

JONATHAN P. SCHROEDER

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EDUCATION

- Ph.D. Geography 2009
University of Minnesota, Twin Cities
Advisor: Robert B. McMaster
Committee: John S. Adams, Mark B. Lindberg, Shashi Shekhar (Computer Science)
Thesis: *Visualizing Patterns in U.S. Urban Population Trends*
- M.A. Geography 2004
University of Minnesota, Twin Cities
Thesis: *Modeling Error in the Areal Interpolation of Census Tract Data*
- Coursework in Cartography and Geographic Information Systems Spring 2001
University of Wisconsin-Madison
- B.A. Computer Sciences and English (Creative Writing) 1998
Honors University of Wisconsin-Madison

EMPLOYMENT HISTORY

- Research Scientist 2009–present
Institute for Social Research & Data Innovation
(Unit named Minnesota Population Center until 2016)
University of Minnesota
- 2009–present: Project manager & researcher for the National Historical Geographic Information System (NHGIS), an NSF and NIH-funded web-based data access system supplying U.S. census summary statistics and boundary data from 1790 to the present
 - Investigate and design methods for integrating census summary data across time
 - Manage the implementation and documentation of integration work
 - Plan and coordinate development of new data, metadata, and website features
 - Present research and promote project through papers, conferences & talks
 - Conduct related research in population studies and spatio-temporal data analysis
 - 2014–present: Researcher for the Integrated Public Use Microdata Series (IPUMS-USA)
 - Lead the development and integration of geographic microdata variables
 - 2017–present: Researcher for the (preliminarily named) International Historical Geographic Information System (IHGIS)
 - Advise on the processing of international aggregate census data and on the development of a web-based data dissemination system
 - 2010–2013: Contract geographer for the U.S. Census Bureau
 - Prepare data, develop and implement designs, and write text for an atlas of U.S. population distribution and change, 1790-2010

- Assistant Professor of Geography February–June 2009
Instructor in Geography January 2007–February 2009
Middlebury College, Vermont
- Taught introductory and advanced undergraduate courses in cartography and GIS, including lectures, labs, and seminars
 - Software taught: ESRI ArcGIS, IDRISI, Adobe Illustrator & Photoshop, Microsoft Excel, R
- Research Assistant 2001–2006
National Historical Geographic Information System (NHGIS)
Minnesota Population Center, University of Minnesota
- Co-developed a system for the production of digital boundary files for all historical U.S. census tracts using UNIX-based ESRI ArcInfo and AML
 - Led the design and programming of an automated cartographic generalization system for all historical U.S. census tract and county boundaries using ESRI ArcGIS 9, ArcSDE, ArcObjects, and C# in Microsoft Visual Studio
- University of Minnesota Cartography Lab Assistant 2004–2006
- Cartographic and statistical graphic design and production for research projects and publications of university faculty and affiliates as well as external clients
 - Software used: Macromedia Freehand, ESRI ArcGIS, and Adobe Photoshop
- Teaching Assistant
Department of Geography, University of Minnesota
- Introduction to Arc/Info 2002, 2006
 - Principles of Cartography 2004
 - Principles of Geographic Information Science 2003–2004
- Research Assistant Summer 2002
ARGWorld (Activities and Readings in the Geography of the World), University of Minnesota
- Produced maps and graphics for middle-school-level instructional materials
- Software Developer and Technical Writer 1999–2001
Hypercosm, Inc., Madison, Wisconsin
- Designed and coded utilities for company's Web 3D graphics system standard library
 - Designed and coded web applets demonstrating interaction and simulation capabilities
 - Directed the design, editing, and updates of technical documentation for company's Web 3D graphics system and programming language
 - Co-authored a 90-page beginner-level 3D graphics programming tutorial
- Student Technician Summer 1998
Los Alamos National Laboratory, New Mexico
- Produced maps for nuclear nonproliferation programs using ESRI ArcView GIS 3
 - Customized user interface using ArcView's Avenue language

PUBLICATIONS

Peer-Reviewed Journal Articles

- Schroeder, J. P. 2017. Hybrid areal interpolation of census counts from 2000 blocks to 2010 geographies. *Computers, Environment and Urban Systems* 62, 53–63.
- Schroeder, J. P., and D. C. Van Riper. 2013. Because Muncie's densities are not Manhattan's: Using geographical weighting in the EM algorithm for areal interpolation. *Geographical Analysis* 45(3), 216–237.
- Noble, P., D. Van Riper, S. Ruggles, J. Schroeder, and M. Hindman. 2011. Harmonizing disparate data across time and place. *Historical Methods* 44, 79–85.
- Schroeder, J. P. 2010. Bicomponent trend maps: A multivariate approach to visualizing geographic time series. *Cartography and Geographic Information Science* 37(3), 169–187.
- Schroeder, J. P. 2007. Target-density weighting interpolation and uncertainty evaluation for temporal analysis of census data. *Geographical Analysis* 39(3), 311–335.

Other Articles

- Borah, J., and J. Schroeder. 2012. Demographic data for a changing nation: NHGIS provides current and historical U.S. census tables and GIS data. *Planning*, October, 31–34.

Conference Proceedings

- Ruggles, S., C. Fitch, D. Magnuson, and J. Schroeder. Differential privacy and census data: Implications for social and economic research. *AEA Papers and Proceedings* 109, 403–08. May 2019.
- Schroeder, J. P. Improving TIGER, hidden costs: The uncertain correspondence of 1990 and 2010 U.S. census geography. *Proceedings, AutoCarto 2016: The 19th International Research Symposium on Computer-Based Cartography*. Albuquerque, NM, September 14-16, 2016.
- Schroeder, J. P. Trends in patterns versus patterns in trends: A key distinction for visualizing geographic time-series data. *Proceedings of the 23rd International Cartographic Conference*. Moscow, Russia, August 4-10, 2007.
- Schroeder, J. P., and R. B. McMaster. The creation of a multiscale national historical geographic information system for the United States Census. *Proceedings of the 23rd International Cartographic Conference*. Moscow, Russia, August 4-10, 2007.
- McMaster, R.B., M. Galanda, J. Schroeder, and R. Koehnen. 2005. The creation of a national multiscale database for the United States Census. *Proceedings of the 22nd International Cartographic Conference*. A Coruña, Spain, July 9-16, 2005.
- Galanda, M., R. Koehnen, J. Schroeder, and R.B. McMaster. Creation of a multi-scale database of historical U.S. census boundary data. *GIScience 2004: Third International Conference on Geographic Information Science*. College Park, MD, October 20-23, 2004.

INVITED TALKS

- (*Workshop, with Kari Williams*) IPUMS data for population & policy research. Texas Demographic Conference, Austin, TX. June 5, 2019.

- Harmonizing geographic census data across time: NHGIS time series tables. Webinar for the Centers for Disease Control and Prevention. May 22, 2018.
- IPUMS NHGIS progress and plans: Enhancing U.S. census geographic data. Minnesota Population Center Seminar Series, University of Minnesota. September 25, 2017.
- NHGIS time series tables: Harmonizing geographic census data across time. GeoWeek, University of North Carolina, Chapel Hill. November 16, 2016.
- (Workshop)* Intro to NHGIS: Geographic data for U.S. censuses from 1790 to the present. GeoWeek, University of North Carolina, Chapel Hill. November 16, 2016.
- “How to fix geography”: Creating NHGIS’s geographically standardized time series of census data. Coffee Hour, Department of Geography, Environment & Society, University of Minnesota. April 15, 2016.
- NHGIS time series tables, now including 2000 data for 2010 census areas. Webinar for the New Jersey, New York, and Pennsylvania State Data Center Networks. December 17, 2015.
- Refining and assessing block-based 2000 estimates for 2010 census areas. Minnesota Population Center Inequality & Methods Workshop, University of Minnesota. May 8, 2015.
- NHGIS becomes a teen: The maturation of MPC’s U.S. geographic data project. Minnesota Population Center Seminar Series, University of Minnesota. April 14, 2014.
- Visualizing patterns of population change within major U.S. urban cores, 1950–2000. U.S. Census Bureau. July 19, 2010.
- Visualizing patterns in U.S. urban population trends. Faculty Lecture Series, Middlebury College. February 26, 2009.

CONFERENCE PARTICIPATION

Papers & Posters Presented

- Time series of ACS data: A new resource from IPUMS NHGIS. American Community Survey Data Users Conference. Washington, DC, May 14-15, 2019.
- (With J. Pacas, D. Van Riper, and E. Meyer)* Getting rural right: Poverty disparities across two dimensions of rurality. Population Association of America. Austin, TX, April 10-13, 2019.
- (With D. Van Riper)* IPUMS census and survey data resources for community-centered research. Community Indicators Consortium Impact Summit, September 17-18, 2018.
- Estimating 1990 & 2000 characteristics of 2010 census units: The importance of a block basis. Association of American Geographers. New Orleans, April 10-14, 2018.
- Enriched census data from IPUMS: Microdata, time series, and GIS data. Applying Census Data for Transportation Conference. Kansas City, MO, November 14-16, 2017.
- Supplemental geography for ACS microdata from IPUMS. American Community Survey Data Users Conference. Alexandria, VA, May 11-12, 2017.
- (Poster)* Comparison of spatially standardized census tract data from two sources: The basis matters. Population Association of America. Chicago, April 27-29, 2017.
- NHGIS time series and spatially standardized data. Social Science History Association. Chicago, November 17-20, 2016.

- Estimating 1990 & 2000 characteristics of 2010 census areas for NHGIS time series tables. North American Meetings of the Regional Science Association International (NARSI). Minneapolis, November 9-12, 2016.
- Improving TIGER, hidden costs: The uncertain correspondence of 1990 and 2010 U.S. census geography. AutoCarto. Albuquerque, September 14-16, 2016.
- (Poster, with D. Van Riper)* Harmonizing PUMAs across time: An aggregation algorithm to achieve minimally acceptable consistency. Population Association of America. Washington, DC, March 31-April 2, 2016.
- Census time series tables from NHGIS: An overview for cartographers. North American Cartographic Information Society. Minneapolis, October 13-17, 2015.
- Refining and assessing block-based 2000 estimates for 2010 census areas. Association of American Geographers. Chicago, April 21-25, 2015.
- NHGIS: An integrated data portal for ACS summary files and a whole lot more. American Community Survey Data Users Conference. Washington, DC, May 29-30, 2014.
- (Poster)* U.S. metropolitan populations, 1790-2010. North American Cartographic Information Society. Greenville, SC, October 9-12, 2013.
- NHGIS time series: Harmonizing U.S. census data across time and space. Association of American Geographers. Los Angeles, April 9-13, 2013.
- (Poster)* U.S. county population trends, 1790-2010: New perspectives using spatially standardized data. Association of American Geographers. New York, February 24-28, 2012.
- Alternative views of population distribution and change for a new census atlas. North American Cartographic Information Society. Madison, WI, October 12-13, 2011.
- Because Miami's densities are not Missoula's: A geographically weighted dasymetric interpolation method. Association of American Geographers. Seattle, April 12-16, 2011.
- Twenty-three U.S. censuses and still counting: Confronting the challenges of mapping them all. North American Cartographic Information Society. St. Petersburg, FL, October 13-15, 2010.
- Relationships between long-term population changes and neighborhood characteristics in U.S. urban cores. Association of American Geographers. Washington, DC, April 14-18, 2010.
- Visualizing patterns in long-term population trends: A framework for longitudinal cartographic analysis. 5th International Conference on Population Geographies. Dartmouth College, NH, August 5-9, 2009.
- Beyond small multiples and animation: Trend summary maps of urban populations. Association of American Geographers. Las Vegas, March 22-27, 2009.
- (Poster)* Growth, decline, regrowth and regression: patterns of population trends in major U.S. urban areas, 1950-2000. Association of American Geographers. Boston, April 15-19, 2008.
- Exploring patterns of long-term population change in American cities using census tract data. Social Science History Association. Chicago, November 15-18, 2007.
- (Poster and paper, titles listed under Refereed Conference Proceedings)* International Cartographic Conference. Moscow, Russia, August 4-10, 2007.
- Constructing time series of U.S. census tract data to analyze long-term urban population trends. Association of American Geographers. San Francisco, April 17-21, 2007.

Evaluating uncertainty when using areal interpolation for temporal analysis of census tract data. Spatial Analysis and Modeling Specialty Group Student Paper Competition, Association of American Geographers. Chicago, March 7-11, 2006.

(*With M. Lindberg*) Challenges and new possibilities for visual exploration of historical U.S. census data. Association of American Geographers. Denver, April 5-9, 2005.

Modeling error in the areal interpolation of census tract data. Association of American Geographers. Philadelphia, March 14-19, 2004.

Determinants of error in the areal interpolation of census tract data. Social Science History Association. Baltimore, November 13-16, 2003.

Demographic trends in New Orleans, 1940-2000: A preliminary demonstration of NHGIS census geography. Association of American Geographers. New Orleans, March 5-8, 2003.

Panelist

MPC data infrastructure: Integration and access. International Association for Social Sciences Information Services & Technology (IASSIST). Minneapolis, June 2-5, 2015.

(*Organizer*) The future of historical U.S. census data: Charting the course of the new NHGIS. Association of American Geographers. New York, February 24-28, 2012.

New possibilities for geographic research using digital historical U.S. census data: The NHGIS reaches completion. Association of American Geographers. Chicago, March 7-11, 2006.

Session Organizer

(*With C. Fowler*) Working with high-precision census data: Limitations and possibilities. Association of American Geographers. New Orleans, April 10-14, 2018.

AWARDS & HONORS

Outstanding Service Award, Institute for Social Research and Data Innovation	2017
Outstanding Service Award, Minnesota Population Center	2012
First Prize, Association of American Geographers Spatial Analysis & Modeling Specialty Group Student Paper Competition	2006
University of Minnesota Graduate School Fellowship	2001–2004
Barbara Bartz Petchenik Award in Cartographic Design, U. of Wisconsin-Madison	2001
Mary Brabyn Wackman Scholarship, Dept. of English, U. of Wisconsin-Madison	1997, 1998

SERVICE

University of Minnesota, Minnesota Population Center

2015–2018 Minnesota Population Center Advisory Board

2011–2013 MPC Seminar Series Committee

Manuscript Reviewer

2019 *Scientific Data*

2018–2019 *Geographical Analysis*

2018 *Health & Place*

2017 *The Canadian Geographer*

2015–2017 *Computers, Environment & Urban Systems*

2015 *Urban Geography*
2014–2015 *GIScience & Remote Sensing*
2013–2014, *International Journal of Geographical Information Science*
2009–2011
2010–2011 *Historical Methods*

Grant Proposal Reviewer

2017 National Science Foundation

Conferences

2007 Chair. Workshop in Cartographic Design for History, Parts I & II. Social Science History Association. Chicago, November 15-18.

Middlebury College

2007–2009 Faculty mentor

University of Minnesota, Department of Geography

2004–2005 Graduate Education Policy Committee
2003–2004 Graduate Student Representative to the Faculty
2003–2005 Organizer, Annual Department of Geography Photo Contest