

Mark E. Madsen

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Born: October 22, 1966—Seattle, WA

Nationality: American

Current Positions

Chief Data Scientist, Ibis Networks, Honolulu, HI

President, San Juan County Economic Development Council

President and Board of Trustees, San Juan Island Library District, Friday Harbor, WA

Board Member, Orcas Power and Light Cooperative, Eastsound, WA

Board Treasurer and Past President, Board of Directors, Seattle Arts and Lectures, Seattle, WA

Areas of Specialization

Evolutionary theory and human culture; cultural transmission theory; social learning

Education

2012 PH.D. CANDIDACY in Anthropology, University of Washington, Seattle
1990 M.S. in Anthropology, University of Wisconsin-Madison
1988 B.A. CUM LAUDE, WITH COLLEGE AND DEPT. HONORS in Anthropology, University of Washington, Seattle

Work Experience

- 2016–current Ibis Networks, Honolulu, HI; *Chief Data Scientist*
- 2005–2006 Microsoft Corporation, Redmond, WA; *Senior Program Manager*
- 2002–2005 Network Clarity, Seattle, WA; *co-Founder & V.P., Product Development*
- 1997–2002 InterNAP Network Services, Seattle, WA; *Dir. of Software and Systems Engineering*
- 1995–1997 Realnetworks, Seattle, WA; *Software Engineer & Technical Webmaster*
- 1999–2005 Pinpoint Venture Group, Seattle, WA; *Managing Partner*
- 1995–2006 Emergent Media/AllRecipes.com, Seattle, WA; *co-Founder/President & Board Member*
- 1994–1995 U.W. Law School, Seattle, WA; *Systems Engineer*
- 1993–1994 Dept. of Anthropology, Seattle, WA; *Lab Manager*

Bibliography

JOURNAL ARTICLES

- Lipo, Carl P., Mark E. Madsen, and Robert C. Dunnell (2015). “A Theoretically-Sufficient and Computationally-Practical Technique for Deterministic Frequency Seriation”. In: *PLoS ONE* 10.4, e0124942. DOI: [10.1371/journal.pone.0124942](https://doi.org/10.1371/journal.pone.0124942). URL: <http://dx.doi.org/10.1371%2Fjournal.pone.0124942>.
- O’Brien, Michael J et al. (2015). “Design Space and Cultural Transmission: Case Studies from Paleoindian Eastern North America”. In: *Journal of Archaeological Method and Theory*, pp. 1–49.
- Madsen, Mark E. and Carl P. Lipo (2013). “Saving culture from selection: Comment on “An evolutionary framework for cultural change: Selectionism versus communal exchange” by L. Gabora”. In: *Physics of Life Reviews* 10, pp. 149–150.
- Madsen, Mark E. (2012b). “Unbiased Cultural Transmission in Time-Averaged Archaeological Assemblages”. In: *ArXiv e-prints* 1204.2043. eprint: <http://arxiv.org/abs/1204.2043>. URL: <http://arxiv.org/abs/1204.2043>.
- Bentley, R.A., M.E. Madsen, and P. Ormerod (2009). “Physical space and long-tail markets”. In: *Physica A: Statistical Mechanics and its Applications* 388.5, pp. 691–696.
- Kornbacher, Kimberly and Mark E. Madsen (1999). “Explaining the Evolution of Cultural Elaboration”. In: *Journal of Anthropological Archaeology* 18.3, p. 2.
- Madsen, Mark, Carl Lipo, and Michael D. Cannon (1999). “Fitness and Reproductive Trade-Offs in Uncertain Environments: Explaining the Evolution of Cultural Elaboration”. In: *Journal of Anthropological Archaeology* 18.3, p. 31.
- Hunt, Terry L., Mark E. Madsen, and Carl P. Lipo (1998). “Reply to Boone and Smith: Is it Evolution Yet?” In: *Current Anthropology* 39.1.
- Lipo, Carl P. and Mark E. Madsen (1998). “Reply to Lyman and O’Brien: The Goals of Evolutionary Archaeology: History and Explanation”. In: *Current Anthropology* 39.5, pp. 615–652.

- Lipo, Carl P. et al. (1997). "Population structure, cultural transmission, and frequency seriation". In: *Journal of Anthropological Archaeology* 16.4, p. 33.
- Lipo, Carl P. and Mark E. Madsen (1993b). "The Importance of Cultural Variability: An Evolutionary Perspective." In: *Bulletin of the National Association of Student Anthropologists* 8.3, pp. 3-5.
- Madsen, Mark E. (1991). "Anthropology and the Conservation Movement". In: *Bulletin of the National Association of Student Anthropologists* 7.2, pp. 12-14.
- Madsen, Mark E. and Roger Lohmann (1991). "The Student's Role in Projecting Anthropology to the Public as a Practical Endeavor". In: *Anthropology Newsletter* 32.14-15.

BOOK CHAPTERS AND EDITED VOLUMES

- Madsen, Mark E. and Carl P. Lipo (2015a). "Behavioral Modernity and the Cultural Transmission of Structured Information: The Semantic Axelrod Model". English. In: *Learning Strategies and Cultural Evolution during the Palaeolithic*. Ed. by Alex Mesoudi and Kenichi Aoki. Replacement of Neanderthals by Modern Humans Series. Springer Japan, pp. 67-83. ISBN: 978-4-431-55362-5. DOI: [10.1007/978-4-431-55363-2_6](https://doi.org/10.1007/978-4-431-55363-2_6). URL: http://dx.doi.org/10.1007/978-4-431-55363-2_6.
- Madsen, Mark E. (2001). "Evolutionary Bet-Hedging and the Hopewell Cultural Climax". In: *Posing Questions for a Scientific Archaeology*. Ed. by T.L. Hunt, C.P. Lipo, and S. Sterling. Bergin and Garvey, pp. 279-304.
- Lipo, Carl and Mark Madsen (2000a). "Neutrality, "style," and drift: Building methods for studying cultural transmission in the archaeological record". In: *Style and Function: Conceptual Issues in Evolutionary Archaeology*. Ed. by Teresa D Hurt and Gordon F M Rakita. Westport, Connecticut: Bergin and Garvey, pp. 91-118.
- Madsen, M.E. (1994). "Problems and Solutions in the Study of Dispersed Communities". In: *Ohio Hopewell Community Patterning*. Ed. by W.S. Dancey and P.J. Pacheco. Kent State University Press, pp. 85-104.
- (1992b). "Lithic Manufacturing at British Camp: Evidence from Size Distributions and Microartifacts". In: *Deciphering a Northwest Coast Shell Midden: Geoarchaeological Approaches to Site Formation*. Ed. by J.K. Stein. Academic Press.

INVITED LECTURES AND CONFERENCE PAPERS

- Lipo, C.P. and M.E. Madsen (2016). "Continuity-based approaches and the study of patterns of cultural inheritance". In: *Paper presented at the 28th Annual Meeting of the Human Behavior and Evolution Society, Vancouver, WA*.
- Madsen, M.E. (2016). "Computational Methods for Identifying Metapopulation Interaction Patterns From Seriation Solutions". In: *Paper presented at the 28th Annual Meeting of the Human Behavior and Evolution Society, Vancouver, WA*.

- Madsen, M.E. (March 2016). "The Science of Change: What Does It Take to Measure Cultural Transmission at Large Scales?" In: *Invited lecture in the EVoS Seminar Series, Binghamton University, Binghamton, NY.*
- Madsen, M.E. and Carl P. Lipo (2016). "Measuring Cultural Relatedness Using Multiple Seriation Ordering Algorithms". In: *Paper presented at the 81st Annual Meeting of the Society for American Archaeology, Orlando, FL.*
- (2015b). "An Approach to Fitting Transmission Models to Seriations for Regional-Scale Analysis". In: *Paper presented at the 80th Annual Meeting of the Society for American Archaeology, San Francisco, CA.*
 - (2015c). "Tools for Transparency and Replicability of Simulation in Archaeology". In: *Paper presented at the 80th Annual Meeting of the Society for American Archaeology, San Francisco, CA.*
- Madsen, Mark E. and Carl P. Lipo (2014). "Cultural Transmission of Structured Knowledge and Technological Complexity: The Axelrod Model Extended". In: *Paper presented at the 79th Annual Meeting of the Society for American Archaeology, Austin TX.*
- Madsen, Mark E. (2012a). "Improving the Fit Between Model and Data: Time-Averaging Effects on Unbiased Cultural Transmission". In: *Paper presented at the 77th Annual Meeting of the Society for American Archaeology, Memphis TN.*
- Madsen, Mark E, Carl P. Lipo, and R. Alexander Bentley (2008). "Explaining Seriation Patterns Through Network-Structured Cultural Transmission Models". In: *Poster presented at the 73rd Annual Meeting of the Society for American Archaeology.*
- Lipo, Carl P. and Mark E. Madsen (2001). "Organization". In: *Paper presented at the 66th Annual meeting of the Society for American Archaeology, New Orleans LA.*
- Madsen, Mark E., Carl P. Lipo, and Timothy D. Hunt (2001). "Cultural Elaboration, Life Histories, and Bet-Hedging Strategies in Unpredictable Environments". In: *Paper presented at the 66th Annual Meeting of the Society for American Archaeology, New Orleans LA.*
- Lipo, Carl P and Mark M Madsen (2000b). "Building Group Level Units in the Archaeological Record: An Example from the Mississippi River Valley". In: *Paper presented at the 66th Annual Meeting of the Society for American Archaeology.*
- Lipo, Carl P and Mark E. Madsen (1999). "Keywords in Evolutionary Archaeology: Neutrality". In: *Invited paper presented at the 64th Annual Meeting of the Society for American Archaeology, Chicago.*
- Madsen, Mark E. and Carl P. Lipo (1999). "Keywords in Evolutionary Archaeology: Fitness". In: *Invited paper presented at the 64th Annual Meeting of the Society for American Archaeology, Chicago.*
- Cannon, Michael D., Mark E. Madsen, and Carl P. Lipo (1998). "Wasteful Behavior in Evolutionary and Ecological Perspective". In: *Paper presented at the 63rd Annual Meeting of the Society for American Archaeology, Seattle.*
- Hunt, Terry L, Carl P. Lipo, and Mark E. Madsen (1998). "The Flaws of Phylogeny as History: A Pacific Islands Case Study". In: *Paper presented at the 63rd Annual Meeting of the Society for American Archaeology, Seattle.*

- Lipo, Carl P., Mark E. Madsen, and Michael D. Cannon (1998). "When Will "Wasteful" Behavior Occur?" In: *Paper presented at the 63rd Annual Meeting of the Society for American Archaeology, Seattle*.
- Madsen, Mark E., Carl P. Lipo, and Michael D. Cannon (1998). "Building explanations for 'wasteful' behavior in the archaeological record". In: *Poster presented at the 63rd Annual Meeting of the Society for American Archaeology, Seattle*.
- Lipo, Carl P. and Mark E. Madsen (1997). "The Method Seriation: Explaining the Variability in the Frequencies of Types". In: *62nd Annual Meeting for the Society for American Archaeology*.
- (1996). "Problems and solutions in the study of social organization". In: *61st Annual Meeting of the Society for American Archaeology*.
- Hunt, Timothy D., Mark E. Madsen, and Carl P. Lipo (1995). "Examining Cultural Transmission Using Frequency Seriation". In: *Poster presented at the 60th SAA Annual Meeting, Minneapolis MN*.
- Lipo, Carl P., Mark E. Madsen, and Timothy D. Hunt (1995). "Artifact Style Dynamics II: Deriving Seriation from a Network Model of Transmission". In: *Paper presented at the 60th Annual Meeting for the Society for American Archaeology, Minneapolis MN*.
- Madsen, Mark E., Carl P. Lipo, and Timothy D. Hunt (1995). "Artifact Style Dynamics I: A Network Model of Cultural Transmission in Spatially Structured Populations". In: *Paper presented at the 60th Annual Meeting for the Society for American Archaeology, Minneapolis MN*.
- Lipo, C.P. and M.E. Madsen (1993c). "Global Reductions of Diversity in Subsistence Systems: A Darwinian Argument for a Conservationist Anthropology". In: *Paper presented at the 92nd Annual Meeting of the American Anthropological Association*.
- Madsen, Mark E. and Carl P. Lipo (1993). "Units of Evolution within a Darwinian Approach to Anthropology: Definitions and Implications for the Subfields". In: *Paper presented at the 1993 American Association of Anthropology meetings*.
- Madsen, Mark E. (1992a). "Contemporaneity and the Analysis of Archaeological Settlement Patterning: An Example from the Ohio Hopewell". In: *Paper presented at the 57th Annual Meeting of the Society for American Archaeology, Pittsburgh PA*.
- Lipo, Carl P. and Mark E. Madsen (1989). "Microartifacts and Macrointerpretations". In: *Paper presented at the 1989 South Asian Conference, Madison WI*.
- Madsen, M.E. and R.C. Dunnell (1989). "The Role of Microartifacts in Deducing Land Use from Low Density Records in Plowed Surfaces". In: *Paper presented at the 54th Annual Meeting of the Society for American Archaeology*.
- Madsen, Mark E. (1988a). "Lithic Manufacturing in a Northwest Coast Shell Midden: The Grain-size Evidence". In: *Paper presented at the Northwest Anthropological Conferences, Tacoma WA*.
- (1988b). "Microdebitage Analysis of a Northwest Coast Shell Midden". In: *Paper presented at the 53rd Annual Meeting of the Society for American Archaeology*.

IN PRESS OR WORKS IN PROGRESS

Madsen, Mark E. (2015). "Can We Identify Transmission Bias Using Archaeological Data? A Machine Learning Approach to Equifinality". Submitted.

Lipo, Carl P. and Mark E. Madsen (1993a). "The Evolutionary Biology of Ourselves: Unit Requirements and Organizational Change in United States History".

Instructorship or TA Positions Held

Autumn 1994 Archaeology 205, Teaching Assistant to Dr. Donald Grayson, *University of Washington*

Grants, honors & awards

1989-1991 National Science Foundation Graduate Fellowship, University of Washington
1988 Regent's Fellowship, University of Wisconsin-Madison
1988-1990 Grants-in-Aid of Research, Sigma Xi Scientific Research Society
1988 Membership, Phi Beta Kappa National Honor Society