

Jakub Krukar, PhD

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Last update: January 25, 2021

PROFILE

02.2015—	Post-Doctoral Researcher <i>Institute for Geoinformatics, University of Münster, Germany.</i> Postdoc in the “WayTO: Wayfinding Through Orientation” ERC Starting Grant awarded to Prof. Angela Schwering (ERC No. 637645).
09-12.2020	Statistics and Methodology Consultant <i>Chair of Cognitive Science, ETH Zurich.</i>
08-09.2019	Visiting Research Fellow <i>Future Cities Laboratory, Singapore-ETH Centre, Singapore.</i> Invited by Prof. Hölscher’s Cognition, Perception and Urban Behaviour Group.
9.2018-3.2019	Parental leave. <i>Institute for Geoinformatics, University of Münster.</i>
10.2016- 03.2017	Research Associate <i>Institute for Geoinformatics, University of Münster, Germany.</i> Substitution of Prof. Angela Schwering as the Head of Spatial Intelligence Lab (tasks incl. principal supervision of PhD/MA students and project management).
25.11.2015	PhD (<i>viva voce</i> on 19.06.2015) <i>Department of Architecture and Built Environment, Northumbria University, Newcastle, United Kingdom.</i> “The Influence of an Art Gallery’s Spatial Layout on Human Attention to and Memory of Art Exhibits.” Principal Supervisor: Prof. Ruth Conroy Dalton (Architecture). Second Supervisor: Prof. Chris Dorsett (Fine Arts).
6.9.2011	MA degree in Psychology <i>University of Social Sciences and Humanities, Warsaw.</i> “Cross-Cultural Differences in Cognitive Representations of the Hagia Sophia Building in Istanbul.” Supervisor: Andrzej Strzalecki (Psychology).
2007–2008	Volunteer Research Assistant. <i>Institute of Psychology, University of Social Sciences and Humanities, Warsaw, Poland.</i>

10-12.2010	Erasmus-Sponsored Intern. <i>E-Medya Consultancy, Istanbul, Turkey.</i>
1-7.2010	Erasmus Exchange Student. <i>Maltepe Universitesi, Istanbul, Turkey.</i>
12.2009	Intern. <i>UseLab Website Usability Research Company, Warsaw, Poland</i>
2003-2006	Marie Skłodowska-Curie High School. <i>Gorzów Wielkopolski, Poland.</i>

RESEARCH

Publications

Journals	<p>Krukar, J., Manivannan, C., Bhatt, M., & Schultz, C. (in press). Embodied 3D Isovists: A Method to model the visual perception of space. <i>Environment and Planning B</i>.</p> <p>Li, H., Mavros, P., Krukar, J., & Hölscher, C. (in press). The effect of navigation method and visual display on distance perception and cognition in a large-scale virtual building <i>Cognitive Processing</i>.</p> <p>Galvao, M., Krukar, J., Nöllenburg, M., & Schwering, A. (2020). Route schematization with landmarks. <i>Journal of Spatial Information Science</i>, 21. https://doi.org/10.5311/JOSIS.2020.21.589</p> <p>Krukar, J., Anacta, V. J., & Schwering, A. (2020). The effect of orientation instructions on the recall and reuse of route and survey elements in wayfinding descriptions. <i>Journal of Environmental Psychology</i>, 68, 101407. doi: 10.1016/j.jenvp.2020.101407</p> <p>Krukar, J., & Dalton, R. C. (2020). How the Visitors' Cognitive Engagement Is Driven (but Not Dictated) by the Visibility and Co-visibility of Art Exhibits. <i>Frontiers in Psychology</i>, 11. doi: 10.3389/fpsyg.2020.00350</p> <p>Löwen, H., Krukar, J., & Schwering, A. (2019). Spatial Learning with Orientation Maps: The Influence of Different Environmental Features on Spatial Knowledge Acquisition. <i>ISPRS International Journal of Geo-Information</i>, 8(3), 149. doi: 10.3390/ijgi8030149</p> <p>von Stülpnagel, R., & Krukar, J. (2018). Risk perception during urban cycling: An assessment of crowdsourced and authoritative data. <i>Accident Analysis & Prevention</i>, 121(May), 109–117. doi: 10.1016/j.aap.2018.09.009</p> <p>Ranasinghe, C., Krukar, J., & Kray, C. (2018). Visualizing Location Uncertainty on Mobile Devices. <i>Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies</i>, 2(1), 1–22. doi: 10.1145/3191762</p> <p>Schwering, A., Krukar, J., Li, R., Anacta, V. J., & Fuest, S. (2017). Wayfinding Through Orientation. <i>Spatial Cognition & Computation</i>, 17(4), 273–303. doi: 10.1080/13875868.2017.1322597</p> <p>most-read paper in journal's history (according to its website)</p>
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	<p>Krukar, J., Hölscher, C., & Conroy Dalton, R. (2017). Indoor Wayfinding: Interview with Christoph Hölscher and Ruth Conroy Dalton. <i>German Journal of Artificial Intelligence (Künstliche Intelligenz)</i>, 31(2), 185–191. doi: 10.1007/s13218-016-0483-3 (not peer-reviewed)</p> <p>Krukar, J., Schwering, A., & Anacta, V. J. (2017). Landmark-Based Navigation in Cognitive Systems. <i>German Journal of Artificial Intelligence (Künstliche Intelligenz)</i>, 31(2), 121–124. doi: 10.1007/s13218-017-0487-7 editorial to a special issue (not peer-reviewed)</p> <p>Krukar, J. (2014). Walk, look, remember: The influence of the gallery’s spatial layout on human memory for an art exhibition. <i>Behavioral Sciences</i>, 4(3), 181–201. doi: 10.3390/bs4030181</p>
Book chapters	<p>Dalton, R. C., Krukar, J., & Hölscher, C. (2018). Architectural cognition and behavior. In D. R. Montello (Ed.), <i>Handbook of Behavioral and Cognitive Geography</i> (pp. 337–356). doi: 10.4337/9781784717544.00030</p> <p>Krukar, J., Dalton, R. C., & Hölscher, C. (2016). Applying HCI Methods and Concepts to Architectural Design (Or Why Architects Could Use HCI Even If They Don’t Know It). In S. N. Dalton, H. Schnädelbach, M. Wiberg, & T. Varoudis (Eds.), <i>Architecture and Interaction: Human Computer Interaction in Space and Place</i> (pp. 17–35). doi: 10.1007/978-3-319-30028-3_2</p>
Peer-reviewed conference proceedings	<p>Löwen, H., Krukar, J., & Schwering, A. (2019). Functional Scales in Assisted Wayfinding. In S. Timpf, C. Schlieder, M. Kattenbeck, B. Ludwig, & K. Stewart (Eds.), <i>Proceedings of the 14th International Conference on Spatial Information Theory (COSIT 2019)</i> (Vol. 142, pp. 3:1-3:7). doi: 10.4230/LIPIcs.COSIT.2019.3</p> <p>Krukar, J., & Van Eek, A. (2019). The Impact of Indoor/Outdoor Context on Smartphone Interaction During Walking. In P. Kyriakidis, D. Hadjimitsis, D. Skarlatos, & A. Mansourian (Eds.), <i>Accepted Short Papers and Posters from the 22nd AGILE Conference on Geo-information Science</i>. Limassol, Cyprus: Stichting AGILE.</p> <p>Krukar, J., Münzer, S., Lörch, L., Anacta, V. J., Fuest, S., & Schwering, A. (2018). Distinguishing Sketch Map Types: A Flexible Feature-Based Classification. In S. Creem-Regehr, J. Schöning, & A. Klippel (Eds.), <i>Spatial Cognition XI</i> (pp. 279–292). doi: 10.1007/978-3-319-96385-3_19</p> <p>Krukar, J., Schwering, A., Löwen, H., Galvao, M., & Anacta, V. J. (2018). Rethinking Wayfinding Support Systems—Introduction. In P. Fogliaroni, A. Ballatore, & E. Clementini (Eds.), <i>Proceedings of Workshops and Posters at the 13th International Conference on Spatial Information Theory (COSIT 2017)</i> (pp. 151–152). doi: 10.1007/978-3-319-63946-8_29 editorial to workshop proceedings</p> <p>Krukar, J., Schultz, C., & Bhatt, M. (2017). Towards Embodied 3D Isovists. In T. Heitor, M. Serra, J. P. S. M. Bacharel, & L. C. da Silva (Eds.), <i>Proceedings of the 11th Space Syntax Symposium</i>. Lisbon: Instituto Superior Tecnico.</p>

Löwen, H., Schwering, A., **Krukar, J.**, & Winter, S. (2017). Perspectives in Externalizations of Mental Spatial Representations. In A. Bregt, T. Sarjakoski, R. van Lammeren, & F. Rip (Eds.), *Societal Geo-innovation. AGILE 2017. Lecture Notes in Geoinformation and Cartography* (pp. 111–127). doi: 10.1007/978-3-319-56759-4_7

Anacta, V. J. A., Humayun, M. I., Schwering, A., & **Krukar, J.** (2017). Investigating Representations of Places with Unclear Spatial Extent in Sketch Maps. In A. Bregt, T. Sarjakoski, R. van Lammeren, & F. Rip (Eds.), *Societal Geo-innovation. AGILE 2017. Lecture Notes in Geoinformation and Cartography* (pp. 3–17). doi: 10.1007/978-3-319-56759-4_1

Padmanaban, R., & **Krukar, J.** (2017). Increasing the Density of Local Landmarks in Wayfinding Instructions for the Visually Impaired. In G. Gartner & H. Huang (Eds.), *Progress in Location-Based Services 2016* (pp. 131–150). doi: 10.1007/978-3-319-47289-8_7

publication developed from the student’s Master thesis (first author)

Krukar, J., & Conroy Dalton, R. (2013). Spatial Predictors of Eye Movement in a Gallery Setting. In P. Kiefer, I. Giannopoulos, M. Raubal, & M. Hegarty (Eds.), *Eye Tracking for Spatial Research, Proceedings of the 1st International Workshop (in conjunction with COSIT 2013)* (pp. 14–19). Scarborough, UK.

Krukar, J., & Conroy Dalton, R. (2013). Walk, Look, Remember: Art Galleries as Spaces Facilitating Memory. In Y. O. Kim, H. T. Park, & K. W. Seo (Eds.), *Proceedings of Ninth International Space Syntax Symposium* (pp. 074:1-19). Seoul: Sejong University Press.

presented at the plenary session of the symposium

Extended
abstracts
and posters

Krukar, J., Mavros, P., & Hoelscher, C. (2020). Towards capturing focal/ambient attention during dynamic wayfinding. *Symposium on Eye Tracking Research and Applications*, 1–5. doi: 10.1145/3379157.3391417

Dalton, R., Dalton, N., Hölscher, C., Veddeler, C., **Krukar, J.**, & Wiberg, M. (2020). HabiTech : Inhabiting Buildings, Data & Technology. *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems*, 1–8. doi: 10.1145/3334480.3375179

Schick, W., **Krukar, J.**, & Schwering, A. (2019). Functional verbal scales in route instructions of wayfinding assistance systems. *Speaking of Location (Workshop in conjunction with COSIT 2019)*. Regensburg, Germany.

Schwering, A., Mukhametov, S., **Krukar, J.** (2018). A Tool for Large-Scale Spatial Behavior Analysis in Indoor Environments. *Spatial Cognition 2018*, Tübingen, Germany.

Schwering, A., Sahib, J., **Krukar, J.**, Chipofya, M. (2018). Evaluating Sketch Maps Qualitatively: A new Software-Supported Method. *Spatial Cognition 2018*, Tübingen, Germany.

Münzer, S., Lörch, L., Schwering, A., **Krukar, J.**, Anacta, V.J. (2018). Wayfinding and Spatial Learning with Navigation Assistance. In *The 40th Annual Meeting of the Cognitive Science Society*, Madison, USA.

Löwen, H., **Krukar, J.**, Schwering, A. (2018). How should Orientation Maps look like? *The 21th AGILE International Conference on Geographic Information Science: AGILE 2018*, Lund, Sweden.

Löwen, H., **Krukar, J.**, Schwering, A. (2018). Towards automatically generating maps for wayfinding and orientation. *The 21th AGILE International Conference on Geographic Information Science: AGILE 2018*, Lund, Sweden.

Krukar, J. (2017). Cognitively Sustainable Built Environments. *Annual Meeting of the American Association of Geographers*. Boston, USA.

Krukar, J., & Schwering, A. (2016). What is Orientation? In T. B. Barkowsky, Z. Falomir Llansola, H. Schultheis, & J. van de Ven (Eds.), *KogWis: 13th Biannual Conference of the German Cognitive Science Society* (pp. 115–117). Bremen, Germany.

Anacta, V., **Krukar, J.**, Humayun, M., & Schwering, A. (2016). Visualizing salient features in spatial descriptions. *European Workshop on Image and Cognition (EWIC)*. Paris, France.

Du, G., Lohoff, L., **Krukar, J.**, & Mukhametov, S. (2016). Comparing Two Methods to Overcome Interaction Blindness on Public Displays. *Proceedings of the 5th ACM International Symposium on Pervasive Displays*, 243–244. doi: 10.1145/2914920.2940339

publication developed from the students' course project

von Stülpnagel, R., Wächter, L., Holland, N., & **Krukar, J.** (2016). Subjective Risk Perception in Urban Cycling - Assessing The Validity of Opinion-Based Volunteered Geographic Information. *Vulnerable Road Users Symposium at the 57. Tagung Experimentell Arbeitender Psychologen*. Heidelberg, Germany.

Krukar, J., & von Stülpnagel, R. (2015). Adjusting for Cognitive and Spatial Biases of VGI: The Case of Perceived Risks in Urban Cycling. In H. Skov-Petersen (Ed.), *Human mobility, cognition and GISc*. Copenhagen, Denmark.

Conroy Dalton, R. and **Krukar, J.** (2014; equal contribution). Augmenting Intuitive Navigation at Local Scale. *Spatial Search Specialist Meeting*. Santa Barbara, USA.

Krukar, J. (2014). Cognitively Biased Agent-Based Models. In B. Emo, K. Al Sayed, & T. Varoudis (Eds.), *Design Cognition and Behavior: Usability in the Built Environment. Proceedings of the workshop held at Spatial Cognition 2014* (pp. 4–5). Bremen, Germany.

Krukar, J. (2014). Spontaneous Memory of Art Exhibitions: Explanations from Eye-Tracking. In C. Freksa, B. Nebel, M. Hegarty, & T. Barkowsky (Eds.), *Spatial Cognition 2014: Poster Presentations* (pp. 60–63). Bremen, Germany.

Krukar, J., & Conroy Dalton, R. (2012). Towards a Unified Model of Building Usability. *22nd International Association People-Environment Studies (IAPS) Conference*. Glasgow, UK.

Open and Reproducible Science

Publishes data and code of most recent publications on the Open Science Framework profile: <http://osf.io/9ruhs>

Includes a simulation-based power analysis in recent psychological publications.

Member of the Reproducibility Committee for the AGILE 2021 Conference.

Editorial and Organisational Experience

Journals **Künstliche Intelligenz - German Journal of Artificial Intelligence.**
Guest co-editor of the special issue on *Landmark-Based Navigation in Cognitive Systems* (Springer).
<http://www.springer.com/computer/ai/journal/13218>

Workshops **HabiTech: Inhabiting Buildings, Data & Technology**
Workshop accepted to be held at the *Computer-Human Information (CHI 2020) Conference* in Honolulu, USA. Conference cancelled due to COVID-19.
<http://chi2020.acm.org/>

Rethinking Wayfinding Support Systems
Workshop organised at the *13th International Conference on Spatial Information Theory (COSIT 2017) in L'Aquila, Italy*.
<http://www.cosit2017.org>

Program Committee Member

Eye Tracking for Spatial Research Workshop (ET4S 2020)
Eye Tracking Research and Application (ETRA 2019, 2020)
Conference on Spatial Information Theory (COSIT 2017, 2019)

Reviewer for

Journals	<i>Cognitive Research: Principles and Implications</i> <i>Computers, Environment and Urban Systems</i> <i>International Journal of Geo-information</i> <i>Journal of Location-based Services</i> <i>Environment and Planning B: Planning and Design</i> <i>Tourism Geographies</i> <i>International Journal of Design Creativity and Innovation</i> <i>IXD&A: Interaction Design and Architecture Journal</i> <i>Journal of Urban Technology</i> <i>Frontiers in Psychology</i>
Conferences	<i>Conference on Spatial Information Theory (COSIT)</i> <i>Cognitive Science Society (CogSci)</i> <i>Eye-Tracking Research and Applications (ETRA)</i> <i>Spatial Cognition Conference</i> <i>Designing Interactive Systems Conference (DIS)</i>
Books	<i>European Handbook of Crowdsourced Geographic Information</i> , Ubiquity Press

Invited Academic Talks

July 2018	<i>Center for Cognitive Science, University of Freiburg, Germany.</i>
May 2016	<i>Chair of Cognitive Science, ETH Zürich, Switzerland.</i>
May 2015	<i>Center for Cognitive Science, University of Freiburg, Germany.</i>

Key Research Methods

Eye tracking	desktop and mobile eye-tracking (Tobii, PupilLabs, SMI), including eye-tracking inside Virtual Reality
Virtual reality	designed and published virtual reality experiments in Unity 3D (driving simulator, pedestrian indoor navigation, indoor space perception)
Statistics	R, Bayesian multilevel models (incl., logistic, survival and other regression-based analyses), Structural Equation Models, circular statistics
Architectural analysis	Space Syntax, isovist analysis, co-visibility analysis

Languages

English	Full professional proficiency
Polish	Native proficiency
German	Intermediate

COMMUNICATION AND IMPACT

Invited Talks and Expert Meetings Outside Academia

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| Sep 2019 | “Wayfinding Through Orientation”. <i>Future Cities Lab, Singapore.</i>
Invited lunch-time talk for staff and visitors. |
| Jun 2015 | “Rethinking the Senses: Experimental Approaches and Methods in the Art Museum.” <i>TATE Modern gallery, London.</i>
Invited as a member of an expert discussion panel. Meeting co-organised by the Centre for the Study of the Senses at the University of London. |
| Feb 2014 | “What are you staring at? Space, Psychology, Eye-Tracking.” <i>BWA-Dizajn Centre for Contemporary Arts, Wroclaw, Poland.</i>
Invited to design and conduct a workshop on Eye-Tracking and Space Syntax techniques for curatorial design. |

Public Engagement

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| 2016-2020 | “Wayfinding Through Orientation”. <i>Institute for Geoinformatics, University of Münster, Germany.</i>
Contributed to a series of press releases, and the production of promotional video material explaining the project topic to the general public. Press articles and interviews on the subject of navigational skills. |
| 2012 | Popular science articles. <i>“Zielone Miasto” [“Green City”] Magazine, Poland.</i>
Wrote a series of articles on sustainability and city livability [in Polish]. |

Policy

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| Mar 2014 | Visual Museum Experiment. <i>Cultural NGOs, Warsaw, Poland.</i>
Member of a working group of academics, curators, and art educators designing action scenarios for museums in Poland. Scenarios and guidelines published under a Creative Commons licence.
http://wizualnyeksperymentmuzealny.wordpress.com |
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Collaboration with the Industry

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| 2016-2020 | Wayfinding Through Orientation
Supervision of a MSc thesis conducted in collaboration with BOSCH: <i>Driver stress level prediction</i> by Nico Steffens.

Supervision of a MSc thesis conducted in collaboration with BWM: <i>Conceptual Design, Implementation and Evaluation of a Motorbike Group Riding System with a Focus on a Group Navigation Feature</i> by Fabian Röhr.

Co-wrote a proof-of-concept grant proposing a pathway for bringing the “Wayfinding Through Orientation” prototype to the market (reviewed positively, currently on the Funder’s waiting list). |
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TEACHING

Staff Training Delivered

2019	Bayesian Mixed Effect Models with brms R package. <i>Cognition, Perception and Urban Behaviour Group, Future Cities Lab, Singapore.</i>
2018	Linear-Mixed Effect Models. <i>Institute for Geoinformatics, Münster.</i>

Courses Designed and Taught

2021	<i>Wayfinding and Navigation</i> (MSc; lecture and seminar)
2020	<i>Spatial Cognition</i> (MSc; lecture and seminar)
2019	<i>Wayfinding and Navigation</i> (MSc; lecture and seminar)
2018	<i>Spatial Cognition</i> (MSc; lecture and seminar)
2017	<i>Spatial Cognition</i> (MSc; lecture and seminar)
2016	<i>Research Methods in HCI</i> (MSc; lecture and seminar)
	<i>Interaction with Geographic Information</i> (BA; lecture and seminar)
2015	<i>Research Methods in HCI</i> (MSc; lecture and seminar)
	<i>SenseBox for People-Centred Urban Planning</i> (study project)
	<i>Architectural Design</i> (study project)
	<i>Human-Computer Interaction and Usability</i> (BA; seminar and lecture)

Supervision

	Supervised 3 PhD students, 14 MSc theses, 4 BA theses, and 1-2 student assistants per semester.
PhD	<p>Co-supervising 3 PhD students within the <i>WayTO</i> project:</p> <p>Vanessa Joy Anacta (disputation on 8.10.2018)</p> <p>Heinrich Löwen (disputation on 28.05.2020)</p> <p>Marcelo de Lima Galvao (PhD ongoing)</p> <p>Co-supervision documented by joint publications.</p> <p>Supervision beyond the <i>WayTO</i> project: Moderating the meetings of the <i>Graduate School of Geoinformatics</i> - an internal body providing support to the Institute's PhD students through monthly, research skills-oriented meetings.</p> <p>Regularly advising other PhD students at the Institute on the issues of experimental design and statistical analysis.</p>
MSc theses	<p><i>Stop and Think: Pauses During Giving Route Instructions</i> - Yusi Ji</p> <p><i>Landmark-based Wayfinding System for the Blind</i> - Rajchandar Padmanaban</p> <p><i>Visualizing Off-Screen Landmarks on Maps for Mobile Devices</i> - Maurin Radtke</p> <p><i>Conceptual Design, Implementation and Evaluation of a Motorbike Group Riding System with a Focus on a Group Navigation Feature</i> - Fabian Röhr (in collaboration with BMW)</p> <p><i>Location-Based Notifications to Encourage VGI Participation and Contribution: Combining persuasive technologies with citizen science for controlled intervention</i> - Joanna Kwong</p>

	<i>Environmental Forms and Route Directions: Influences on the Acquisition of Spatial Knowledge</i> - Stefan Fuest <i>Predefining regionalised environments for assisted navigation</i> - Caitlin Lara Thorn <i>Pointing to a place across a barrier: Study of barriers effect on human survey knowledge</i> - Sarah Abdelkader <i>A Gesture Inspired Navigation Support</i> - Shankarlingam Sundaresan <i>Analysis of the validity and reliability of the Sketch Map Classifier tool</i> - Laura Meierkort <i>Embodied 3d Isovist as a Predictor of Spatial Experience</i> - Charu Manivannan <i>The influence of tasks on the reliability of sketch map analysis methods</i> - Antonia van Eek <i>Driver stress level prediction</i> - Nico Steffens (in collaboration with Bosch GmbH)
BA theses	<i>Space Syntax and Navigation</i> - Bartosz Mazurkiewicz <i>Towards a ‘Calm’ Navigational System</i> - Boris Stöcker <i>Visibility Analysis of the GEO1 and Psychology Buildings, in Comparison (Space Syntax)</i> - Lasse Einfeldt <i>Designing a Research Tool for Studying Real-time Uncertainty in Inferring Spatial Knowledge while Drawing a Sketch Map</i> - Torben Kraft
Assistants	Overlooking and supervising research of 1–2 Student Assistants per semester.
External	External PhD co-supervisor (2019–): Dajana Snopková . <i>Department of Geography, Masaryk University, Brno, Czech Republic.</i> External examiner (2019). <i>MSc Programme, Geo-Information Science and Earth Observation (ITC), University of Twente, The Netherlands.</i>

SERVICE

Ethics	Head of the Institute’s Ethics Committee (2019–). Designed and supervised the implementation of an institute-wide ethics clearance policy for all studies involving human participants (2017-2018).
Data protection	Co-designed and supervised the implementation of an institute-wide data protection policy and server infrastructure (2017-2018).

AWARDS AND FUNDING

As Postdoctoral Researcher

Nominations	Heinz Maier-Leibnitz-Preis. <i>DFG: German Research Foundation</i> University of Münster’s nominee for the Heinz Maier-Leibnitz-Preis. Each German university can nominate up to 2 untenured researchers per year, recognising their ‘outstanding research achievements’.
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Individual Grants Received	<p>Visting Research Fellow grant. <i>Future Cities Laboratory, Singapore-ETH Centre, Singapore.</i> Travel and accomondation grant to cover a 2-month long invited stay at the Future Cities Laboratory in Singapore.</p> <p>Early-stage research bursary. <i>AGILE: Association of Geographic Information Laboratories in Europe.</i> A €1200 early-stage research bursary towards the cost of purchasing a mobile eye-tracker in order to gather preliminary data for own research proposal.</p> <p>Conference travel grant. <i>DAAD: German Academic Exchange Service.</i> A €1100 grant for participating in the course on Bayesian Modeling for the Cognitive Science (http://www.bayescourse.socsci.uva.nl).</p> <p>Conference travel grant. <i>VolkswagenStiftung.</i> Travel and accomodation grant to attend and present at the symposium “Interdisciplinarity Revisited” (grant renounced).</p>
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As PhD Student

Awards	<p>Fee waiver and maintenance grant Received a 100% tuition fee waiver and a 3-year maintenance grant towards pursuing the doctoral degree. <i>Northumbria University, Newcastle, UK.</i></p>
Individual Travel Grants	Secured over £4700 of travel funding from organisations: <i>Experimental Psychology Society (Grindley Grant), Spatial Cognition Research Center SFB/TR 8, MOVE (COST Action IC0903), COSIT2013, University of California Santa Barbara, ETH Zürich, Northumbria University Graduate School (x3).</i>
Public Engagement	Secured over £900 towards the costs of attending and co-organising public engagement activities (see section on Public Engagement).
Conference Volunteering	Volunteered as staff at MuseumNext2012 and GIScience2014 conferences in exchange for a fee waiver.

As MA Student

Awards	Scholarships for excellent admission scores (year 1) and high GPA (year 2); Erasmus Exchange (year 3) and Erasmus Internship (year 4) scholarships; Student conference attendance scholarship (year 5).
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