

Jakub Krukar, PhD

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Last update: May 26, 2020

PROFILE

Academic Background

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| 2.2015— | Post-Doctoral Researcher Prof. Angela Schwering's Spatial Intelligence Lab, <i>Institute for Geoinformatics, University of Münster, Germany.</i> “Wayfinding Through Orientation” project (ERC No. 637645). <ul style="list-style-type: none">• Involved in project management and recruitment of PhD candidates;• Co-supervising PhD students, supervising and examining Master and Bachelor theses, supervising 1-2 student assistants per semester. |
| 8.2019-9.2019 | Visiting Research Fellow Prof. Christoph Hölscher's research group: Cognition, Perception and Urban Behaviour Group, <i>Future Cities Laboratory, Singapore-ETH Centre, Singapore</i> |
| 9.2018-3.2019 | Parental leave. <i>Institute for Geoinformatics, University of Münster.</i> |
| 10.2016-3.2017 | Research Associate <i>Substitution of Professor Angela Schwering as the Head of Spatial Intelligence Lab.</i> <ul style="list-style-type: none">• Principal supervision of PhD students, supervision and examination of Master and Bachelor theses;• Project management for the ‘WayTO’ project, research group coordination, budgeting (10+ researchers). |
| 25.11.2015 | PhD (<i>viva voce</i> on 19.06.2015) <i>Department of Architecture and the 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). |

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| 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
- 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. *Journal of Environmental Psychology*, 68, 101407. doi: 10.1016/j.jenvp.2020.101407
- 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. *Frontiers in Psychology*, 11. doi: 10.3389/fpsyg.2020.00350
- Löwen, H., **Krukar, J.**, & Schwering, A. (2019). Spatial Learning with Orientation Maps: The Influence of Different Environmental Features on Spatial Knowledge Acquisition. *ISPRS International Journal of Geo-Information*, 8(3), 149. doi: 10.3390/ijgi8030149
- von Stülpnagel, R., & **Krukar, J.** (2018). Risk perception during urban cycling: An assessment of crowdsourced and authoritative data. *Accident Analysis & Prevention*, 121(May), 109–117. doi: 10.1016/j.aap.2018.09.009
- Ranasinghe, C., **Krukar, J.**, & Kray, C. (2018). Visualizing Location Uncertainty on Mobile Devices. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, 2(1), 1–22. doi: 10.1145/3191762
- Schwering, A., **Krukar, J.**, Li, R., Anacta, V. J., & Fuest, S. (2017). Wayfinding Through Orientation. *Spatial Cognition & Computation*, 17(4), 273–303. doi: 10.1080/13875868.2017.1322597
- most-read paper in journal's history (according to its website)**
- Krukar, J.**, Hölscher, C., & Conroy Dalton, R. (2017). Indoor Wayfinding: Interview with Christoph Hölscher and Ruth Conroy Dalton. *German Journal of Artificial Intelligence (Künstliche Intelligenz)*, 31(2), 185–191. doi: 10.1007/s13218-016-0483-3
(not peer-reviewed)
- Krukar, J.**, Schwering, A., & Anacta, V. J. (2017). Landmark-Based Navigation in Cognitive Systems. *German Journal of Artificial Intelligence (Künstliche Intelligenz)*, 31(2), 121–124. doi: 10.1007/s13218-017-0487-7
- editorial to a special issue (not peer-reviewed)**

- Krukar, J.** (2014). Walk, look, remember: The influence of the gallery’s spatial layout on human memory for an art exhibition. *Behavioral Sciences*, 4(3), 181–201. doi: 10.3390/bs4030181
- book chapters Dalton, R. C., **Krukar, J.**, & Hölscher, C. (2018). Architectural cognition and behavior. In D. R. Montello (Ed.), *Handbook of Behavioral and Cognitive Geography* (pp. 337–356). doi: 10.4337/9781784717544.00030
- 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.), *Architecture and Interaction: Human Computer Interaction in Space and Place* (pp. 17–35). doi: 10.1007/978-3-319-30028-3_2
- peer-reviewed Löwen, H., **Krukar, J.**, & Schwering, A. (2019). Functional Scales in Assisted conference Wayfinding. In S. Timpf, C. Schlieder, M. Kattenbeck, B. Ludwig, & K. Stewart (Eds.), *Proceedings of the 14th International Conference on Spatial Information Theory (COSIT 2019)* (Vol. 142, pp. 3:1-3:7). doi: 10.4230/LIPIcs.COSIT.2019.3
- proceedings **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.), *Accepted Short Papers and Posters from the 22nd AGILE Conference on Geo-information Science*. Limassol, Cyprus: Stichting AGILE.
- 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.), *Spatial Cognition XI* (pp. 279–292). doi: 10.1007/978-3-319-96385-3_19
- 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.), *Proceedings of Workshops and Posters at the 13th International Conference on Spatial Information Theory (COSIT 2017)* (pp. 151–152). doi: 10.1007/978-3-319-63946-8_29
- editorial to workshop proceedings**
- 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.), *Proceedings of the 11th Space Syntax Symposium*. Lisbon: Instituto Superior Tecnico.
- 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 Geoinnovation. 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., and Hölscher, C. (in press) Capturing focal/ambient attention during dynamic wayfinding. *Eye-Tracking Research and Applications 2020*

Dalton, R., Dalton, N., Hölscher, C., Veddele, 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.

Editorial and Organisational Experience

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| Journals | Künstliche Intelligenz - German Journal of Artificial Intelligence. Guest co-editor of the special issue on <i>Landmark-Based Navigation in Cognitive Systems</i> (Springer). http://www.springer.com/computer/ai/journal/13218 |
| Workshops | HabiTech: Inhabiting Buildings, Data & Technology Workshop organised at the <i>Computer-Human Information (CHI 2020) Conference</i> in Honolulu, USA. http://chi2020.acm.org/ |
| | Rethinking Wayfinding Support Systems Workshop organised at the <i>13th International Conference on Spatial Information Theory (COSIT 2017) in L'Aquila, Italy</i> . 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

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| 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 |

Doctoral and Post-Doctoral Training

- 2017 | **Bayesian Modeling for Cognitive Science** *University of Amsterdam.*
Growing Your Leadership Skills *University of Münster.*
- 2016 | **Managing Conflicts** *University of Münster.*
Summer School on Topological and Scaling Analyses. *EU COST Action TU1305, Gävle University, Sweden.*
Finding Funding - an introduction to the German funding system *University of Münster.*
Geo-Ethics Symposium. *University Twente, Netherlands.*
Eye Tracking—Experimental Design, Implementation, and Analysis *Winter School, ETH Zürich.*
- 2015 | **EU Funding for Early-Career Researchers.** *European Research Services.*
- 2014 | **Innovation Challenge Knowledge Exchange School.** *5-day long training programme on business-academic collaboration organised by The Work Foundation, London, UK.*
Talk Nerdy to Me. *Public engagement seminar organised by the British Science Association.*
- 2013 | **Introduction to Computational Space Syntax.** *9th International Space Syntax Symposium in Seoul, South Korea.*
International Spatial Cognition Summer Institute. *University of California Santa Barbara, USA.*
- 2012 | **ProAnVis—Processing, Analysis and Visualisation of Tracking Data.** *COST Action, TU Delft, NL.*

Research Skills and Methods

desktop and mobile eye-tracking, architectural analysis (Space Syntax), advanced statistics (Bayesian mixed-effects models), R

IMPACT

Invited Academic Talks and Expert Meetings

- Sep 2019 | **Future Cities Lab, Singapore** (*invited research talk*).
- July 2018 | **Center for Cognitive Science.** *University of Freiburg, Germany (invited research talk).*
- Mar 2016 | **Chair of Cognitive Science.** *ETH Zürich, Switzerland (invited research talk).*
- Jun 2015 | **Rethinking the Senses: Experimental Approaches and Methods in the Art Museum.** *TATE Modern and Centre for the Study of the Senses at the University of London (expert meeting).*
- May 2015 | **Center for Cognitive Science.** *University of Freiburg, Germany (invited research talk).*

Public Engagement

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| Feb 2014 | What are you staring at? Space, Psychology, Eye-Tracking. <i>BWA Dizajn Centre for Contemporary Arts, Wroclaw, Poland.</i> Designed and conducted a workshop on Eye-Tracking and Space Syntax techniques for curatorial design. |
| Oct 2013 | Field study. <i>BALTIC Centre for Contemporary Art, Newcastle, UK.</i> Oversaw a Mobile Eye-Tracking study in a working art gallery, involving its staff and visitors. |
| 2012 | Popular science articles. <i>'Zielone Miasto' [Green City] Magazine, Poland.</i> 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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TEACHING

Staff Training Delivered

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| 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

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| 2019 | <i>Wayfinding and Navigation</i> (MA; lecture and seminar) |
| 2018 | <i>Spatial Cognition</i> (MA; lecture and seminar) |
| 2017 | <i>Spatial Cognition</i> (MA; lecture and seminar) |
| 2016 | <i>Research Methods in HCI</i> (MA; lecture and seminar) <i>Interaction with Geographic Information</i> (BA; lecture and seminar) |
| 2015 | <i>Research Methods in HCI</i> (MA; 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

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| PhD | Co-supervising 3 PhD students involved in the 'WayTO' 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 supervision meetings. |
| MA theses | <i>Stop and Think: Pauses During Giving Route Instructions</i> - Yusi Ji |

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| | <p><i>Landmark-Based Wayfinding System for the Blind</i> - Rajchandar Padmanaban <i>Visualizing Off-Screen Landmarks on Maps for Mobile Devices</i> - Maurin Radtke <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) <i>Location-Based Notifications to Encourage VGI Participation and Contribution: Combining persuasive technologies with citizen science for controlled intervention</i> - Joanna Kwong <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)</p> |
| BA theses | <p><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</p> |
| Assistants | Overlooking and supervising research of 1–2 Student Assistants per semester. |
| External | <p>External PhD co-supervisor (2019–): Dajana Snopková . <i>Department of Geography, Masaryk University, Brno, Czech Republic.</i></p> <p>External examiner (2019). <i>MSc Programme, Geo-Information Science and Earth Observation (ITC), University of Twente, The Netherlands.</i></p> |

SERVICE

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| ethics | <p>Head of the Institute’s Ethics Committee (2019–).</p> <p>Designed and supervised the implementation of an institute-wide ethics clearance policy for all studies involving human participants (2017-2018).</p> |
| 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

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| Nominations | <p>Heinz Maier-Leibnitz-Preis. University of Münster’s nominee for the Heinz Maier-Leibnitz-Preis. Each German university can nominate up to 2 untenured researchers per year, recognising ‘outstanding research achievements’. <i>DFG: German Research Foundation.</i></p> |
| Grants | <p>AGILE early-stage research bursary. 1200 EUR early-stage research bursary towards the cost of purchasing a mobile eye-tracker in order to gather preliminary data for own research proposal. <i>AGILE: Association of Geographic Information Laboratories in Europe.</i></p> <p>DAAD travel grant. 1100 EUR for participating in the course on Bayesian Modeling for the Cognitive Science. <i>DAAD: German Academic Exchange Service.</i></p> <p>Conference travel grant Travel and accomodation grant to attend and present at the symposium “Interdisciplinarity Revisited” (grant renounced). <i>VolkswagenStiftung.</i></p> |

As PhD Student

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| 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 | <p>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></p> |
| Public Engagement | <p>Secured over £900 towards the costs of attending and co-organising public engagement activities (see section on Public Engagement).</p> |
| Conference Volunteering | <p>Volunteered as staff at MuseumNext2012 and GIScience2014 conferences in exchange for a fee waiver.</p> |

As MA Student

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| Awards | <p>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).</p> |
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OTHER

Languages spoken

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| Polish | Native. |
| English | Professional Fluency. |
| German | B1-Level Certificate (intermediate). |