Eye Movements Non-Invasively: Comparing Manual and Automatic Annotation Styles. Published papers were blind reviewed by Program Committee members twice – first, once the papers were submitted (from this set of contributions those were selected that were quality-wise good enough to be published in post-conference publication; second, after the authors were incorporating referees' comments before the accepting in its final form.

We would like to thank the Program Committee, Organization Committee, and Steering Committee for supporting us and collaborating while preparing this event in these very unpredictable and turbulent times. Last but not least – many thanks to the Faculty of Computing, University of Latvia, and Riga Stradiņš University for supporting us these two years.

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Nora Newcombe, Philadelphia
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Reference:

Šķilters, J., Newcombe, N.S., Uttal, D. (2020) *Spatial Cognition XII: 12th International Conference, Spatial Cognition 2020, Riga, Latvia, August 26–28, 2020, Proceedings. (Lecture Notes in Artificial Intelligence 12162)*. Springer Nature: Cham. DOI 10.1007/978-3-030-57983-8 / ISBN 978-3-030-57982-1

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