



## Cartography and Geographic Information Society

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March 11, 2023

Aileen Buckley, ICA National Delegate - USA  
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Thomas Schulz  
ICA Secretary General  
Federal Statistical Office FSO  
Dissemination and Publications Section DIAM  
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Dear ICA Secretary-General:

As chair of the U.S. National Committee for the ICA, a standing committee of the Cartography and Geographic Information Society and the national organisation representing the United States for the ICA, I am pleased to submit this nomination for an ICA Commission on the User Experience.

All the required documents are contained herein. Should you need any additional information, please feel free to contact me at [abuckley@esri.com](mailto:abuckley@esri.com).

Respectfully,

Aileen Buckley, ICA National Delegate – USA

## Nomination of ICA Commission on the User Experience (UX)

Prepared by Robert Roth | [reroth@wisc.edu](mailto:reroth@wisc.edu)

The US National Committee is nominating the Commission on the User Experience (UX) for the International Cartographic Association.

### UX Commission Composition:

The proposed chair of the UX Commission is Robert Roth (USA), who also served as chair for the 2019-2023 term. The proposed vice chairs are Luciene Delazari (Brazil), Merve Keskin (Turkey), and Zdeněk Stachoň (Czechia).



Name: Robert E. Roth, PhD (he/him)

Title: Professor, University of Wisconsin-Madison; Director, University of Wisconsin Cartography Lab

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Physical Address: 550 N. Park Street, Madison, WI (USA) 53706

Webpage: <https://geography.wisc.edu/cartography/people/Roth.html>

A handwritten signature in black ink, appearing to read 'Robert E. Roth'.

I confirm that I am willing to serve the International Cartographic Association as a proposed chair of the Commission on the User Experience for the 2023-2027 term.

### UX Commission Terms of Reference: 2023-2027

- 1. Website and Social Media:** Maintain and expand the ICA Commission website and social media on user experience (UX) issues: <https://use.icaci.org/>. Usability is identified as one of the 10 main research themes in the ICA agenda, and UX design encapsulates issues related to map use, maps users, and map usability. Map **UX design** herein is defined as the set of workflows, methods, and techniques needed for a successful user outcome with a map or interactive mapping system, as well as a productive and satisfying user process while arriving at this outcome.
- 2. Bibliography:** Maintain an online bibliographic database on user studies and UX design research in Cartography and related fields: <https://www.zotero.org/groups/928693/uuui/library>. The bibliography includes references on the following topics: map-based user interfaces (UI) and user experience (UX) design; user-centered design and usability engineering, as applied to map design and development; studies of user abilities and differences therein; use

case studies with print, web-based, and mobile maps; methods and techniques for evaluating products; the use of emerging mapping technologies.

3. **Educational Workshops:** Organize training workshops for students and non-specialists on map-based user studies and UX design, with an emphasis on enabling participation from the Global South.
4. **NextGen Cartographers Support:** Provide institutional and logistical support to the Next Generation Cartographers initiative derived in part from the UX-organized listening sessions on how to better include early career students, researchers, and professionals from diverse backgrounds in the ICA.
5. **Open Educational Resources:** Develop and disseminate open educational resources to support user studies in cartography. Materials will include UX definitions, methodological best practices, benchmark datasets, and case studies, as well as archived presentations and notes from UX educational and scholarly events.
6. **Scholarly Workshops:** Jointly organize with other ICA Commissions pre-conference workshops in disciplines adjacent to Cartography (e.g., Geography, GIScience, Information Visualization, Human-Computer Interaction) aimed at research and design innovations.
7. **ICA Sessions:** Organize special sessions on map-based user studies and UX design at future ICA conferences as well as other regional ICA conferences. Original scientific contributions will be gathered and organized through the UX Commission website.
8. **UX Research Agenda:** Jointly organize with other ICA Commissions research agenda papers and/or special issues on topics intersecting with user studies and UX design. Prospective topics include analytical reasoning, atlas UX, reproducibility, and visual storytelling in cartography, although topics will evolve through the workshop process.

## ROBERT E. ROTH *curriculum vitae*

### APPOINTMENTS

2021–	<b>Professor of Cartography</b> <i>Department of Geography, University of Wisconsin–Madison</i>
2015–	<b>Faculty Director</b> <i>University of Wisconsin Cartography Lab</i>
2021–2023	<b>Director, GIS Professional Programs</b> <i>Department of Geography, University of Wisconsin–Madison</i>
2016–2021	<b>Associate Professor of Cartography</b> <i>Department of Geography, University of Wisconsin–Madison</i>
2017–2018	<b>Visiting Faculty</b> <i>International Training Center (ITC) Department of Geo-Information Processing, University of Twente (Netherlands)</i>
2011–2016	<b>Assistant Professor of Cartography</b> <i>Department of Geography, University of Wisconsin–Madison</i>

### EDUCATION

2011	<b>Doctor of Philosophy: Geography</b> <i>The Pennsylvania State University</i>
2007	<b>Master of Science: Cartography and GIS</b> <i>The University of Wisconsin–Madison</i>
2005	<b>Bachelor of Science: Cartography and GIS</b> <i>The University of Wisconsin–Madison</i>

### PUBLICATIONS \*student conducting research under my supervision

#### BOOKS & E-WORKBOOKS 2019-2023

3. Houtman L\* and **Roth RE**, 2021 *Mapping for a Sustainable World: QGIS Technical Supplement*. University of Wisconsin Cartography Laboratory: Madison, WI. [doi.org/10.5281/zenodo.5585547](https://doi.org/10.5281/zenodo.5585547)  
Online at: <https://github.com/uwcartlab/MappingSDGsTechnicalSupplement>
2. **Roth RE**, \*CM Sack, \*G Baldrice-Franklin, \*Y Chen, \*R Donohue, \*T Prestby, \*R Tolochko, and \*N Underwood. 2020. *Web Mapping: A Workbook for Interactive Cartography and Visualization on the Open Web*. University of Wisconsin Cartography Laboratory: Madison, WI.  
[doi.org/10.5281/zenodo.5565480](https://doi.org/10.5281/zenodo.5565480). Online at: <https://github.com/uwcartlab/webmapping>
1. Kraak MJ, **RE Roth**, BA Ricker, A Kagawa, and G Le Sourd. 2020. *Mapping for a Sustainable World*. New York: United Nations Press. [doi.org/10.18356/9789216040468](https://doi.org/10.18356/9789216040468)

#### GUEST EDITED JOURNAL ISSUES DERIVED FROM ICA EVENTS

2. Griffin A, AC Robinson, and **RE Roth**. 2017. Special issue on envisioning the future of cartographic research sponsored by the International Cartography Association (ICA). *International Journal of Cartography*.
1. Robinson AC and **RE Roth**. 2014. Special issue on cognition, behavior, and representation sponsored by the International Cartography Association (ICA). *Cartographic Perspectives* 77.

#### REFEREED ARTICLES 2019-2023 (53 total)

13. George A\*, **RE Roth**, \*S Widdell, and J Williams. (accepted) Range Mapper: An adaptable process for making and using interactive, animated web maps of Late-Quaternary open paleoecological data.

12. **Roth RE**, A Çöltekin, L Delazari, B Denney, A Mendonça, J Shen, Z Stachoň, and M Wu. (accepted) Making maps & visualizations for mobile devices: Research challenges for mobile-first and responsive cartographic design. *Journal of Location Based Services*.
11. Hart D, \*T Prestby, and **RE Roth**. 2022. Design and evaluation of coastal web atlases: Best practices and future opportunities for map representation, interaction, and usability. *Coastal Management*. 50(6): 514-548. [doi.org/10.1080/08920753.2022.2126271](https://doi.org/10.1080/08920753.2022.2126271)
10. Song Z\*, **RE Roth**, \*L Houtman, \*T Prestby, \*A Iverson, and S Gao. 2022. Visual storytelling with maps: An empirical study on story map themes and narrative structures, map-based storytelling genres and tropes, and individual audience differences. *Cartographic Perspectives*. 100. Page forthcoming. [doi.org/10.14714/CP100.1759](https://doi.org/10.14714/CP100.1759)
9. Lumley S\*, R Sieber, and **RE Roth**. 2022 A framework and comparative analysis of web-based climate change visualization tools. *Computers & Graphics*. 103(April): 19-30. [doi.org/10.1016/j.cag.2021.12.007](https://doi.org/10.1016/j.cag.2021.12.007)
8. Bley K\*, \*K Caldwell, \*M Kelly, J Loyd, **RE Roth**, TMB Andersen, A Bonds, J Plevin,, D Madison, C Spencer, T Sims, \*C Archuleta, \*Z Ellner, \*T McDowell, \*C Nestel, \*E Noterman, \*N Smith, \*S Veleznitsky, \*N Underwood, \*R Darlington, \*Y Gao, \*A George, \*L Miller, \*T Prestby, and \*J Vongkusolkiet. 2022. A Design Challenge for Transforming Justice. *GeoHumanities*. [doi.org/10.1080/2373566X.2021.1986100](https://doi.org/10.1080/2373566X.2021.1986100)
7. **Roth RE**. 2021. Cartographic design as visual storytelling: Synthesis and review of map-based narratives, genres, and tropes. *The Cartographic Journal*. 58(1): 83-114. [doi.org/10.1080/00087041.2019.1633103](https://doi.org/10.1080/00087041.2019.1633103)
6. Loeffler S\*, **RE Roth**, S Goring, and A Myrbo. 2021. Mobile UX design: Learning from the Flyover Country mobile app. *The Journal of Maps*. 17(2): 39-50. [doi.org/10.1080/17445647.2020.1867247](https://doi.org/10.1080/17445647.2020.1867247)
5. Han Y\*, M Wu, and **RE Roth**. 2021. Towards green cartography and visualization: A semantically-enriched method of generating energy-aware color schemes for digital maps. *Cartography and Geographic Information Science*. 48(1): 43-62. [doi.org/10.1080/15230406.2020.1827040](https://doi.org/10.1080/15230406.2020.1827040)
4. Vincent K\*, **RE Roth**, S Moore, Q Huang, \*N Lally, \*CM Sack, \*E Nost, and \*H Rosenfeld. 2019. Improving spatial decision making using interactive maps: An empirical study on interface complexity and decision complexity in the North American hazardous waste trade. *Environment and Planning B*. 46(9): 1706-1723. [doi.org/10.1177/2399808318764122](https://doi.org/10.1177/2399808318764122)
3. **Roth RE**. 2019. How do user-centered design studies contribute to cartography? *Geografie*. 124(2): 133-161. [doi.org/10.37040/geografie2019124020133](https://doi.org/10.37040/geografie2019124020133)
2. Kang Y\*, S Gao, and **RE Roth**. 2019. Transferring multiscale map styles using generative adversarial networks. *International Journal of Cartography*. 5(2-3): 115-141. [doi.org/10.1080/23729333.2019.1615729](https://doi.org/10.1080/23729333.2019.1615729)
1. Moore SA, \*H Rosenfeld, \*E Nost, \*K Vincent, and **RE Roth**. 2019. Undermining methodological nationalism: Cosmopolitan analysis and visualization of the North American hazardous waste trade. *Environment and Planning A*. 50(8): 1558-1579. [doi.org/10.1177/0308518X18784023](https://doi.org/10.1177/0308518X18784023)

#### **RELEVANT ICA CONFERENCE PRESENTATIONS, WORKSHOPS, & ACTIVITIES 2019-2023**

17. Meier S, E Bogucka, F Ledermann, **RE Roth**, K Słomska-Przech, and F Vörös. (submitted) Opportunities and challenges for the next generation of cartographers. In: *Proceedings of the 31<sup>st</sup> International Cartographic Conference*. Cape Town, South Africa: August 13-18.
16. **Roth RE**, A Çöltekin, L Delazari, B Denney, A Mendonça, J Shen, Z Stachoň, and M Wu. (submitted) Designing maps and visualizations for mobile devices: A collaborative research agenda. In: *Proceedings of the 31<sup>st</sup> International Cartographic Conference*. Cape Town, South Africa: August 13-18.

15. **Roth RE**, AL Griffin, and H Huang. (submitted). User experience design for mobile cartography: Update on an ICA joint commission research agenda. In: *Proceedings of the 31<sup>st</sup> International Cartographic Conference*. Cape Town, South Africa: August 13-18.
14. **Roth RE**. 2023. Mobile atlases: Their design and use? In: *Proceedings of the ICA Commissions on Atlases, Map Design, and the User Experience Joint Workshop on Atlases, Their Design and Use*. Olomouc, Czechia: April 3.
13. Houtman L\* and **RE Roth**. 2021. Introducing a QGIS technical supplement for *Mapping for a Sustainable World*. In: *Proceedings of the 30<sup>th</sup> International Cartographic Conference*. Florence, Italy: December 17.
12. **Roth RE**, TB Andersen, \*G Baldrice-Franklin, \*AA Iverson, \*C Archuleta, and \*M Roessler. 2021. The making of *Mapping for a Sustainable World*. In: *Proceedings of the 30<sup>th</sup> International Cartographic Conference*. Florence, Italy: December 16.
11. Ricker B, MJ Kraak, and **RE Roth**. 2021. The promise of dasymetric maps for monitoring progress towards the United Nations Sustainable Development Goals. In: *Proceedings of the 30<sup>th</sup> International Cartographic Conference*. Florence, Italy: December 16.
10. **Roth RE**, \*CM Sack, \*G Baldrice-Franklin, \*Y Chen, \*R Donohue, \*L Houtman, \*T Prestby, \*R Tolochko, and \*N Underwood. 2021. Introducing *Web Mapping: A Workbook for Interactive Cartography & Visualization on the Open Web*. In: *Proceedings of the 30<sup>th</sup> International Cartographic Conference*. Florence, Italy: December 15.
9. Kraak MJ, **RE Roth**, B Ricker, A Kagawa, and G Le Sourd. 2021. Mapping for a Sustainable World—Open Education. In: *Proceedings of the ICA Commission on Education and Training Workshop on Challenges and Opportunities of Cartography and GIS Education in the Classroom and in the Cloud*. Madison, WI (delivered remotely due to COVID-19): October 28.
8. Kraak MJ, **RE Roth**, BA Ricker, A Kagawa, and G Le Sourd (all co-presenters). 2021. Mapping for a Sustainable World. *First Webinar of the International Cartographic Association*. Online: July 14.
7. **Roth RE**, \*G Baldrice-Franklin, \*M Kelly, \*N Underwood, and \*CM Sack. 2021. Distributing map studies. In: *Proceedings of the ICA Commission on Cognitive Visualization and ICA Commission on the User Experience Joint Workshop on Adapting User Studies*. Madison, WI (delivered remotely due to COVID-19): May 6.
6. **Roth RE**. 2020. Inclusive cartographic design. *Federal University Paraná, Joint ICA Commission Workshop on Usability4All*. Curitiba, Brazil (delivered remotely due to COVID-19): November 23.
5. Kraak M-J, B Ricker, and **Roth RE**. 2019. Seeing the UN Sustainable Development Goals through maps. In: *Proceedings of the 29<sup>th</sup> International Cartographic Conference*. Tokyo, Japan: July 19.
4. **Roth RE**, \*M Kelly, \*N Underwood, \*N Lally, \*X Liu, \*K Vincent, and \*C Sack. 2019. Interactive and multiscale interactive maps. In: *Proceedings of the 29<sup>th</sup> International Cartographic Conference*. Tokyo, Japan: July 18.
3. **Roth RE**. 2019. What is mobile first cartographic design? In: *Proceedings of the 29<sup>th</sup> International Cartographic Conference, Pre-conference Workshop on User Experience Design for Mobile Cartography*. Beijing, China: July 12.
2. **Roth RE**. 2019. User experience design for mobile cartography. *Beijing Normal University, Joint ICA Commission Workshop on User Experience Design for Mobile Cartography: Setting the Agenda*. Beijing, China: July 11.
1. Martindale J, T Buckingham, and **RE Roth**. 2019. Cartography at UW–Madison. *United States National Committee Report to the International Cartographic Association*. 45-49.