

Curriculum Vitae

Name André Skupin

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Department of Geography
San Diego State University
San Diego, CA 92182-4493
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Professional Experience

May 2014 – current
San Diego State University
Center for Information Convergence and Strategy (CICS)
Founder and Co-Director

Aug 2005 – current
San Diego State University
Department of Geography
Assistant/Associate/Full Professor

Aug 1997 – Aug 2005
University of New Orleans
Department of Geography
Instructor, Assistant/Associate Professor

Jan 1994 – May 1994 & Aug 1995 – May 1997
State University of New York at Buffalo
National Center for Geographic Information and Analysis (NCGIA)
Department of Geography
Graduate Research Assistant & Graduate Teaching Assistant

Nov 1994 – Jul 1995
Geographic Information Management Systems (GIMS), Midrand, South Africa
GIS Consultant

Jun 1993 – Aug 1993 & Jun 1994 – Aug 1994
Environmental Systems Research Institute (ESRI), Redlands, California
Software Development and Marketing Departments

Apr 1992 – Jul 1992
Technical University Dresden, Germany
Co-director, ATKIS research group; Director, SICAD-GIS laboratory

Education

Aug 1992 – Aug 1998
State University of New York at Buffalo
Ph.D. Geography
Dissertation Title: *Organizing and Visualizing Hypermedia Information Spaces*

Sep 1987 – Mar 1992
Technical University Dresden, Germany
Dipl.-Ing. Cartography

Languages English and German fluency

Research Interests Visual Data Mining. Information Visualization.
Semantic Web. Ontologies. Knowledge Analytics.
Text Mining. Natural Language Processing. Topic Modeling. Digital Humanities.
Geographic Data Engineering and Cyberinfrastructure. Spatio-Temporal Modeling.

Current Research

Domain ontology development and deployment
Human mobility in physical and abstract spaces
Visual analytics of crime, climate, and wildlife dynamics
Self-organizing map (SOM) software and workflow development
Knowledge visualization for science and technology (S&T) studies
High-dimensional data analytics in biomedical, finance, management domains

Publications – Edited Books and Journal Issues

Mutschke, P., Scharnhorst, A., Belkin, N.J., Skupin, A., Mayr, P. (2017) Knowledge Maps and Information Retrieval. Special Issue of *International Journal on Digital Libraries*. 18 (1, March): 1-72.

Agarwal, P., and Skupin, A. (Eds.) (2008) *Self-Organising Maps: Applications in Geographic Information Science*, Chichester, England: John Wiley & Sons, Ltd.

Skupin, A. and Börner, K. (Eds.) (2007) Mapping Humanity's Knowledge and Expertise in the Digital Domain. Special Theme Issue of *Environment and Planning B*. 34 (5, September): 765-838.

Leitner, M. and Skupin, A. (Eds.) (2007) Cartography 2007: Reflection, Status, and Prediction (U.S. National Report to the International Cartographic Association). Special Theme Issue of *Cartography and Geographic Information Science*. 34 (2, April): 73-171.

Publications – Journal Articles

Nayak, K., Skupin, A., Schempp, T., Garberich, R., Bhavnani, S., Henry, T. (2021) Machine Learning for Holistic Visualization of STEMI Registry Data. *Journal of Biomedical Informatics*. 121(September): 103869

Tominski, C., Andrienko, G., Andrienko, N., Bleisch, S., Fabrikant, S. I., Mayr, E., Miksch, S., Pohl, M., Skupin, A. (2021) Toward flexible visual analytics augmented through smooth display transitions. *Visual Informatics*. 5(3) 28-38.

Song, X., Zhang, H., Akerkar, R. A., Huang, H., Guo, S., Zhong, L., Ji, Y., Opdahl, A. L., Purohit, H., Skupin, A., Pottathil, A., Culotta, A. (2020) Big Data and Emergency Management: Concepts, Methodologies, and Applications. *IEEE Transactions on Big Data*.

Fouad, G., Skupin, A., and Tague, C.L. (2018) Regional regression models of percentile flows for the contiguous United States: Expert versus data-driven independent variable selection. *Journal of Hydrology: Regional Studies*. 17(June): 64-82.

Fabrikant, S.I., Gabathuler, C., and Skupin, A. (2015) SOMViz: Web-based Self-Organizing Maps. *Kartographische Nachrichten*. 65(2): 81-91.

Skupin, A. (2014) Making a Mark: A Computational and Visual Analysis of One Researcher's Intellectual Domain. *International Journal of Geographical Information Science*. 28(6): 1209-1232.

Skupin, A. (2013) A Visual Exploration of Mobile Phone Users, Land Cover, Time, and Space. *Pervasive and Mobile Computing*. 9 (6): 865-880.

Ahearn, S.C., Icke, I., Datta, R., DeMers, M.N., Plewe, B., and Skupin, A. (2013) Re-Engineering the GIS&T Body of Knowledge. *International Journal of Geographical Information Science*. 27(11): 2227-2245.

Burns, R. and Skupin, A. (2013) Towards Qualitative Geovisual Analytics: A Case Study Involving Places, People, and Mediated Experience. *Cartographica*. 48(3): 157-176.

DeMers, M., Klimaszewski-Patterson, A., Richman, R., Ahearn, S., Plewe, B., Skupin, A. (2013) Toward an Immersive 3D Virtual BoK Exploratorium: A Proof of Concept. *Transactions in GIS*. 17(3): 335-352.

Wang, N., Biggs, T., and Skupin, A. (2013) Visualizing Gridded Time Series Data with Self-Organizing Maps: An Application to Multi-Year Snow Dynamics in the Northern Hemisphere. *Computers, Environment and Urban Systems*. 39(5): 107-120.

- Skupin, A., Biberstine, J., and Börner, K. (2013) Visualizing the Topical Structure of the Medical Sciences: A Self-Organizing Map Approach. *PLoS ONE*. 8(3): e58779.
- Skupin, A. and Esperbé, A (2011) An Alternative Map of the United States Based on an n-Dimensional Model of Geographic Space. *Journal of Visual Languages and Computing*. 22(4): 290-304.
- Boyack, K.W., Newman, D., Duhon, R.D., Klavans, R., Patek, M., Biberstine, J.R., Schijvenaars, B., Skupin, A., Ma, N. and Börner, K. (2011) Clustering More Than Two Million Biomedical Publications: Comparing the Accuracies of Nine Text-Based Similarity Approaches. *PLoS ONE*. 6(3): e18029.
- Schmidt, C.R., Rey, S.L., and Skupin, A. (2011) Effects of Irregular Topology in Spherical Self-organizing Maps. *International Regional Science Review*. 34(2): 215-229.
- Skupin, A. (2011) Mapping Text. *Glimpse | the art + science of seeing*. 3 (7, Winter): 69-77.
- Kolovos, A., Skupin, A., Jerrett, M., and Christakos, G. (2010) Multi-Perspective Analysis and Spatiotemporal Mapping of Air Pollution Monitoring Data. *Environmental Science & Technology*. 44(17): 6738-6744.
- Skupin, A. (2009) Discrete and Continuous Conceptualizations of Science: Implications for Knowledge Domain Visualization. *Journal of Informetrics*. 3 (3): 233-245.
- Ebinger, S. and Skupin, A. (2007) Comparing Different Forms of Interactivity in the Visualization of Spatio-Temporal Data. In: Fuhrmann, S. (Ed.) Special Issue of *Kartographische Nachrichten*. 57 (2, April): 63-70.
- Skupin, A. and Hagelman, R. (2005) Visualizing Demographic Trajectories with Self-Organizing Maps. *GeoInformatica*. 9(2): 159-179.
- Skupin, A. (2004) A Picture from a Thousand Words. *Computing in Science and Engineering*. 6 (5): 84-88.
- Skupin, A. (2004) The World of Geography: Visualizing a Knowledge Domain with Cartographic Means. *Proceedings of the National Academy of Sciences*. 101 (Suppl. 1): 5274-5278.
- Skupin, A. and Fabrikant, S.I. (2003) Spatialization Methods: A Cartographic Research Agenda for Non-Geographic Information Visualization. *Cartography and Geographic Information Science*. 30 (2): 99-119.
- Skupin, A. (2002) A Cartographic Approach to Visualizing Conference Abstracts. *IEEE Computer Graphics and Applications*. 22 (1): 50 - 58.

Publications – Book Chapters

- Ahearn, S.C. and Skupin, A. (2016) From Body of Knowledge to Base-Map: Managing Domain Knowledge through Collaboration and Computation. In: Onsrud, H. and Kuhn, W. (Eds.) *Advancing Geographic Information Science: The Past and Next Twenty Years*. GSDI Association Press. 65-78.
- Skupin, A. (2010) Spatialization. In: Warf, B. (Ed.) *Encyclopedia of Geography*. Vol. V, SAGE Publications, Inc. 2649-2653 (modified from entry in Encyclopedia of Geographic Information Science)
- Skupin, A. and Skupin, M. (2009) On Written Language in Works of Art and Cartography. In: Cartwright, W., Gartner, G., and Lehn, A. (Eds.) *Cartography and Art*. Berlin/Heidelberg: Springer. 207-222.
- Skupin, A. and Esperbé, A. (2008) Towards High-Resolution Self-Organizing Maps of Geographic Features. In: Dodge, M., Turner, M., and Derby, M. (Eds.) *Geographic Visualization: Concepts, Tools and Applications*. Chichester, England: John Wiley & Sons, Ltd. 159-181.
- Skupin, A., and Agarwal, P. (2008) Introduction: What is a Self-Organizing Map? In: Agarwal, P., and Skupin, A. (Eds.) *Self-Organising Maps: Applications in Geographic Information Science*, Chichester, England: John Wiley & Sons, Ltd. 1-20.
- Skupin, A. (2008) Visualizing Human Movement in Attribute Space. In: Agarwal, P., and Skupin, A. (Eds.) *Self-Organising Maps: Applications in Geographic Information Science*, Chichester, England: John Wiley & Sons, Ltd. 121-135.

Skupin, A., and Fabrikant, S.I. (2008) Spatialization. In: Wilson, J., and Fotheringham, S. (Eds.) ***The Handbook of Geographical Information Science***. Blackwell Publishing, Ltd. 61-79.

Skupin, A. (2007) Spatialization. In: Kemp, K. (Ed.) ***Encyclopedia of Geographic Information Science***, Sage Publications, Inc. 418-422.

Skupin, A. (2007) Where do you want to go today [in attribute space]? in: Miller, H. (Ed.) ***Societies and Cities in the Age of Instant Access***. Springer. 133-149.

Fabrikant, S.I. and Skupin, A. (2005) Cognitively Plausible Information Visualization. in: Dykes, J., MacEachren, A., and Kraak, M.J. (Eds.), ***Exploring Geovisualization***. Amsterdam: Elsevier. 667-690.

Skupin, A. (2002) On Geometry and Transformation in Map-like Information Visualization. In: Börner, K., and Chen, C. (Eds.) ***Visual Interfaces to Digital Libraries (Lecture Notes in Computer Science 2539)***. Berlin: Springer-Verlag. 161-170.

Mark, D., Skupin, A., and Smith, B. (2001) Features, Objects, and other Things: Ontological Distinctions in the Geographic Domain. In: Montello, D. (Ed.) ***Spatial Information Theory: Foundations of Geographic Information Science (Lecture Notes in Computer Science 2205)***. Berlin: Springer-Verlag. 488-502.

Publications – Conference Proceedings (full papers, peer-reviewed)

Skupin, A. and Miller, H.J. (2012) Nokia MDC Atlas: An Exploration of Mobile Phone Users, Land Cover, Time, and Space. ***Nokia Mobile Data Challenge 2012 Workshop, Newcastle, UK, June 18-19***. (acceptance rate: 19%)

Skupin, A. and Hagelman, R. (2003) Attribute Space Visualization of Demographic Change. In: Hoel, E., and Rigaux, P. (Eds.) ***Proceedings of the Eleventh ACM International Symposium on Advances in Geographic Information Systems***, New Orleans, Louisiana, November 7-8. New York: ACM Press. 56-62. (acceptance rate: 26%)

Skupin, A. (2000) From Metaphor to Method: Cartographic Perspectives on Information Visualization. In: Roth, S.F., and Keim, D.A. (Eds.) ***Proceedings IEEE Symposium on Information Visualization (InfoVis 2000), 9-10 October, Salt Lake City, Utah***. Los Alamitos: IEEE Computer Society. 91-97. (acceptance rate: 26%)

Skupin, A. and Buttenfield, B.P. (1997) Spatial Metaphors for Visualizing Information Spaces. ***Proceedings AUTO-CARTO 13***. Bethesda: ACSM/ASPRS. 116-125.

Skupin, A. and Buttenfield, B.P. (1996) Spatial Metaphors for Visualizing Very Large Data Archives. ***Proceedings GIS/LIS'96***. Bethesda: American Society for Photogrammetry and Remote Sensing. 607-617.

Skupin, A. (1996) Use of Huffman Trees to Encode Verbal Street Directions. ***Salzburger Geographische Materialien***. vol. 24: 1-10.

Wieshofer, M. and Skupin, A. (1996) Cartographic Expertise at the Hypermedia Frontier: Mapping of Hypermedia Structures and Use of Cartographic Animation as Two Examples. In: Mayer, F. (Ed.) ***Wiener Schriften zur Geographie und Kartographie***, vol. 8: 96-105.

Publications – Conference Proceedings (full papers, not peer-reviewed)

Burns, R. and Skupin A. (2009) Visualization of Attribute Spaces Involving Places, People and Utterances. ***Proceedings of 24th International Cartographic Conference, Santiago, Chile November 15-21, 2009***. (CD-ROM)

Skupin, A. and Skupin M. (2008) Partners in ConText: On Written Language in Works of Art and Cartography. ***Symposium "Cartography and Art – Art and Cartography," February 1-2, 2008, Vienna, Austria***. (CD-ROM)

Lacayo, M. and Skupin, A. (2007) A GIS-based Visualization Module for Self-Organizing Maps. ***Proceedings of 23rd International Cartographic Conference, Moscow, Russia, August 4-10, 2007***. (CD-ROM)

Skupin, A. and de Jongh, C. (2005) Visualizing the ICA – A Content-based Approach. ***Proceedings of 22nd International Cartographic Conference, A Coruña, Spain, July 9-16, 2005***. (CD-ROM)

Skupin, A. (2003) A Novel Map Projection Using an Artificial Neural Network. *Proceedings of 21st International Cartographic Conference, Durban, South Africa, August 10-16*: 1165-1172. (CD-ROM)

Skupin, A. (2001) Cartographic Considerations for Map-like Interfaces to Digital Libraries. First ACM+IEEE Joint Conference on Digital Libraries (JCDL '01). Workshop on Visual Interfaces to Digital Libraries. June 28, Roanoke, Virginia. <http://vw.indiana.edu/visual01/skupin.pdf>

Publications – Conference Proceedings (extended abstracts, peer-reviewed)

Biberstine J., Börner, K., Duhon, R.J., Hardy, E., and Skupin, A. (2012) A Semantic Map of the last.fm Music Folksonomy. *Seventh International Conference on Geographic Information Science (GIScience 2012), Columbus, OH, September 19-21*. (acceptance rate: 61%)

Skupin, A. (2010) Tri-Space: Conceptualization, Transformation, Visualization. Sixth International Conference on Geographic Information Science (GIScience 2010), Zürich, Switzerland, September 2010. (acceptance rate: 66%)

Skupin, A. and Liggio, R. (2006) Label Determination for Document Spatialization. In: Raubal, M., Miller, H., Frank, A.U., and Goodchild, M. (Eds.) *Fourth International Conference on Geographic Information Science (GIScience 2006), Münster, Germany, September 2006*. IfGIprints vol. 28, Münster: Institut für Geoinformatik.179-181. (acceptance rate: 53%)

Skupin, A. (2002) Geometry, Resolution, Projection: A Geographic Reading of the SOM Method. *Second International Conference on Geographic Information Science (GIScience 2002), September 25-28, 2002, Boulder, Colorado*. Santa Barbara: University of California Regents. 272-274. (acceptance rate: 67%)

Patents – Issued

Knowledge Reference System and Method. Inventors: Skupin, A., Plewe, P., Ahearn, S., and Icke, I. U.S. Patent No. 11,436,270. Issued: Sep 6, 2022.

Patents – Pending

Knowledge Space Analytics. Inventor: Skupin, A. U.S. Patent Application No. US 20220357177 A1. Published: Nov 10, 2022.

Methods and Systems for Base Map and Inference Mapping. Inventors: Skupin, A. and Du, F. U.S. Patent Application No. PCT/US2015/055035. Published: Apr 14, 2016.

Reviews

Skupin, A. (2013) Review of *The Visualization of Spatial Social Structure* by Danny Dorling. ***Journal of Regional Science***. 53(4): 727-728.

Skupin, A. (2003) Review of the Journal *Information Visualization*. ***D-Lib Magazine*** 9(9). <http://www.dlib.org/dlib/september03/09journalreview.html>

Skupin, A. (2002) Review of *Introduction to Geographic Information Systems* by Kang-tsung Chang. ***Transactions in GIS*** 6(3): 342-343.

Creative Works Featured

Skupin, A. (2020)
Coronavirus SoS – Story Map and Dashboard
Featured in:
Esri (2020) ***Innovative Story Maps for COVID-19 Communication***
[<https://www.esri.com/en-us/arcgis/products/arcgis-storymaps/stories>]

Skupin, M. and Skupin, A. (2015)
You on Music
Recent Exhibit: ***Ephemeral Objects***, San Diego Art Institute, San Diego, CA. (Aug-Sep 2015)

Skupin, A. (2014)

SOM. self. organized.

Featured in:

Bühlmann, V., Hovestadt, L. and Moosavi, V. (Eds.) (2015)
Coding as Literacy – Metalithikum V. Vienna: Ambra/Birkhäuser.
doi: 10.1515/9783035606393-007

Skupin, A., Conway, M., Wei, W., Chapman, B., and Chapman, W. (2014)

In Terms of MIMIC – A Visual Exploration of the Critical Care Domain

Featured in:

Börner, K. (2015) **Atlas of Knowledge: Anyone Can Map.** The MIT Press.

Skupin, A. (2005)

In Terms of Geography

Permanent Archives:

United States Library of Congress (G9930 2007 .B6)
New York Public Library (Map Div. 06-1420)
Indiana University's Herman B Wells Library
Stanford University
University of Michigan's Hatcher Library (GA 190 .P53 2006)
The American University of Beirut

Recent Exhibits:

Clark Library, University of Michigan, Ann Arbor, Michigan (Aug – Dec 2022)
Women in Data Science 2020 – Regional Event, Mexico City, Mexico (Mar 2020)
Indiana University, Bloomington, Indiana (Mar-Dec 2018)
Virginia Tech, Blacksburg, Virginia (Aug-Nov 2017)
Vanderbilt University, Nashville, Tennessee (Jan-Apr 2017)
Centers for Disease Control and Prevention (CDC), Atlanta, Georgia (Jan-Jun 2016)
Graduate School of User-Centered Social Media, Univ. of Duisburg-Essen, Germany (Dec 2015)
Galter Health Sciences Library, Northwestern University, Chicago, Illinois (May-Sep 2015)
Royal Netherlands Academy of Arts and Sciences, The Hague, Netherlands (May 2015)
Graduate School of Design, Harvard University, Cambridge, Massachusetts (Apr-May 2015)
Duke University, Durham, North Carolina (Jan-Apr 2015)

Featured in:

Ornatowski, C.M. (2016) Knowledge and Surveillance Society. In: Kampka, A., Molek-Kozakowska, K. (Eds.) **Rhetoric, Knowledge and the Public Sphere**, Peter Lang Edition, 27-42.
Börner, K. and Polley, D.E. (2014) **Visual Insights – A Practical Guide to Making Sense of Data.** The MIT Press, 122-124.
Issues in Science and Technology, 27 (Spring 2011): 2, 74-75.
Börner, K. (2010) **Atlas of Science.** The MIT Press, 102-105.

Skupin, A. (2000, 2002, 2004) as central topic of:

Schubbach, A. (2009) Die Maßlose Darstellung von Bildern. In: Reichle, I., Siegel, S. (Eds.) **Maßlose Bilder: Visuelle Ästhetik der Transgression**, Fink-Verlag: 67-84.

Invited Presentations

Knowledge Representation for Contextual Intelligence. ELISE (European Location Interoperability Solutions for e-Government) Webinar: Improving knowledge transfer across organisations by knowledge graphs. Apr 4, 2022.

Context as a Service. Dagstuhl Reconnect – Multi-level Graph Representations for Big Data in Science. Jul 12, 2021.

Yes, There's a Map for That!, 2021 Lightning Talks, Center for Spatial Studies, University of California, Santa Barbara, Mar 16, 2021.

Coronavirus SoS: Establishing Common Ground through Science Mapping. Western Norway Research Institute, Sogndal, Norway, Jan 28, 2021.

Mapping the Coronavirus Knowledge Domain, OGC Health DWG Special Session on COVID-19 Response, 115th OGC Technical Committee Mtg, Jun 15, 2020.

Coronavirus SoS: Science-of-Science Map and Guided Tour. **Carinthia University of Applied Sciences**, Villach, Austria, Jun 15, 2020.

Industry Panel on Cyber Security & Artificial Intelligence, 61st Annual Winter Seminar, Independent Cities Association, Santa Barbara, CA, Feb 1, 2020. (invited panelist)

Future Technology and Trends in Smart Secure City Development. **Smart and Safe Cities Forum Los Angeles**, Culver City, California, Dec 12, 2019. (invited panelist)

Visualizing the Many Spaces of Health. **University of Rostock**, Rostock, Germany, Jun 18, 2019.

Spatial Intelligence for Health. **Carinthia University of Applied Sciences**, Villach, Austria, Jun 5, 2019.

Dagstuhl Seminar – Visual Analytics for Sets over Space and Time, Schloss Dagstuhl, Germany, May 5-10, 2019. (invited participant and panelist)

Expert Meeting – Spatial Discovery III. Center for Spatial Studies & UCSB Library, **University of California, Santa Barbara**, California, May 1-3, 2019. (invited participant and presenter)

There's a Space For That! Spatial Intelligence for Health and Beyond. **City University of New York – Hunter College**, April 17, 2019.

Deep Mapping: Spatial Intelligence. **Inaugural Forward Summit**. Charlotte, North Carolina, Oct 11, 2018.

Big Data & Emergency Management: Surveying an Interdisciplinary Domain. **Carinthia University of Applied Sciences**, Villach, Austria, Jun 13, 2018.

Visualizing the Knowledge Spaces of Biomedicine and Intensive Care. **Health & GIS Conference**. Texas State University, Round Rock Campus, May 17-18, 2018.

Frontiers in GIScience. **Esri Science Symposium**. San Diego, California, July 11, 2017 (invited panelist)

Social and Spatial Networks of Wild Pigs: A Visual Exploration. **Carinthia University of Applied Sciences**, Villach, Austria, Jun 1, 2017.

Expert Meeting – Spatial Discovery II. Center for Spatial Studies & UCSB Library, **University of California, Santa Barbara**, California, May 11-12, 2017. (invited participant)

Making Noise with Big Data, Department of Geography, **Texas State University**, San Marcos, Texas, Oct 14, 2016.

Big Data in Healthcare, Panel on Health Care Transformation through Digital Leadership: Inside and Outside the Hospital Walls in Support of Continuity of Care, **22nd Americas Conference on Information Systems**, San Diego, California, Aug 11, 2016. (with Akshay Pottathil)

Space[s] and the Cartography of Everything, Department of Geodesy and Geoinformation, **Technische Universität Wien**, Vienna, Austria, Jun 17, 2016.

You Are Here: Towards a Cartography of Knowledge Spaces. Workshop **Culture Analytics and User Experience Design** held at Institute for Pure and Applied Mathematics (IPAM), **University of California, Los Angeles**, Apr 11-15, 2016.

Geographic Information Systems: Importance and Societal Impact. Seminar at **Centro de Enseñanza Técnica y Superior (CETYS University)**, Mexicali, Baja California, Mexico, Feb 22, 2016. (with Akshay Pottathil)

Towards a Knowledge Reference System for Pediatrics. **Pediatrics 2040**, Dana Point, California, Jan 6-9, 2016.

Data Analytics for Strategic Planning and Understanding the Future Workforce. Expert Panel on **Big Data and the Future of Open Government**, Carlsbad, California, Dec 8, 2015.

Knowledge Visualization: From Cartographic Inspiration to Societal Impact. **Carinthia University of Applied Sciences**, Villach, Austria, Jun 11, 2015.

When I Close My Eyes, I See Spaces. GISMO 25th Anniversary Celebration. **New York Public Library**, New York, May 1, 2015.

Knowledge Visualization: From Abstract Space to Real Impact. **CUNY Graduate Center**, New York, May 1, 2015.

Visualizing Knowledge Spaces: Cartographic Perspectives. Keynote lecture at *Visualization Metaphors for Communicating the Structure and Dynamics of Science*. Luncheon meeting at **American Association for the Advancement of Science (AAAS) Annual Meeting**, San Jose, California, Mar 1, 2015.

Data Visualization. Medical Intelligence and Innovations Institute, **Children's Hospital of Orange County (CHOC)**, Orange, California, Dec 15, 2014.

Visualizing Domain Language: Concepts and Practice. Keynote lecture at workshop **Cartography and Visualization of Language Data**, organized by University Research Priority Program *Language and Space*, **University of Zurich**, Switzerland, Nov 21, 2014.

Beyond GIS, International GIS Day Keynote, organized by **Mannai Corporation** and the Centre for GIS of the **Qatar Ministry of Municipality & Urban Planning**, Doha, Qatar, November 19, 2014. (with Akshay Pottathil)

In Terms of Medicine: Language, Space, and Computation. **Pediatric Data/Intelligence Forum**. Support by the Sharon Disney Lund Medical Intelligence and Innovation Institute (MI3) and Children's Hospital of Orange County (CHOC), Dana Point, California, Oct 13-14, 2014.

Managing Domain Knowledge: Ontology, Visualization, and Beyond. Keynote lecture at workshop **Knowledge Mapping and Information Retrieval (KMIR 2014)**, London, UK, Sep 12, 2014.

A World beyond Networks: Geographic Approaches to Knowledge Visualization. Keynote lecture at **GI-Forum 2014**, Salzburg, Austria, Jul 1-4, 2014.

Transfiguring Physical and Abstract Spaces. Keynote lecture at **Metalithicum #5 – Computation as Literacy: Self-Organizing Maps**. Swiss Federal Institute of Technology (ETH) & Werner Oechslin Library, Einsiedeln, May 22-24, 2014.

Plug-and-Play Macroscopes. Workshop funded by the James S. McDonnell Foundation and the Cyberinfrastructure for Network Science Center. **Indiana University**, Bloomington, Indiana, Nov 5-6, 2013 (invitation-only workshop)

Science Mapping Standards. Workshop funded by the James S. McDonnell Foundation and the Cyberinfrastructure for Network Science Center. **Indiana University**, Bloomington, Indiana, Nov 4-5, 2013 (invitation-only workshop)

CyberGIS and the GIS&T Body of Knowledge. **NSF CyberGIS All-Hands Meeting**. University of Washington, Seattle, WA, Sep 15-17, 2013.

Visualizing the Topical Structure of the Medical Sciences: A Self-Organizing Map Approach. Southern California Workshop on Medical Text Analysis and Visualization, Workshop at **Biomedical Informatics Division, University of California – San Diego**. Feb 17, 2013. (invited workshop speaker)

Nothing Sacred Anymore: Irreverent Geographic Exploits in Knowledge Visualization. Keynote Lecture for Geography Awareness Week, **Department of Geography, University at Buffalo**, November 16, 2012.

Beyond Networks: Geographically Informed Conceptualizations of Science. **Battelle Center for Science & Technology Policy**, Columbus, OH, September 20, 2012.

How to Map Practically Anything: Towards a Cartography of High-Dimensional Space. **School of Geoinformation, Carinthia University of Applied Sciences**, Villach, Austria, May 29, 2012.

How to Map Practically Anything: Towards a Cartography of High-Dimensional Space. **Department of Geography, University of California – Santa Barbara**, April 26, 2012.

Visualizing the Medical Sciences: A Self-Organizing Map Approach. **Biomedical Informatics Division, University of California – San Diego**. Feb 17, 2012.

How to Map Practically Anything: Towards a Cartography of High-Dimensional Space. **Department of Forestry and Wood Science, University of Stellenbosch**, South Africa, January 19, 2012.

How to Map Practically Anything: Towards a Cartography of High-Dimensional Space. **South African Agricultural Research Council**, Pretoria, South Africa, January 11, 2012.

How to Map Practically Anything: Towards a Cartography of High-Dimensional Space. **Department of Geography, University of Utah**, November 18, 2011.

Standards for Science Metrics, Classification, and Mapping. Workshop funded by the James S. McDonnell Foundation and the Cyberinfrastructure for Network Science Center. **Indiana University**, Bloomington, Indiana, August 11-12, 2011 (invitation-only workshop)

Keynote lecture at Workshop *Mining the Digital Traces of Science – Toward Interactive Visualization of Science Dynamics.* **Center for Research in Applied Epistemology, Paris IdF Complex Systems Institute**, Paris, France, March 22-25, 2011.

Visualizing Déjà Vu: A Computational Exploration of Geographic Attribute Space. **Humanities Institute of Ireland**, Dublin, Ireland, November 16, 2010.

Visualizing Déjà Vu: A Computational Exploration of Geographic Attribute Space. Cultural Dimensions of Innovation. International Conference. **University College Dublin**, Ireland, November 15-16, 2010.

Tri-Space: Conceptualize, Compute, Visualize. **Waldo Tobler Distinguished Lecture in Geographic Information Science.** AAG Annual Meeting, Washington, DC, April 16, 2010.

Mapping of Science and Semantic Web. Workshop funded by National Science Foundation. **Indiana University**, Bloomington, Indiana, March 4-5, 2010 (invitation-only workshop)

Geographically Informed Conceptualizations of Science: Implications for Knowledge Domain Visualization. Modelling Science – Understanding, Forecasting, and Communicating the Science System, Workshop funded by the **Royal Netherlands Academy of Arts and Sciences**. Amsterdam, Netherlands, October 6-9, 2009 (invited workshop speaker)

Current Research in Visualization of High-Dimensional Data. **International Institute for Social History**, Amsterdam, Netherlands, October 5, 2009.

Collaborative Visualization for Collective, Connective, and Distributed Intelligence. Media X Summer Institute Workshop, **Stanford University**, Stanford, California, August 12-14, 2009. (invited guest speaker)

Mapping the History and Philosophy of Science, Workshop funded by National Science Foundation and James S. McDonnell Foundation, **Indiana University**, Bloomington, Indiana, June 17-18, 2009. (invitation-only workshop)

NCGIA @ 20. International Symposium on Geographic Information Science. **National Center for Geographic Information and Analysis**, Santa Barbara, California, December 11-12, 2008.

Geographic Approaches to the Visualization of High-Dimensional Space. **Department of Computer Science, San Diego State University**, October 14, 2008.

Albany, Baton Rouge, Santa Barbara: There Goes the Neighborhood – in n-Dimensional Space! **Computational Science Research Center, San Diego State University**, November 30, 2007.

Surrogate Buses, Feminist Navigation, and Other Curious Sights in Attribute Space. **Department of Geography, San Diego State University**, September 21, 2007.

Of Neurons and Déjà Vu: A New Approach to Visualizing Geographic Movement. **Department of Geography, University of Zurich**, Switzerland, July 12, 2007.

GIS v2.0: Geographic Exploration of n-Dimensional Space. **University of Redlands**, Redlands, California, October 25, 2006.

Travels in Attribute Space. NSF IGERT Program in Interactive Digital Multimedia, **University of California at Santa Barbara**, March 3, 2006.

Visualizing Scholarly Knowledge: Current Approaches and Geographic Contributions. **Department of Geography, University of California at Santa Barbara**, March 2, 2006.

Toward Improved Visualization of Uncertain Information. **National Academy of Sciences**, Washington, DC. March 3-4, 2005.

Spatialization. EnVISION 05: Exploring a New Visualization Infrastructure. **Silicon Graphics Campus**, Mountain View, California, January 19, 2005.

Toward Map-like Visualization of Knowledge Domains. **Department of Computer Science, University of New Orleans**, November 19, 2004.

SOMwhere in Geography, **Department of Geography, University at Buffalo**, October 10, 2003.

Wormholes on the Interstate, Counties Colliding, and Other Oddities. **IGERT program and National Center for Geographic Information and Analysis (NCGIA), University at Buffalo**, Buffalo, New York, October 10, 2003.

Santa Barbara – Honolulu – San Francisco: Travels by Car along the Attribute Highway. **University of California at Santa Barbara**, May 8, 2003,

A Different Kind of Cartography: Computation and Cognition in the Mapping of Non-Geographic Information. **Center for Advanced Computational Studies, University of Louisiana**, Lafayette, Louisiana, May 2, 2003.

Integration of Artificial Neural Networks and Cartographic Design in a Visualization of AAG Conference Abstracts. **University of Southern Mississippi**, February 8, 2002, Hattiesburg, Mississippi.

Other Presentations

Applying machine learning to a regional STEMI dataset: employing neural networks to unravel new patterns to explain etiopathology of stroke after aspiration thrombectomy. Society for Cardiovascular Angiography & Interventions, 2019 Scientific Sessions. May 19-22, 2019. (presented by Keshav Nayak; with Tim Schempp, Tim Henry, Ross Garberich)

Spatial Intelligence for Health. American Association of Geographers Annual Meeting, April 3-7, 2019, Washington, DC.

Applying Machine Learning to STEMI Outcomes. Transcatheter Cardiovascular Therapeutics (TCT) 2018. Sep 21-25, 2018, San Diego, CA. (presented by Keshav Nayak; with Tim Schempp, Tim Henry, Ross Garberich)

Big Data & Emergency Management: Surveying an Interdisciplinary Domain. Left of Boom IV, Fourth Annual Conference on Proactive Threat Mitigation, May 2-4, 2018, San Diego, CA.

Big Data and Emergency Management: A Scientometric Approach to Understanding an Interdisciplinary Domain. American Association of Geographers Annual Meeting, April 10-14, 2018, New Orleans, LA.

A self-organizing map exploratory analysis of the flow duration curve in the United States. Japan Geoscience Union – American Geophysical Union Joint Meeting 2017, May 20-25, 2017, Makuhari, Japan. (presented by Geoffrey Fouad)

Modeling Wild Pigs: Social and Other Networks. American Association of Geographers Annual Meeting, April 5-9, 2017, Boston, MA. (with Timothy Schempp, Michael White, Ben Teton)

Independent variable complexity for regional regression of the flow duration curve in ungauged basins. European Geosciences Union General Assembly, April 17-22, 2016, Vienna, Austria. (presented by Geoffrey Fouad; with Allen Hope)

An Aerial and Symphonic Fly-Through of High-Dimensional Geographic Space. Association of American Geographers Annual Meeting, March 29 – April 2, 2016, San Francisco, CA.

In Terms of MIMIC: Towards a Base Map for the Intensive Care Domain. Association of American Geographers Annual Meeting, April 21–25, 2015, Chicago, IL. (with Michael Conway, Wei Wei, Brian Chapman, Wendy Chapman)

Visualization for Impact. Expert Workshop on Supporting Decision making through Geovisualization (GeoViz Hamburg 2015), January 20, 2015, Hamburg, Germany.

Spatial-temporal Patterns of Production Assets in an Indoor Production Environment. Workshop on Analysis of Movement Data (AMD 2014), September 23, 2014, Vienna, Austria. (presented by Johannes Scholz; with Stefan Schabus)

Operationalizing a Domain Knowledge Reference System: Natural Language Processing Approaches. Association of American Geographers Annual Meeting, April 21-25, 2014, Tampa, FL.

In Terms of MIMIC: A Visual Exploration. Critical Data Conference, January 7, 2014, Massachusetts Institute of Technology, Cambridge, MA. (with Mike Conway, Wei Wei, and Wendy Chapman)

Advancing the Spatially Enabled Smart Campus. Specialist Meeting, December 11-12, 2013, University of California, Santa Barbara, CA.

Towards a Knowledge Reference System for the Domain of Geographic Information Science and Technology (GIS&T). 26th International Cartographic Congress, August 25-30, 2013, Dresden, Germany. (with Marilyn Stowell, Fangming Du, Sean Ahearn, Brandon Plewe, Michael DeMers)

Geographic Information Science & Technology Body of Knowledge – Foundational Research. UCGIS 2013 Symposium, May 21-23, Fairfax, VA. (with Sean Ahearn, Brandon Plewe, Michael DeMers)

The Impact of Hurricane Katrina on Crime: Using the Tri-Space Concept and Dimensionality Reduction. Association of American Geographers Annual Meeting, April 9-13, 2013, Los Angeles, CA. (with Michael Leitner)

Making a Mark: A Computational and Visual Analysis of One Researcher's Intellectual Domain. Association of American Geographers Annual Meeting, April 9-13, 2013, Los Angeles, CA.

Towards a Knowledge Reference System for the GIS&T Domain. Association of American Geographers Annual Meeting, April 9-13, 2013, Los Angeles, CA.

BoKVis: Interactive Visualization of the Geographic Information Science and Technology Body of Knowledge 1. Association of American Geographers Annual Meeting, April 9-13, 2013, Los Angeles, CA. (with Marilyn Stowell and Fangming Du)

Visualizing the Geographic Information Science & Technology Body of Knowledge. GeoViz 2013, March 6-8, 2013, Hamburg, Germany. (with Marilyn Stowell, Fangming Du, and Grant Fraley)

A Semantic Map of the last.fm Music Folksonomy. Seventh International Conference on Geographic Information Science (GIScience 2012), September 19-21, 2012, Columbus, OH. (with Joseph Biberstine, Katy Börner, Russell J. Duhon, and Elisha Hardy)

A Semantic Map of the last.fm Music Folksonomy (poster). Current Challenges in Computing 2012: Network Science, August 27-29, 2012, Napa, CA. (with Joseph Biberstine, Katy Börner, Russell J. Duhon, and Elisha Hardy)

Nokia MDC Atlas: An Exploration of Mobile Phone Users, Land Cover, Time, and Space. Nokia Mobile Data Challenge 2012 Workshop, Newcastle, UK, June 18-19. (with Harvey J. Miller)

A Pictorial Transect of the United States [in Attribute Space]. Workshop on Cartography and Narratives, June 11-13, 2012, ETH Zurich, Switzerland.

Visualizing the Medical Sciences: A Self-Organizing Map Approach. Association of American Geographers Annual Meeting, February 24-28, 2012, New York, NY. (with Joseph Biberstine and Katy Börner)

Effects of MODIS Data Noise on Phenology-based Self-organizing Maps in Water-limited Ecosystems. American Geophysical Union, Fall Meeting 2011, December 5-9, San Francisco, CA. (presented by Geoffrey Fouad; with Allen Hope)

Exploratory Analysis of Snow Dynamics for the Northern Hemisphere. Association of American Geographers Annual Meeting, April 12-16, 2011, Seattle, WA. (with Ninghua Wang and Trent Biggs)

Tri-Space: Conceptualization, Transformation, Visualization. International Conference on Geographic Information Science (GIScience 2010), September 14-17, 2010, Zürich, Switzerland.

An Alternative Map of the United States Based on an n-Dimensional Model of Geographic Features. Association of American Geographers Annual Meeting, April 14-18, 2010, Washington, DC. (with Aude Esperbé)

A Tri-Space Approach to Systematic Visual Data Exploration. Association of American Geographers Annual Meeting, March 22-27, 2009, Las Vegas, Nevada.

A High-Resolution Representation of n-Dimensional Geographic Space. GeoViz 2009, March 3-5, 2009, Hamburg, Germany. (with Aude Esperbé)

Partners in ConText: On Written Language in Works of Art and Cartography. Symposium "Cartography and Art – Art and Cartography," February 1-2, 2008, Vienna, Austria. (with Marinta Skupin)

Comparative Visual Analysis of "Cartography" using Content- and Network-based Approaches. Workshop of the Commission on Visualization and Virtual Environments, International Cartographic Association, August 2-3, 2007, Helsinki, Finland. (with Wyson J. Pang)

Label Determination for Document Spatialization. International Conference on Geographic Information Science (GIScience 2006), September 21-23, 2006, Münster, Germany. (with Robert Liggio)

Conceptualizing n-dimensional Data in the Context of Spatialization Methods. ICA Workshop on Visualization, Analytics, and Spatial Decision Support, September 20, 2006, Münster, Germany.

Spatialization of Demographic Trajectories. Association of American Geographers Annual Meeting, March 7-11, 2006, Chicago, Illinois. (with Dr. Ron Hagelman)

Where do you want to go today [in attribute space]? Symposium on Societies and Cities in the Age of Instant Access, November 10-12, 2005, Salt Lake City, Utah.

In Terms of Geography. Conference on Spatial Information Theory (COSIT), September 14-18, 2005, Ellicottville, New York.

Visualizing the ICA – A Content-based Approach. 22nd International Cartographic Conference, July 9-16, 2005, La Coruña, Spain. (with Charles de Jongh)

Building a multi-year database of AAG conference abstracts. Association of American Geographers Annual Meeting, April 5-9, 2005, Denver, Colorado. (with Shujing Shu)

Building a System for Map-like Visualization of Text Documents. Geovisualization Developers Workshop, International Cartographic Association, Commission on Visualization and Virtual Environments, October 20, 2004, College Park, Maryland.

An Attribute Space Method for Visualizing Patterns of Human Movement. Association of American Geographers Annual Meeting, March 14-19, 2004, Philadelphia, Pennsylvania.

Attribute Space Visualization of Demographic Change. 11th ACM International Symposium on Advances in Geographic Information Systems, New Orleans, Louisiana, November 7-8, 2003. (with Dr. Ron Hagelman)

A Novel Map Projection Using an Artificial Neural Network. 21st International Cartographic Conference, August 10-16, 2003, Durban, South Africa.

The World of Geography: Visualizing a Knowledge Domain with Cartographic Means. National Academy of Sciences Sackler-Colloquium on Mapping of Knowledge Domains, May 9-11, 2003, Irvine, California.

Going SOMwhere? Association of American Geographers Annual Meeting, March 5-8, 2003, New Orleans, Louisiana.

Geometry, Resolution, Projection: A Geographic Reading of the SOM Method. Poster Presentation. Second International Conference on Geographic Information Science (GIScience 2002), September 25-28, 2002, Boulder, Colorado.

A Geographic Interpretation of the Self-Organizing Map. Association of American Geographers Annual Meeting, March 19-23, 2002, Los Angeles, California.

Cartographic Considerations for Map-like Interfaces to Digital Libraries. First ACM+IEEE Joint Conference on Digital Libraries. Workshop on Visual Interfaces to Digital Libraries. June 28, 2001, Roanoke, Virginia.

Cartographic Design for Map-Like Visualization of Information Spaces. Association of American Geographers Annual Meeting, February 27 - March 3, 2001, New York, New York.

Experiments in Scalable Spatialization of Textual Information. GIScience 2000 – First International Conference on Geographic Information Science. October 28-31, 2000, Savannah, Georgia.

From Metaphor to Method: Cartographic Perspectives on Information Visualization. IEEE Symposium on Information Visualization (InfoVis 2000), October 9-10, Salt Lake City, Utah.

Interactive Visualization of AAG Paper Abstracts. Association of American Geographers Annual Meeting, April 4-8, 2000, Pittsburgh, Pennsylvania.

Revisiting Töpfer: Implications of the Radical Law for Scalable Spatialization. Third Workshop on Progress in Automated Map Generalization. International Cartographic Association, Working Group on Map Generalization, August 12-14, 1999, Ottawa, Canada.

Abstract Maps: Application of a Spatialization Procedure to AAG Paper Abstracts. Association of American Geographers Annual Meeting, March 23-27 1999, Honolulu, Hawaii.

Spatialization in Support of Web Navigation - A Keyword-Based Approach. GIS/LIS '98 Annual Conference & Exposition. November 10-12, 1998, Ft. Worth, Texas.

Spatial Metaphors for Visualizing Information Spaces. 1997 ACSM/ASPRS Annual Convention & Exhibition. AUTO-CARTO 13, April 7-10, 1997, Seattle, Washington

Spatial Metaphors for Visualizing Very Large Data Archives. GIS/LIS '96 Annual Conference & Exposition. November 19-21, 1996, Denver, Colorado.

Use of Huffman Trees to Encode Verbal Street Directions. International Symposium for Applied Geographic Information Technology AGIT '96, July 3-5, 1996, Salzburg, Austria.

Funded Research, Awards, and Recognition

Fall 2020 – Fall 2023

Research Council of Norway (RCN) & Norwegian Agency for International Cooperation and Quality Enhancement in Higher Education (Diku)

Project Title: "Transnational Partnership for Excellent Research and Education in Disruptive Technologies for a Resilient Future"

Collaborators: Universities in Norway, USA, China, India, Japan

April 2020 – April 2022

Scripps Clinic Medical Group

Project Title: "Stroke after Aspiration Thrombectomy"

Collaborators: Keshav Nayak (Scripps Mercy Hospital), Timothy Schempp (SDSU), Ross Garberich (Minnesota Heart Institute Foundation), Sanjeev Bhavnani (Scripps Clinic), Timothy Henry (The Christ Hospital, Cincinnati)

Spring 2020

GIS industry leader Esri features "Coronavirus SoS" story map as one of twelve "Innovative Story Maps for COVID-19 Communication"

May 2018

Board of Supervisors of the County of San Diego declares May 2, 2018 as the "Center for Information Convergence and Strategy Day"

May 2017

U.S. House of Representatives issues Proclamation that "the Center for Information Convergence and Strategy at San Diego State University be recognized and honored on behalf of the constituents of California's 52nd Congressional District for their continued contribution to the broader international community."

Spring 2017 – Fall 2020

Western Norway Research Institute / The Research Council of Norway

Project Title: "Transnational Partnership for Excellent Research and Education in Big Data and Emergency Management"

Partners: University of Bergen (Norway), National Institute of Informatics (Japan), Hong Kong Polytechnic University, University of Tokyo, George Mason University, Illinois Institute of Technology

2015

Most Influential Faculty Award, Department of Geography, SDSU

May 2015

Board of Supervisors of the County of San Diego declares May 6, 2015 as the "Center for Information Convergence and Strategy Day"

Fall 2011

Finalist, International Institute for Information Design (IIID) Awards

Collaborators: Katy Börner, Joseph Biberstine, Russell Duhon, Elisha Hardy (Indiana University)

Fall 2010

Finalist, NSF/Science Visualization Challenge

Collaborators: Katy Börner, Joseph Biberstine, Russell Duhon, Elisha Hardy (Indiana University)

Fall 2010 – Spring 2013

National Science Foundation

Project Title: "Geographic Information Science and Technology BoK2: Foundational Research"

Collaborators: Sean Ahearn, Hunter College; Michael DeMers, New Mexico State University; Brandon Plewe, Brigham Young University

Fall 2009 – Spring 2010

National Institutes of Health

Project Title: "Accuracy of Models for Mapping the Medical Sciences"

Collaborators: Kevin Boyack, SciTech Strategies Inc.; Katy Börner, Indiana University; Bob Schijvenaars, Collexis Holdings Inc

Fall 2009 – Spring 2010

California Air Resources Board

Project Title: "Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort"

Collaborators: George Christakos, San Diego State University; Alexander Kolovos, SAS Institute Inc.; Michael Jerrett, UC-Berkeley

2009

Dept. of Geography *Shared Visions Award*

Project Title: "Mapping Curricular Content onto a Body of Knowledge: A Pilot Study involving SDSU GIScience Courses and the Geographic Information Science and Technology Body of Knowledge"

2007 – 2008

White House Office of National Drug Control Policy

Project Title: "Counterdrug Technology Assessment Center (CTAC) Target Mapping System: Phase I and Phase II"

Collaborators: Eric Frost, Dept. of Geological Science & Center for Homeland Security, SDSU; Doug Stow, Piotr Jankowski, Ming-Hsiang Tsou, Dept. of Geography, SDSU

September 2006

Best Presentation Award

Fourth International Conf. on Geographic Information Science (GIScience 2006), Münster, Germany.

Spring 2006

University Grants Program Award

Project Title: "Database and Software System for Spatializing Text Documents"

July 2005

Maturing Scholars Award

U.S. National Committee of the International Cartographic Association.

Travel grant for attending the ICA Meeting in La Coruña, Spain.

August 2003

Young Scholars Award

U.S. National Committee of the International Cartographic Association.

Travel grant for attending the ICA Meeting in Durban, South Africa.

June 2002 – May 2005

Louisiana Board of Regents Research Competitiveness Award

Project Title: "Map-Like Visualization of Textual Information Spaces: Integration of Geographic Principles and Cartographic Techniques to Support Visual Data Exploration"

Principal Investigator and Project Director

Summer 2002

Liberal Arts Faculty Development Award

Project Title: "Implementation and Evaluation of Scale-Dependent Visualization of Text Documents"

Summer/Fall 2001

Student Technology Fee Award

Project Title: "Support for Instruction in Location-Aware Mobile GIS Technology"

Summer/Fall 2000

Liberal Arts Faculty Development Award

Project Title: "Integration of Artificial Neural Networks with Cartographic Design Principles in the Visualization of Non-Geographic Information"

July 1996

Best Student Paper Award

International Symposium for Applied Geographic Information Technology (AGIT) Salzburg, Austria

September 1992 – January 1994

Scholarship of German Academic Exchange Service (DAAD) for studies at State University of New York at Buffalo

Courses Taught

San Diego State University

Geographic Information Systems (19x)

Map Investigation (15x)

Data Visualization (7x)

Animated & Interactive Cartography (6x)

GIS Applications (4x)

Seminar in Knowledge Analytics (3x)

Seminar in Knowledge Visualization (7x)

Seminar in Geovisualization & Geocomputation (2x)

University of New Orleans

GIS Theories and Concepts (10x)

Fundamentals of Mapping and GIS (9x)

GIS Applications (6x)

GIS Seminar (6x)

Animated and Hypermedia Cartography (4x)

Computer Cartography (3x)

University at Buffalo

Maps and Mapping

Graduate Supervision

San Diego State University

Timothy Schempp, *A Tri-Space Interface for Exploring Multispectral and Multitemporal Imagery*, May 2022 (Major Professor)

Kyle Jones, *Monitoring Cropping Systems in California's Imperial Valley Using a Tri-space Approach*, M.S. Geography, August 2020 (Major Professor)

Gardner Thompson, *Exploratory analysis of longitudinal data: design and implementation of a tri-space solution*, M.S. Geography, March 2017 (Major Professor)

Geoffrey Fouad, *Flow duration curve prediction for ungauged basins: A data-driven study of the contiguous United States*, PhD Geography, May 2015 (Committee Member)

Fangming Du, *Integrating Natural Language Processing and Web GIS for Interactive Knowledge Domain Visualization*, M.S. Geography, August 2014 (Major Professor)

Marilyn Stowell, *Examining a Knowledge Domain: Interactive Visualization of the Geographic Information Science and Technology Body of Knowledge I*, M.S. Geography, August 2014 (Major Professor)

Sara Kazemi, *Computational Simulation of Linguistic Change: An Agent-based Model*, M.A. Linguistics, Jul 2014. (Committee Member)

Ninghua Wang, *Spatial Statistics for Time Series Spatial Data: Applying Survival Analysis to Study Land Use Change*, PhD Geography, Dec 2013 (Committee Member)

Brandon Devine, *A Method for Segmenting Hashtags in Tweets*, M.A. Linguistics, Dec 2013. (Committee Member)

Edmunds Akitis, *A Future Model for Capacity Building and Partnership Integration by Leveraging GIS and Knowledge Discovery*, M.S. Homeland Security, Apr 2013 (Committee Member)

Martin Swobodzinski, *Exploring Human Decision Making in the Context of Web-Based Public Participation in Transportation Planning*, PhD Geography, Dec 2012 (Committee Member)

Chaitra Manjunath, *Real Time Interactive Interface for Spatial Economic Modeling*, M.S. Computer Science, Dec 2011 (Committee Member)

Martin Lacayo, *An Integrated Toolset for Exploration of Spatio-Temporal Data using Self-Organizing Maps*, M.S. Geography, May 2011 (Major Professor)

Jennifer Smith, *Effective Color Schemes for 3D Animations of Urban Landscapes With a Spatial and Temporal Dimension*, M.S. Geography, May 2011 (Committee Member)

Miteshbharthi Gosai, *GIS Tool – Globalism*, M.S. Computer Science, May 2011 (Committee Member)

Steven Ehrenfeld, M.A. Linguistics, May 2011 (Committee Member)

Diana Smith, *Formalizing and Evaluation Principles of Web-based Animated Cartography Using Sea Ice Examples*, M.S. Geography, May 2010 (Committee Member)

Chintan Sheth and Darshini Gajab, *GIS Java Multimedia Map Tool for Significant Wars (1775 to present)*, M.S. Computer Science, May 2010 (Committee Member)

Rahul Choudhary, *Java Based Dynamic Civil War Interactive Map*. M.S. Computer Science, Nov 2009 (Committee Member)

Ryan Burns, *Spatializing Places, People, and Utterances - A Case Study Involving San Diego Neighborhoods*, M.S. Geography, May 2009 (Major Professor)

Akshay Pottathil, *Data Fusion and Pattern Recognition for Homeland Security*, M.S. Homeland Security, May 2009 (Committee Member)

Gregg Verutes, *Discourse Maps – A Usability and Evaluation Study of a PPGIS*, M.S. Geography, Dec 2008 (Committee Member)

Charles Schmidt, *Effects of Irregular Topology in Spherical Self-Organizing Maps*, M.S. Geography, Dec 2008 (Co-Chair)

Philip Stephens, *Using Spatial Analysis to Assess the Distribution of Hubzones in California*, M.S. Geography, Apr 2008. (Committee Member)

Aude Esperbé, *Towards High-Resolution Self-Organizing Maps of Geographic Features*. M.S. Geography, Mar 2008. (Major Professor)

Heather Kwiatkowski, *An Ethnoarchaeological Examination of Peña Blanca, An Indigenous Community in Northern Baja*, M.A. Anthropology, Mar 2008. (Committee Member)

Vinay Kukreja, *Icosahedron-Based Spherical Self-Organizing Map*. M.S. Computer Science, May 2007. (Committee Member)

Vanessa Phan, *Loading of Heavy Metals and Petroleum Hydrocarbons from San Diego International Airport into San Diego Bay*, California. Master of Public Health, May 2007. (Committee Member)

University of New Orleans

Robert Liggio. *Experiments in Interactive Labeling of Point Spatializations Using TF*IDF Variations*. M.A. Thesis, Jun 2005. (Major Professor)

Samara Ebinger. *Comparing Different Levels of Interactivity in the Visualization of Spatio-Temporal Data*. M.A. Thesis, Jun 2005. (Major Professor)

John Davis, M.A., Non-Thesis Option, May 2005, (Committee Member)

Eneida Allison, M.A., Non-Thesis Option, Dec 2004 (Major Professor)

Frank Desimone, M.A., Non-Thesis Option, Dec 2004. (Committee Member)

Heather Evans. *Identification of Areas of Key Habitat for a Connected Nature System in Louisiana using GIS*. M.A. Geography, May 2004. (Committee Member)

Sabrina Li. M.A., Non-Thesis Option, Dec 2003. (Major Professor)

Caitlin Stone. M.A., Non-Thesis Option, Jul 2003. (Committee Member)

Elena Janssen. M.A., Non-Thesis Option, May 2003. (Committee Member)

Martha Faures. M.A., Non-Thesis Option, Dec 2002. (Major Professor)

Kermit Lewis. *Land Cover Change Analysis in Coastal Louisiana Using Multitemporal Remotely Sensed Data*. M.A. Geography, May 2002. (Committee Member)

Greg Hymel. *Computer Simulated Testing of Transect Spacing Intervals for the Submersed Aquatic Vegetation Early Warning System (SAVEWS)*. M.A. Geography, Dec 1999. (Major Professor)

Other Institutions

Fabian Kowatsch, Carinthia University of Applied Sciences, Villach, Austria, *Distributed computation of self-organizing maps*, M.Sc. Geoinformatics, October 2017 (External Supervisor)

Stefan Schabus, Carinthia University of Applied Sciences, Villach, Austria, *Spatio-Temporal Data Mining for Pattern Recognition in Production Line Processes*, M.Sc. Geoinformatics, October 2014 (External Supervisor)

Jochen Wendel, University of Colorado – Boulder, *An evaluation of manually and automatically derived indexing frameworks for spatial and non-spatial data types*, Ph.D. Geography, December 2013 (Committee Member)

Michael Spöcklberger, Carinthia University of Applied Sciences, Villach, Austria, *SOMatic Trainer: Implementation of a Self-organizing Map Tool with Parallel Training for Processing, Applied on Carinthian Municipalities Census Data*, M.Sc. Geoinformatics, October 2013 (External Supervisor)

Manuel Rainer, Carinthia University of Applied Sciences, Villach, Austria, *SOMatic Viewer: Implementation of an Interactive Self-Organizing Map Visualization Toolset in Processing and Java*, M.Sc. Geoinformatics, October 2013 (External Supervisor)

Gwendolin Lehrer, Carinthia University of Applied Sciences, Villach, Austria, *Socio-Economic Indicators of African Countries*, B.Sc. Geoinformatics, June 2013 (External Supervisor)

Stacy Rebich, University of California – Santa Barbara, *Thematic and affective content in textual and visual communication about climate change*. Ph.D. Geography, August 2011 (Committee Member)

Cedric Gabathuler, University of Zurich, Switzerland, *Web-based Self-Organizing Maps for Exploration of Swiss Census Data*, M.S. Geography, May 2009 (Co-Advisor)

Outside Examiner

Marie Truelove, *Witnesses of Events in Social Media*, Dept. of Infrastructure Engineering, University of Melbourne, Australia, PhD Dissertation, December 2017.

Marco Salvini, Dept. of Geography, University of Zurich, Switzerland, *Spatialization von Nutzer-generierten Inhalten für die Explorative Analyse des globalen Städtetetzes*. PhD Dissertation, November 2012.

Michael Bui, School of Information Technologies, University of Sydney, Australia, *Path finding on a Spherical Self-Organizing Map Using Distance Transformations*, M.Sc. Thesis, June 2008.

Jun Yan, Dept. of Geography, University at Buffalo, *Geographic Knowledge Discovery in Spatial Interaction with Self-Organizing Maps*. Ph.D. Dissertation, July 2004.

Other Professional Activities and Service

Spring 2023: Nominating Committee, University Consortium for Geographic Information Science

Spring 2023: Scientific Committee, Symposium on AI, Data and Digitalization (SAIDD 2023), Sogndal, Norway

Jan 2023 – current: Program Committee, 31st International Cartographic Conference, Cape Town, South Africa

Fall 2022 – current: Program Committee, 12th Intl. Conf. on Geogr. Information Science, Leeds, United Kingdom

Sep 2022 – current: Elected Senator representing College of Arts and Letters, SDSU

Sep 2022 – current: Senate Committee on Freedom of Expression, SDSU

Aug 2021 – current: RTP (Reappointment, Tenure and Promotion) Committee, College of Arts and Letters, SDSU

Aug 2021 – current: Chair, Speakers Committee, Department of Geography, SDSU

Apr 2021 – current: Affiliate Faculty, Digital Humanities, SDSU

Oct 2017 – current: Associate Director, Center for Data Analytics and Intelligence (CENDAI), Czech University of Life Sciences, Prague, Czech Republic

Sep 2017 – current: Editorial Board, Journal of Geovisualization and Spatial Analysis

Jan 2015 – current: Associate Director, University of Dubai, Center for Entrepreneurship and Innovation (CEI)

Jul 2014 – current: Advisory Board, International Journal of Cartography

Jan 2014 – current: Co-Founder & Co-CEO, BigKnowledge LLC

Aug 2009 – current: Advisor, World Resources Simulation Center (Sim Center), San Diego, California

Mar 2009 – current: Program Director, Esri Innovation Program (EIP), San Diego State University

Apr 2005 – current: Advisory Board, *Places & Spaces: Cartography of the Physical and Abstract* (traveling exhibit of cartographic and knowledge domain maps)

Jun 2002 – current: Corresponding Member, Commission on GeoVisualization, International Cartographic Association

Sep 2021 – Mar 2022: Cyberinfrastructure Committee, SDSU

Jul 2021: Vice Chair, 7th Annual Left of Boom Conference, San Diego, California

Apr 2021: Invited Participant, *Multi-Level Graph Representation for Big Data Arising in Science Mapping*, Dagstuhl Seminar, Dagstuhl, Germany

Spring 2021: Program Committee, *11th International Conf. on Geogr. Information Science*, Poznan, Poland (Part II)

Spring 2021: Research Award Committee, University Consortium for Geographic Information Science (UCGIS)

Sep 2020: Vice Chair, 6th Annual *Left of Boom* Conference, San Diego, California

Jun 2020: Short course on Spatial Intelligence and Self-Organizing Maps, School of Geoinformation, Carinthia University of Applied Sciences, Villach, Austria.

Spring 2020: Program Committee, *11th International Conf. on Geogr. Information Science*, Poznan, Poland (Part I)

Oct 2019: Short course on Spatial Intelligence, Department of Information Science and Media Studies, University of Bergen, Norway

Jun 2019: Short course on Self-Organizing Maps, School of Geoinformation, Carinthia University of Applied Sciences, Villach, Austria.

May 2019: Vice Chair, 5th Annual *Left of Boom* Conference, San Diego, California

Spring 2019: Reviewer, IEEE Vis 2019, Vancouver, Canada

Jan 2019 – Aug 2019: Enrollment Management Advisory Group, SDSU

Aug 2018 – May 2020: RTP (Reappointment, Tenure and Promotion) Committee, College of Arts and Letters, SDSU

Aug 2017 – Spring 2019: Research Committee, College of Arts & Letters, SDSU

Aug 2017 – May 2020: Chair, Speakers Committee, Department of Geography, SDSU

Jun 2018: Short course on Self-Organizing Maps, School of Geoinformation, Carinthia University of Applied Sciences, Villach, Austria.

May 2018: Vice Chair, 4th Annual *Left of Boom* Conference, San Diego, California

Spring 2018: Review Committee, 22nd Intl Conf. on Information Visualization (iV18), Salerno, Italy

May 2017: Vice Chair, 3rd Annual *Left of Boom* Conference, San Diego, California

Jun 2017: Short course on Self-Organizing Maps, School of Geoinformation, Carinthia University of Applied Sciences, Villach, Austria.

Oct 2016: Workshop on Spatial Intelligence, Manila, Philippines

Jun 2016: Short course on Self-Organizing Maps, School of Geoinformation, Carinthia University of Applied Sciences, Villach, Austria.

May 2016: Co-Host, 2nd Annual *Left of Boom* Conference, San Diego, California

Spring 2016: Program Committee, 20th Intl Conf. on Information Visualization (iV16), Lisbon, Portugal

Summer 2015: Program Committee, Knowledge Maps and Information Retrieval (KMIR) Workshop, Knoxville, Tennessee

May 2015: Co-Host, Inaugural *Left of Boom* Conference, San Diego, California

Summer 2014: Program Committee, Knowledge Maps and Information Retrieval (KMIR) Workshop, London, UK

Jun 2014 & 2015: Short course on Self-Organizing Maps, School of Geoinformation, Carinthia University of Applied Sciences, Villach, Austria.

Jun 2014: Short course on Self-Organizing Maps, Department of Geoinformatics, University of Salzburg, Austria.

Spring 2014: Program Committee, 18th Intl Conf. on Information Visualization (iV14), Paris, France

Spring 2014: Program Committee, Workshop on Geographic Information Observatories (GIO2014), Vienna, Austria

Jun 2013 – Jan 2021: Editorial Board, Cartography and Geographic Information Science (CaGIS)

Jun 2013 – May 2016: Board of Directors, University Consortium for Geographic Information Science (UCGIS)

Spring 2013: Technical Program Committee, International Conference on Geo-Informatics in Resource Management & Sustainable Ecosystem (GRMSE 2013), Wuhan, China

Aug 2012 – May 2016: RTP (Reappointment, Tenure and Promotion) Committee, College of Arts and Letters, SDSU

May 2012: Short course on Self-Organizing Maps, School of Geoinformation, Carinthia University of Applied Sciences, Villach, Austria.

May 2012 – April 2013: Local Arrangements Committee, Annual Meeting, Assoc. of American Geographers, Los Angeles, California

Spring 2012: Program Committee, 16th International Conf. on Information Visualization (iV12), Montpellier, France

Feb 2012: Panel Member, *Making journal articles 'live': turning academic writing into scientific dialog*, Assoc. of American Geographers Annual Meeting, New York.

Mar 2011: Jury Member, MDTS11 Collaborative Challenge, Paris, France

Spring 2011: Program Committee, 15th International Conf. on Information Visualization (iV11), London, UK

Sep 2010 – Feb 2011: Program Committee, *GeoViz Hamburg 2011*, Workshop organized by HafenCity University Hamburg and International Cartographic Association

Apr 2010 – Dec 2011: Chair, Policy Advisory Committee, Dept. of Geography, SDSU

Apr 2010 – Mar 2011: Personnel Committee, Dept. of Geography, SDSU

Spring 2010: Program Committee, Information Visualization 2010, London, UK

Jun 2009: Invited Participant, *Designing the WRSC (World Resources Simulation Center) Prototype*, Roundtable event organized by Global Energy Network Initiative (GENI), Oceanside, California

Mar 2009: Invited Participant, VisMaster Expert Workshop, Hamburg, Germany

Mar 2009: Panel Member, *Neogeographers meet Paleogeographers*, Assoc. of American Geographers Annual Meeting, Las Vegas.

Jan 2009 – May 2012: Advisory Panel, San Diego Assoc. of Governments (SANDAG) Activity-Based Transportation Model Development

Fall 2008 – Spring 2016: Chair, Computing Committee, Department of Geography, SDSU

Fall 2008 – Spring 2009: Chair, Personnel Committee, Department of Geography, SDSU

Apr 2008: Panel Member, *Geographies of Information Society*, Association of American Geographers Annual Meeting, Boston.

Fall 2007: International Program Committee, Virtual Geographic Environments – Int. Conference on Developments in Visualization and Virtual Environments in Geographic Information Science, The Chinese University of Hong Kong

Jul 2007: Invited Participant, Visualization Summit – Workshops on Geovisualization and Visualization Software Infrastructure, Zurich, Switzerland

Summer 2006 – Summer 2016: Member, Membership Committee, University Consortium for Geographic Information Science (UCGIS)

Summer 2006 – Summer 2009: Chair, Membership Committee, University Consortium for Geographic Information Science (UCGIS)

Fall 2006 – Spring 2008: Research Committee, College of Arts and Letters, SDSU

Winter 2005/06: Program Committee, Diagrams 2006 - Fourth International Conference on the Theory and Application of Diagrams, Stanford University

Apr 2005: Co-Organizer/Chair, Sessions on Mapping Humanity's Knowledge and Expertise in the Digital Domain, AAG Annual Meeting, Denver

Apr 2005: Judge, Student Illustrated Paper Competition, AAG Annual Meeting, Denver

Aug 2004 – Aug 2005: Reappointed to UNO Faculty Council Comm. on Academic Computing

Summer 2004: Reviewing Editor, Special Issue of *Journal of Digital Libraries*

Summer 2004: Program Committee, Third International Symposium on Knowledge Domain Visualization, London, United Kingdom

Summer 2003: Program Committee, International Workshop on Information Visualization Interfaces for Retrieval and Analysis, Houston, Texas

Mar 2003: Co-Organizer/Chair, Spatialization Sessions, AAG Annual Meeting, New Orleans

Summer/Fall 2002: Co-Author of Position Paper on Spatialization as a UCGIS Research Priority (with Sara Fabrikant and Helen Couclelis, University of California at Santa Barbara)

Fall 2002: Program Committee, 99th Annual Meeting, Assoc. of American Geographers, New Orleans, Louisiana

Mar 2002 – Mar 2004: Secretary/Treasurer, GIS SG, Assoc. of American Geographers

Mar 2002: Co-Organizer/Chair, Spatialization Sessions, AAG Annual Meeting, Los Angeles

Spring 2002: Program Committee, 2nd International Workshop on Visual Interfaces to Digital Libraries, Portland, Oregon

Oct 2001 – Aug 2005: UNO College of Liberal Arts Committee on Academic Computing

Aug 2001 – July 2004: UNO Faculty Council Committee on Academic Computing

Jun 2001: Invited onto Expert Panel on Research Challenges and Opportunities, 1st International Workshop on Visual Interfaces to Digital Libraries, Roanoke, Virginia

May 2001: Representative of Great Cities Universities (GCU) Coalition at Workshop on Urban Digital Government, Los Angeles, California
Mar 2001 – Mar 2003: Delegate of the Assoc. of American Geographers (AAG) to the University Consortium for Geographic Information Science (UCGIS)
Mar 2001 – Feb 2003: UNO College of Liberal Arts Courses & Curriculum Committee
Feb 2001: Co-Organizer/Chair, Spatialization Session, AAG Annual Meeting, New York
Dec 2000 – Aug 2005: Geography Department Liaison with UNO Library
Nov 2000: Hypermedia and Animation Workshop, Universidad de Panamá, Panamá
Jul 1999: GIS Course and Workshop, Universidad Centroamericana, El Salvador

Peer Reviews

Annals of the Association of American Geographers
BMC Bioinformatics
The Canadian Geographer
Cartographica
Cartography and Geographic Information Science (CaGIS)
Climate Dynamics
Communications of the ACM (CACM)
Computational Intelligence
Computers and Geosciences
Computers and Graphics
Computers, Environment and Urban Systems (CEUS)
Earth Science Informatics
Environmental Modelling & Software
Environment and Planning B
Future Internet
Geography Compass
Geomorphology
IEEE Transactions on Visualization and Computer Graphics (TVCG)
Information Visualization
International Journal of Environmental Research and Public Health
International Journal of Geographical Information Science (IJGIS)
International Journal of Geo-Information (IJGI)
International Regional Science Review
Journal of the American Society for Information Science and Technology (JASIST)
Journal of Geography
Journal of Geographical Systems
Journal of Geovisualization and Spatial Analysis
Journal of Intelligent Information System (JIIS)
Journal of Spatial Information Science (JoSIS)
Neural Computing and Applications
Online Journal of Space Communication
PLOS ONE
Professional Geographer
Spatial Cognition and Computation
Transactions in GIS
UCGIS GIS&T Body of Knowledge
URISA Journal
Conference on Visualization and Data Analysis (VDA 2009)
IEEE Information Visualization Conference (InfoVis 2010, 2011, 2012, 2013)
IEEE Conference on Visual Analytics Science & Technology (VAST 2011, 2015)

Review Panel Member: National Science Foundation (NSF)
Ad-hoc Reviewer: National Science Foundation (NSF)
European Science Foundation (ESF)
Deutsche Forschungsgemeinschaft (DFG)