Cartography and Geographic Information Society

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March 11, 2023

Aileen Buckley, ICA National Delegate - USA
Esri, Inc.
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Thomas Schulz
ICA Secretary General
Federal Statistical Office FSO
Dissemination and Publications Section DIAM
CH-2010 Neuchâtel, Espace de l'Europe 10

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 GeoAI.

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

Respectfully,

Aileen Buckley, ICA National Delegate – USA

Samantha T. Arundel
Acting Director and Research Scientist
U.S. Geological Survey
1722 Cherokee Road
Lake Ozark, MO
sarundel@usgs.gov

I confirm that I'm willing to serve the International Cartographic Association as a proposed chair of the Commission on GeoAI in the period 2023-2027

Short CV

Employment:

U.S. Geological Survey 2023 - present
Acting Director, Center of Excellence for Geospatial Information Science

U.S. Geological Survey 2009 - present
Research Scientist, Center of Excellence for Geospatial Information Science

Previous employments:

Northern Arizona University 2004 - 2009
Associate Professor, Geography and Public Planning

Northern Arizona University 2000 - 2004
Assistant Professor, Geography and Public Planning

Education

PhD Arizona State University, Geography May 2000

MS Arizona State University, Geography May 1994

BS Northern Arizona University May 1990

Research Interests

Automated Cartography
Knowledge extraction from historical maps
Data capture for topographical maps
GeoAI
National topographic maps and datasets
3D topographic visualization
Big data management

Selected Publications

Arundel, S.T., McKeehan, K.D., and Li, W. GeoAI for Spatial Image Processing. Book chapter submitted to Handbook of Geospatial Artificial Intelligence.

Sinha, G., Arundel, S.T., Samander, R., McKeehan, K.G. and Martin, D.P. Morphometric Analysis of Named Summit and Ridge Feature Classes. Short paper submitted to Geomorphometry 2023.

Arundel, S.T., Sinha, G., Li, W., Martin, D.P., McKeehan, K.G. and Thiem, P.T. Historical maps inform landform cognition in machine learning. Short paper submitted to ICC 2023.

Arundel, S.T., McKeehan, K.G. Campbell, B.B., Bulen, A.N., Thiem, P.T. A Guide to Creating an Effective Big Data Management Framework. Submitted to Journal of Big Data.

Li, W., Wang, S., Arundel, S.T. et al. (2022). GeoImageNet: a multi-source natural feature benchmark dataset for GeoAI and supervised machine learning. Geoinformatica. https://doi.org/10.1007/s10707-022-00476-z

Li, W., Arundel, S.T. (2022). GeoAI and the Future of Spatial Analytics. In: Li, B., Shi, X., Zhu, AX., Wang, C., Lin, H. (eds) New Thinking in GIScience. Springer, Singapore. https://doi.org/10.1007/978-981-19-3816-0_17

Arundel, S.T., Morgan, T.P., Thiem, P.T., Li, W. and Wang, S. "Spatial-to-image coordinate transformations." Short paper for Spatial Gems workshop, ACM Sigspatial 2021.

Arundel, S.T., Morgan, T.P. and Thiem, P.T. "Deep learning detection and recognition of topographic map text." Frontiers in Environmental Science 10:804155. https://doi.org/10.3389/fenvs.2022.804155

Arundel, S. T. and Li, W. 2021. "The Evolution of Geospatial Reasoning, Analytics, and Modeling." The Geographic Information Science & Technology Body of Knowledge (3rd Quarter 2021 Edition), John P. Wilson (Ed.). https://doi.org/10.22224/gistbok/2021.3.4

United States Department of the Interior
U.S. GEOLOGICAL SURVEY
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Reston, Virginia 20192

2/16.23

Nomination of ICA Commission on GeoAI

Based on the ICA statute and a letter of ICA EC, the United States Geological Survey is nominating the Commission on GeoAI for commencement.

The proposed chair of Commission is Samantha T. Arundel (USA), and a vice –chair Wenwen Li (USA).

The proposed terms of reference for the period 2023 – 2027 are as follows:

1. Define the topics of GeoAI and promote the methods and knowledge of GeoAI among scientists and professionals in cartography, GIScience and related fields.
2. Provide an updated, attractive web-portal with information about Commission activities, links to other events, theme-specific knowledge, related web sites and bibliographic information.
3. Discuss different issues about the use of GeoAI to extract machine-readable knowledge from maps unavailable elsewhere and to guide cartographic map style, symbolization, and design.
4. Develop a workshop series.
5. Promote publication activities (proceedings, web-proceedings, journal articles and special issues) and common research activities.

Dr. Samantha T. Arundel
Acting Director
Center of Excellence for Geospatial Information Science
U.S. Geological Survey