

CARTER TRIBLEY BUTTS

CONTACT INFORMATION:

- WORK:
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EDUCATION:

- Ph.D. in Sociology, Carnegie Mellon University, May 2002
“Spatial Models of Large-Scale Interpersonal Networks” (Kathleen M. Carley, Chair)
- M.S. in Sociology, Carnegie Mellon University, May 1998
“Canonical Labeling to Facilitate Graph Comparison” (Kathleen M. Carley, Chair)
- B.S. in Systems Theory (with distinction), Duke University, May 1996
- Diploma, Jordan High School, May 1992

CURRENT POSITION:

- Associate Professor, Department of Sociology and Institute for Mathematical Behavioral Sciences, University of California – Irvine

CAMPUS AFFILIATIONS:

- Department of Sociology
- Institute for Mathematical Behavioral Sciences
- California Institute for Telecommunications and Information Technology (Calit2)
- UCI Center for Machine Learning and Intelligent Systems
- UCI Center for Organizational Research

RESEARCH INTERESTS

- Mathematical Sociology
- Social Networks
- Quantitative Methodology
- Human Judgment and Decision Making
- Economic Sociology

AWARDS AND HONORS:

- Linton C. Freeman Award for Distinguished Scholarship, International Network for Social Network Analysis, 2008

- Best Paper Award for “Emergency Phase Networks During the World Trade Center Disaster” (with Miruna Petrescu-Prahova and Remy Cross), Third Joint US-Japan Conference on Mathematical Sociology, Sapporo, Japan, 2005
- Herbert A. Simon Dissertation Award for “Spatial Models of Large-Scale Interpersonal Networks,” Carnegie Mellon University, 2002
- Outstanding Working Paper Award for “Analyzing Life Course Patterns with the Interval Graph Approach” (with Joy Pixley), Cornell Careers Institute, 2002
- Outstanding Graduate Student Paper Award for “Analyzing Life Course Patterns with the Interval Graph Approach” (with Joy Pixley), ASA Section on Aging and the Life Course, 2001
- Three Rivers Network Certification and Award in Social Network Analysis, 1999
- Outstanding Graduate Student Paper Award for “A Bayesian Model of Panic in Belief,” ASA Section on Mathematical Sociology, 1999

GRANTS AND FELLOWSHIPS:

- Mendonça, David (PI); Butts, Carter T. (Co-PI); Webb, Gary (Co-PI). (10/2006–9/2009). “AOC: Improvisation in Emergency Response: Linking Cognition, Behavior and Social Interaction.” Grant #CMS-0624257, NSF CMS, Human Social Dynamics. \$710,000.00.
- Butts, Carter T. (PI). (2/2006–7/2007). “SGER: Collaborative Research: Mapping and Analyzing Emergent Multiorganizational Networks in the Hurricane Katrina Response.” Grant #CHE-0555125, NSF CHE, Statistics and Simulations. (Awarded through HSD SGER.) \$69,372.00.
- Butts, Carter T. (PI). (1/2005–3/2005). “Modeling HIV and STD in Drug User and Social Networks.” Subaward 918197 of award 5 R01 DA012831-05, NIH. \$13,294.00.
 - Extension to 1/2006–5/2006, \$26,764.00.
 - Extension to 1/2007–5/2007. \$13,940.00
- Mehrotra, Sharad (PI); Butts, Carter T. (Co-PI); Eguchi, Ronald (Co-PI); Venkatasubramanian, Nalini (Co-PI); and Winslett, Marianne (Co-PI). (10/2003–9/2008). “Collaborative Research: Responding to the Unexpected.” Grant #IIS-0331707, NSF ITR. \$8,957,651.00.
- Carley, Kathleen M. (PI), and Butts, Carter T. (Co-PI). (4/2001). “Dissertation Improvement: Spatial Models of Large-Scale Interpersonal Networks.” Grant #SES-0100999, NSF SBE, Sociology. \$6,512.00.
- Butts, Carter T. (PI). (6/2000). “Monte Carlo Methods for Simulating Large-Scale Interpersonal Networks.” Research Proposal Award from the Center for Computational Analysis of Social and Organizational Systems, NSF IGERT “Integrated Graduate Education and Research Training in Computational Analysis of Social and Organizational Systems.” \$965.75.
- National Science Foundation Graduate Research Fellowship, 1997-2000

BOOKS:

- Butts, Carter T. (2008). *Space and Structure: Methods and Models for Large-Scale Interpersonal Networks*. Springer, under contract.

ARTICLES AND PEER REVIEWED CONFERENCE PAPERS:

- Butts, Carter T. (2008). “A Relational Event Framework for Social Action.” *Sociological Methodology*, forthcoming.

- Butts, Carter T. (2008). “network: a Package for Managing Relational Data in R.” *Journal of Statistical Software*, forthcoming.
- Butts, Carter T. (2008). “Social Network Analysis with sna.” *Journal of Statistical Software*, forthcoming.
- Butts, Carter T. (2008). “Social Networks: A Methodological Introduction.” *Asian Journal of Social Psychology*, 11(1), 13–41.
- Butts, Carter T. and Cross, B. Remy. (2008). “Change and External Events in Computer-Mediated Citation Networks: English Language Weblogs and the 2004 U.S. Electoral Cycle.” *Journal of Social Structure*, forthcoming.
- Lind, Benjamin E.; Tirado, Miguel; Butts, Carter T.; and Petrescu-Prahova, Miruna. (2008). “Brokerage Roles in Disaster Response: Organizational Mediation in the Wake of Hurricane Katrina.” *International Journal of Emergency Management*, forthcoming.
- Butts, Carter T. (2007). “Models for Generalized Location Systems.” *Sociological Methodology*, 37(1), 283–348.
- Butts, Carter T. (2007). “Permutation Models for Relational Data.” *Sociological Methodology*, 37(1), 257–281.
- Butts, Carter T. and Carley, Kathleen M. (2007). “Structural Change and Homeostasis in Organizations: A Decision-Theoretic Approach.” *Journal of Mathematical Sociology*, 31(4), 295–321.
- Butts, Carter T.; Petrescu-Prahova, Miruna; and Cross, B. Remy. (2007). “Responder Communication Networks in the World Trade Center Disaster: Implications for Modeling of Communication Within Emergency Settings.” *Journal of Mathematical Sociology*, 31(2), 121–147.
- Butts, Carter T. and Rode, David C. (2007). “Rational and Empirical Play in the Simple Hot Potato Game.” *Social Forces*, 85(4): 1787–1806.
- Butts, Carter T. (2006). “Exact Bounds for Degree Centralization.” *Social Networks*, 28(4), 283–296.
- Kalashnikov, Dmitri V.; Ma, Yiming; Mehrotra, Sharad; Hariharan, Ramaswamy; and Butts, Carter T. (2006). “Modeling and Querying Uncertain Spatial Information for Situational Awareness Applications.” Pages 131–138 in *Proceedings of the 14th Annual ACM International Symposium on Advances in Geographic Information Systems* (ACM SIGIR). New York: ACM Press.
- Butts, Carter T. and Carley, Kathleen M. (2005). “Some Simple Algorithms for Structural Comparison.” *Computational and Mathematical Organization Theory*, 11(4), 291–305.
- Butts, Carter T. and Pixley, Joy E. (2004). “A Structural Approach to the Representation of Life History Data.” *Journal of Mathematical Sociology*, 28(2), 81–124.
- Mehrotra, Sharad; Butts, Carter T.; Kalashnikov, Dmitri V.; Venkatasubramanian, Nalini; Altintas, K.; Hariharan, R.; Lee, Haimin; Ma, Yiming; Myers, Amnon; Wickramasuriya, Jehan; Eguchi, Ron; Huyck, Charles. (2004). “CAMAS: A Citizen Awareness System for Crisis Mitigation.” In *Proceedings of ACM SIGMOD International Conference on Management of Data (SIGMOD’04)*, publication and software demonstration, June 13–18, 2004.
- Butts, Carter T. (2003). “Network Inference, Error, and Informant (In)Accuracy: A Bayesian Approach.” *Social Networks*, 25(2), 103–140.

- Butts, Carter T. and Hilgeman, Christin. (2003). “Inferring Potential Memetic Structure from Cross-Sectional Data: An Application to American Religious Beliefs.” *Journal of Memetics - Evolutionary Models of Information Transmission*, 7(2). http://jom-emit.cfpm.org/2003/vol17/butts_ct&hilgeman_c.html.
- Mehrotra, Sharad; Butts, Carter T.; Kalashnikov, Dmitri V.; Venkatasubramanian, Nalini; Rao, Ramesh; Chockalingam, Ganz; Eguchi, Ron; Adams, Beverly; and Huyck, Charles. (2003). “Project RESCUE: Challenges in Responding to the Unexpected.” *SPIE Journal of Electronic Imaging, Displays, and Medical Imaging*, 5304, 179-192.
- Miller, John H.; Butts, Carter T.; and Rode, David C. (2002). “Communication and Cooperation.” *Journal of Economic Behavior and Organization*, 47, 179–195.
- Butts, Carter T. (2001). “The Complexity of Social Networks: Theoretical and Empirical Findings.” *Social Networks*, 23(1), 31–71.
- Butts, Carter T. (2000). “An Axiomatic Approach to Network Complexity.” *Journal of Mathematical Sociology*, 24(4), 273–301.
- Anderson, Brigham S.; Butts, Carter T.; and Carley, Kathleen M. (1999). “The Interaction of Size and Density with Graph Level Indices.” *Social Networks*, 21(3), 239–267.
- Fararo, Thomas J. and Butts, Carter T. (1999). “Advances in Generative Structuralism: Structured Agency and Multilevel Dynamics.” *Journal of Mathematical Sociology*, 24(1), 1–65.
- Butts, Carter T. (1998). “A Bayesian Model of Panic in Belief.” *Computational and Mathematical Organization Theory*, 4(4), 373–404.
- Carley, Kathleen M. and Butts, Carter T. (1997). “An Algorithmic Approach to the Comparison of Partially Labeled Graphs.” In *Proceedings of the 1997 International Symposium on Command and Control Research and Technology*. June. Washington, D.C.

CHAPTERS AND PROCEEDINGS PAPERS:

- Butts, Carter T. (2007). “Statistical Mechanical Models for Social Systems.” In Adrian Bejan and Gilbert W. Merkx (eds.), *Constructal Theory of Social Dynamics*, 197–224. New York: Springer.
- Butts, Carter T. (2003). “Predictability of Large-scale Spatially Embedded Networks” In Ronald Breiger, Kathleen Carley, and Philippa Pattison (eds.), *Dynamic Social Network Modeling and Analysis: Workshop Summary and Papers*, 313-323. Washington, D.C.: National Academies Press.
- Butts, Carter T.; Reilly, Colman; Speh, Marcus; and Wang, Joseph. (1994). “WWW and the Globewide Network Academy.” In *Proceedings of the First International WWW Conference*, 1994. CERN, Switzerland.

BOOK REVIEWS AND INVITED COMMENT PAPERS:

- Butts, Carter T. (2007). Comment on Mark S. Handcock, Adrian E. Raftery, and Jeremy M. Tantrum, “Model-based Clustering for Social Networks.” *Journal of the Royal Statistical Society, Series A*, 170(2), 333.
- Butts, Carter T. (2007). Review of Carrington, Peter J.; Scott, John; and Wasserman, Stanley (eds.), *Models and Methods in Social Network Analysis*, Cambridge, Cambridge University Press. *Social Networks*, 29(4), 603–608.
- Butts, Carter T. (2001). Review of Gerald Jay Sussman and Jack Wisdom, *Structure and*

Interpretation of Classical Mechanics, Cambridge, MA, MIT Press. *Computational and Mathematical Organization Theory*, 7(4), 319–342.

GENERAL AUDIENCE PUBLICATIONS:

- Mendonça, David; Butts, Carter T.; and Webb, Gary. (2007). “Learning from the Response to Two Extreme Events.” *Contingency Today*, June 4, 2007.
http://www.contingencytoday.com/online_article/Learning-from-the-Response-to-Two-Extreme-Events-/356

SOFTWARE:

- Packages for the R Statistical Computing System:
 - Hancock, Mark S.; Hunter, David R.; Butts, Carter T.; and Morris, Martina M. (2005–2008). *ergm*: Exponential Random Graph Modeling of Network and Graph Data.
 - Butts, Carter T. (2001–2008). *metamatrix*: Metamatrix Analysis of Organizational Structure.
 - Butts, Carter T.; Hancock, Mark S.; Hunter, David R.; and Morris, Martina M. (2005–2008). *network*: Classes for Relational Data.
 - Butts, Carter T. (2005–2008). *netperm*: Permutation Models for Relational Data.
 - Butts, Carter T. (2004–2008). *nettheory*: Routines for Exploring Social Network Theory.
 - Butts, Carter T. (2000–2008). *sna*: Tools for Social Network Analysis.
 - Hancock, Mark S.; Hunter, David R.; Butts, Carter T.; Goodreau, Steven M.; and Morris, Martina M. (2006–2008). *statnet*: Statistical Modeling of Network and Graph Data.
- Butts, Carter T. (2000–2002). *NETSTAT*: A General-purpose Library for the Analysis of Social and Organizational Network Data in the C Language.

WORKING PAPERS AND TECHNICAL REPORTS:

- Butts, Carter T. (2006). “Cycle Census Statistics for Exponential Random Graph Models.” IMBS Technical Report MBS 06-05, University of California, Irvine.
- Butts, Carter T. (2006). “A Relational Event Model for Social Action, with Application to the World Trade Center Disaster.” IMBS Technical Report MBS 06-06, University of California, Irvine.
- Butts, Carter T. (2005). “Building Inferentially Tractable Models of Complex Social Systems: a Generalized Location Framework.” IMBS Technical Report MBS 05-08, University of California, Irvine.
- Butts, Carter T. (2005). “Permutation Models for Relational Data.” IMBS Technical Report MBS 05-02, University of California, Irvine.
- Butts, Carter T. and Petrescu-Prahova, Miruna. (2005). “Radio Communication Networks in the World Trade Center Disaster.” IMBS Technical Report MBS 05-04, University of California, Irvine.
- Butts, Carter T.; Petrescu-Prahova, Miruna; and Cross, Remy. (2005). “Responder Communication Networks in the WTC Disaster: IT Implications.” RESCUE Research Highlights Volume, University of California, Irvine.
- Petrescu-Prahova, Miruna and Butts, Carter T. (2005). “Emergent Coordination in the

World Trade Center Disaster.” IMBS Technical Report MBS 05-03, University of California, Irvine.

- Butts, Carter T. (2004). “Exact Bounds for Degree Centralization.” IMBS Technical Report MBS 04-08, University of California, Irvine.
- Butts, Carter T. and Leite, Fabio. (2004). “Bayesian Inference from Continuously Arriving Informant Reports, with Application to Crisis Response.” IMBS Technical Report MBS 04-08, University of California, Irvine.
- Butts, Carter T. and Hilgeman, Christin (2003). “Latent Algebraic Structure in American Religious Belief.” IMBS Technical Report MBS 03-05, University of California, Irvine.
- Butts, Carter T. (2002). “Predictability of Large-scale Spatially Embedded Networks.” IMBS Technical Report MBS 02-13, University of California, Irvine.
- Butts, Carter T. and Carley, Kathleen M. (2002). “Structural Change and Homeostasis in Organizations: A Decision-Theoretic Approach.” CASOS Working Paper, Carnegie Mellon University. (Also appears as IMBS Technical Report MBS 03-04, University of California, Irvine.)
- Butts, Carter T. (2001). “How Much Does Distance Tell Us?: Residual Information in Spatially Embedded Interpersonal Networks.” CASOS Working Paper, Carnegie Mellon University.
- Butts, Carter T. (2001). “Interregional Relations from Spatially Embedded Interpersonal Networks.” CASOS Working Paper, Carnegie Mellon University.
- Pixley, Joy E. and Butts, Carter T. (2001). “Analyzing Life Course Patterns with the Interval Graph Approach.” Bronfenbrenner Life Course Center Working Paper 01-10, Cornell University.
- Butts, Carter T. (2000). “Stochastic Models of Spatially Embedded Interpersonal Networks: Simulations from Tie Frequency Data.” CASOS Working Paper, Carnegie Mellon University.
- Anderson, Brigham S., Butts, Carter T., and Carley, Kathleen M. (1998). “The Interaction of Size and Density with Graph Level Measures.” ICES Research Report 88-05-98, Carnegie Mellon University.
- Butts, Carter T. (1998). “‘An Invisible and Insuperable Barrier’: Enculturation, Stratification, and Ritual Interaction.” ICES Research Report 88-01-98, Carnegie Mellon University.
- Butts, Carter T. (1998). “Generating Panic within Populations.” ICES Research Report 88-03-98, Carnegie Mellon University.
- Butts, Carter T. (1998). “Cluster Analysis of Unlabeled Structures.” ICES Research Report 88-04-98, Carnegie Mellon University.
- Butts, Carter T. and Carley, Kathleen M. (1998). “Canonical Labeling to Facilitate Graph Comparison.” ICES Research Report 88-06-98, Carnegie Mellon University.
- Miller, John H.; Butts, Carter T.; and Rode, David C. (1998). “Communication and Cooperation.” Santa Fe Institute Working Paper, 98-04-37.

INVITED TALKS:

- Butts, Carter T. (8/2008). “Modeling Reality Without Sacrificing Data: Inferentially Tractable Models for Complex Social Systems.” Keynote Address, “Challenges and Visions In the Social Sciences” Conference, Zurich, Switzerland.

- Butts, Carter T. (7/2008). “Parameterizing Exponential Family Models for Random Graphs: Current Methods and New Directions.” Invited presentation, “Formation and Function of Social Networks” Mini-Conference, 2008 SIAM Meeting, San Diego, CA.
- Butts, Carter T. (1/2008). “Is There a Viable Social Physics? Yes, No, and In Part.” Invited presentation, SFI Workshop “Is There A Physics of Society?” Santa Fe Institute, Santa Fe, NM.
- Butts, Carter T. (10/2007). “Network Structure In Spatial Contexts.” Department of Anthropology Colloquium, Stanford University. Stanford, CA.
- Butts, Carter T. (9/2007). “Social Networks In the Physical World.” Keynote Address, 2007 Workshop on Spatial and Geographical Structure (in conjunction with COSIT 2007). Mt. Edna, Victoria, Australia.
- Butts, Carter T. and Hilgeman, Christin. (9/2007). “Latent Structure in Religious Belief.” Department of Psychology Colloquium, University of Melbourne. Melbourne, Victoria, Australia.
- Butts, Carter T. (8/2007). “Advancing Mathematical Sociology: Opportunities and Open Problems.” ASA Section on Mathematical Sociology Invited Panel Session, “The Future of Mathematical Sociology.” ASA Meeting, New York, NY.
- Butts, Carter T. (7/2007). “Improvisation in Disaster Response.” Invited Panelist, 32nd Annual Hazards Research and Applications Workshop, Boulder, CO.
- Butts, Carter T. (8/2006). “Error and Missingness in Social Network Data: Problems and Palliatives.” ASA Section on Methodology Invited Panel Session, “Methods for Social Network Analysis.” ASA Meeting, Montreal, Quebec.
- Butts, Carter T. (5/2006). “Dynamic Communication Networks During Extreme Events: an Intertemporal Analysis of Radio Communication During the World Trade Center Disaster.” Invited Conference Presentation, NetSci International Conference and Workshop on Network Science. Bloomington, IN.
- Butts, Carter T. (5/2006). “Likelihood-based Network Comparison Using Permutation Models.” Invited Workshop Tutorial, NetSci International Conference and Workshop on Network Science. Bloomington, IN.
- Butts, Carter T. (5/2006). “Modeling Communication Dynamics During Extreme Events: The Case of the World Trade Center Disaster.” “Age of Networks” Speaker Series, Center for Advanced Study, University of Illinois at Urbana-Champaign. Champaign, IL.
- Butts, Carter T. (4/2006). “Statistical Mechanical Models for Social Systems with Complex Dependence Structures.” International Workshop on Constructal Theory of Social Dynamics, Duke University. Durham, NC.
- Butts, Carter T. (12/2005). “Extreme Networking: Communication and Coordination Networks During the WTC Disaster.” Organizational Behavior Seminar Series, Graduate School of Business, Stanford University. Stanford, CA.
- Butts, Carter T. (11/2005). “Social Networks: Introduction and Prospect.” Keynote Address, EII-NICTA Workshop on Large-Scale Network Analysis, National Information and Communications Technology Australia. Sydney, New South Wales, Australia.
- Butts, Carter T. (11/2005). “Exponential Family Models for Assignment Systems.” Department of Psychology Colloquium, University of Melbourne. Melbourne, Victoria, Australia.

- Butts, Carter T. (8/2005). “Building Inferentially Tractable Models for Complex Social Systems: a Generalized Location Framework.” ASA Section on Mathematical Sociology Invited Paper Session, “Mathematical Sociology Today: Current State and Prospects.” ASA Meeting, Philadelphia, PA.
- Butts, Carter T. (12/2004). “Social Networks and the Small World.” Japanese/American Beckman Frontiers of Science Conference (National Academy of Sciences/Japanese Society for Promotion of Science). Irvine, CA.
- Butts, Carter T. (10/2004). “Beyond QAP: Parametric Permutation Models for Relational Data.” Quantitative Methods for Social Science Colloquium, University of California at Santa Barbara. Santa Barbara, CA.
- Butts, Carter T. (10/2004). “Physical Distance and the Structure of Large-Scale Interpersonal Networks.” Geography Department Colloquium, University of California at Santa Barbara. Santa Barbara, CA.
- Butts, Carter T. (11/2002). “Predictability of Large-scale Spatially Embedded Networks.” Panel on Dynamic Social Network Modeling and Analysis, National Academy of Sciences. Washington, D.C.
- Butts, Carter T. (12/2001). “The Enduring Problem of Error in Network Data, and Some Thoughts on What to Do About It.” Center for Statistics and the Social Sciences Colloquium, University of Washington. Seattle, WA.
- Butts, Carter T. (4/2001). “Empirical Play in the Hot Potato Game.” Janus Game Theory Group, Department of Sociology, Cornell University. Ithaca, NY.
- Butts, Carter T. (11/2000). “Stochastic Models of Spatially Embedded Interpersonal Networks: Simulations from Tie Frequency Data.” Mathematical Behavioral Sciences Colloquium, University of California at Irvine. Irvine, CA.

CONFERENCE PRESENTATIONS:

- Butts, Carter T. and Acton, Ryan M. (8/2008). “Spatial Analysis of Social Networks.” ASA Meeting, Boston, MA.
- Butts, Carter T. (6/2008). “On Having Something In Common: Latent Two-Mode Models for Social Networks.” Networks in Political Science Conference, Cambridge, MA.
- Butts, Carter T. (1/2008). “Graph Theoretic Convexity.” 28th Sunbelt Network Conference (INSNA), St. Petersburg, FL.
- Pixley, Joy E. and Butts, Carter T. (11/2007). “Comparing Patterns of Life Course Events.” Annual Meeting of the Gerontological Society of America, San Francisco, CA.
- Butts, Carter T. “A Relational Event Model for Social Action.” (8/2007). ASA Meeting, New York, NY.
- Acton, Ryan M. and Butts, Carter T. (8/2007). “Patterns of Possession and Change: Material Culture in the American Home, 1972–2003.” ASA Meeting, New York, NY.
- Lind, Ben E.; Tirado, Miguel; Butts, Carter T.; and Petrescu-Prahova, Miruna G. (8/2007). “Brokerage Roles in Disaster Response: Organizational Mediation in the Wake of Hurricane Katrina.” ASA Meeting, New York, NY.
- Butts, Carter T. (7/2007). “Likelihood-based Inference for Cycle Structure Bias in Cognitive Models of Social Interaction.” 40th Annual Meeting of the Society for Mathematical Psychology, Irvine, CA.

- Butts, Carter T. “Network Inference from Unstructured Sources.” (5/2007). 27th Sunbelt Network Conference (INSNA), Corfu, Greece.
- Butts, Carter T.; Contractor, Noshir; Acton, Ryan; Harper, Steven; Auvil, Loretta; Petrescu-Prahova, Miruna; Lind, Ben; and Don, Andy. “Mapping and Analyzing Emergent Multi-Organizational Networks in the Hurricane Katrina Response.” (9/2006). Human Social Dynamics Principal Investigator Meeting (NSF), Washington, DC.
- Butts, Carter T. “Cycle Census Statistics for Exponential Random Graph Models.” (8/2006). ASA Meeting, Montreal, Quebec.
- Petrescu-Prahova, Miruna and Butts, Carter T. “Emergent Coordinators in the World Trade Center Disaster.” (8/2006). ASA Meeting, Montreal, Quebec.
- Butts, Carter T.; Acton, Ryan M.; Cross, B. Remy; Jasny, Lorien; Lind, Ben; Petrescu-Prahova, Miruna; Bevc, Christine; Liu, Sophia; and Tierney, Kathleen. (7/2006). “Inter- and Intra-organizational Networks in the World Trade Center and Hurricane Katrina Disasters.” 31st Annual Hazards Research and Applications Workshop, Boulder, CO.
- Acton, Ryan M. and Butts, Carter T. “Implication Structures and Household Artifacts: Analyzing the Changing Patterns of Ownership and Possession in the American Home, 1980–2003.” (4/2006). 26th Sunbelt Network Conference (INSNA), Vancouver, BC.
- Bevc, Christine; Butts, Carter T.; Liu, Sophia; and Tierney, Kathleen. “Predictors of Dyadic Interaction in Emergent Multiorganizational Networks Following the World Trade Center Attacks.” (4/2006). 26th Sunbelt Network Conference (INSNA), Vancouver, BC.
- Butts, Carter T. “Curved Exponential Family Parameterizations for Spatial Network Models.” (4/2006). 26th Sunbelt Network Conference (INSNA), Vancouver, BC.
- Petrescu-Prahova, Miruna and Butts, Carter T. “Network Inference with Missing Data: A Performance Comparison of Existing Models.” (4/2006). 26th Sunbelt Network Conference (INSNA), Vancouver, BC.
- Reich, Leah and Butts, Carter T. “Structural Properties of Power-Relevant Relations.” (4/2006). 26th Sunbelt Network Conference (INSNA), Vancouver, BC.
- Butts, Carter T. and Petrescu-Prahova, Miruna. “Radio Communication Networks in the World Trade Center Disaster.” (8/2005). ASA Meeting, Philadelphia, PA.
- Butts, Carter T.; Petrescu-Prahova, Miruna; and Cross, Remy. “Emergency Phase Networks During the World Trade Center Disaster.” (6/2005). Third Joint US-Japan Conference on Mathematical Sociology, Sapporo, Japan.
- Butts, Carter T.; Petrescu-Prahova, Miruna; and Cross, Remy. “Responder Communication Networks During the World Trade Center Disaster.” (2/2005). 25th Sunbelt Network Conference (INSNA), Redondo Beach, CA.
- Cross, Remy, and Butts, Carter T. “Blogging For Votes: An Examination of the Interaction Between Weblogs and the Electoral Process” (2/2005). 25th Sunbelt Network Conference (INSNA), Redondo Beach, CA.
- Butts, Carter T. and Leite, Fabio. “Bayesian Inference from Continuously Arriving Informant Reports, with Application to Crisis Response.” (8/2004). ASA Meeting, San Francisco, CA.
- Butts, Carter T. “An Exponential Family of Permutation Models for Network Comparison.” (7/2004). IMBS Symposium, “Current Research on Network Comparison,” Irvine, CA.

- Butts, Carter T. “Latent Structure in Multiplex Relations.” (6/2004). NAACSOS Conference, Pittsburgh PA.
- Lawson, Gabriel C. and Butts, Carter T. “Information Transmission Through Human Informants: Simulation.” (6/2004). NAACSOS Conference, Pittsburgh PA.
- Mehrotra, Sharad; Butts, Carter T.; Kalashnikov, Dmitri V.; Venkatasubramanian, Nalini; Altintas, K.; Hariharan, R.; Lee, Haimin; Ma, Yiming; Myers, Amnon; Wickramasuriya, Jehan; Eguchi, Ron; Huyck, Charles. 2004. “CAMAS: A Citizen Awareness System for Crisis Mitigation.” (6/2004). SIGMOD 2004, June 13–18, Paris, France.
- Butts, Carter T. “An Exponential Family of Permutation Models for the Comparison of Adjacency Structures.” (5/2004). 24th Sunbelt Network Conference (INSNA), Portoroz, Slovenia.
- Butts, Carter T. and Hilgeman, Christin. “Latent Algebraic Structure in American Religious Belief, 1988-1998.” (8/2003). ASA Meeting, Atlanta, GA.
- Butts, Carter T. “Network Inference and Error Estimation with Structurally Dependent Error Rates, Missing Data, and Covariates.” (6/2003). NAACSOS Conference (formerly CASOS), Pittsburgh, PA.
- Butts, Carter T. “Network Inference and Accuracy Estimation with Covariates, Configurally Dependent Errors, and Non-ignorably Missing Data.” (2/2003). 23rd Sunbelt Network Conference (INSNA), Cancun, Mexico.
- Pixley, Joy E. and Butts, Carter T. “Analyzing Life Course Patterns with the Interval Graph Approach.” (2/2003). 21st Sunbelt Network Conference (INSNA), Cancun, Mexico.
- Butts, Carter T. (8/2002). “Network Inference, Error, and Informant Accuracy” Mathematical and Statistical Issues in Network Analysis Miniconference, Institute for Mathematical Behavioral Sciences, UC Irvine, Irvine, CA.
- Butts, Carter T. (8/2002). “Some Properties of Spatially Embedded Interpersonal Networks” Group Processes Miniconference, Chicago, IL.
- Butts, Carter T. and Carley, Kathleen M. (8/2002). “Structural Change and Homeostasis in Organizations: A Decision-Theoretic Approach” ASA Meeting, Chicago, IL.
- Butts, Carter T. and Pixley, Joy E. (6/2002). “A Structural Approach to the Representation of Life History Data” CASOS Conference (formerly CMOT), Pittsburgh, PA.
- Butts, Carter T. (2/2002). “Predicting the Spatial Structure of Large-Scale Interpersonal Networks by Means of Extrapolative Simulation” 22nd Sunbelt Network Conference (INSNA), New Orleans, LA.
- Butts, Carter T. (8/2001). “How Much Does distance Tell Us?: Residual Information in Spatially-Embedded Interpersonal Networks.” ASA Meeting, Anaheim, CA.
- Butts, Carter T., and Rode, David C. (8/2001). “Empirical Play in the Hot Potato Game.” ASA Meeting, Anaheim, CA.
- Butts, Carter T. (7/2001). “Interregional Relations from Spatially-Embedded Interpersonal Networks.” CASOS Conference (formerly CMOT), Pittsburgh, PA.
- Butts, Carter T. (8/2000). “Network Inference, Error, and Informant (In)Accuracy: A Bayesian Approach.” ASA Meeting, Washington, D.C.
- Butts, Carter T., and Carley, Kathleen M. (7/2000). “Multivariate Analysis of Unlabeled Structures.” CASOS Conference (formerly CMOT), Pittsburgh, PA.

- Butts, Carter T. (6/2000). “Stochastic Models of Spatially Embedded Interpersonal Networks: Simulations from Tie Frequency Data.” First Joint US-Japan Conference on Mathematical Sociology, Honolulu, HI.
- Butts, Carter T., and Carley, Kathleen M. (4/2000). “Cluster Analysis of Labeled and Unlabeled Structures.” 20th Sunbelt Network Conference (INSNA), Vancouver, BC.
- Butts, Carter T., and Carley, Kathleen M. (7/1999). “Spatial Models of Network Formation.” ASA Meeting, Chicago, IL.
- Butts, Carter T. (2/1999). “The Complexity of Social Networks: Theoretical and Empirical Findings.” 19th Sunbelt Network Conference (INSNA), Charleston, SC.
- Butts, Carter T. (8/1998). “Generating Panic in Populations.” ASA Meeting, San Francisco, CA.
- Butts, Carter T., and Carley, Kathleen M. (5/1998). “Visualization of Unlabeled Structures Using Existing Technologies.” 18th Sunbelt Network Conference (INSNA), Sitges, Spain.
- Muhlberger, Peter, and Butts, Carter T. (4/1998). “An Experiment in Deliberative Democracy: Politics Shaping Citizens.” Midwest Political Science Association Meeting, Chicago IL. (Presented by Peter Muhlberger)
- Carley, Kathleen M., and Butts, Carter T. (8/1997). “An Algorithmic Approach to the Comparison of Partially Labeled Graphs.” ASA Meeting, Toronto, Canada. (Presented by Kathleen Carley)
- Butts, Carter T. (5/1997). “A Bayesian Model of Panic in Belief.” CMOT Workshop, San Diego, CA.
- Carley, Kathleen M., and Butts, Carter T. (3/1997). “Measuring C2 Structure.” A2C2 Workshop, Williamsburg, VA. (Presented by Kathleen Carley)
- Butts, Carter T.; Reilly, Colman; Speh, Marcus; and Wang, Joseph. (5/1994). “WWW and the Globewide Network Academy.” First International WWW Conference, CERN, Geneva, Switzerland. (Presented by Marcus Speh)

TEACHING EXPERIENCE:

- POSITIONS:
 - Associate Professor, Department of Sociology, University of California – Irvine, 2007–Present
 - Assistant Professor, Department of Sociology, University of California – Irvine, 2002–2007
 - Teaching Assistant, CASOS Summer Workshop, Carnegie Mellon University, 2001
 - Teaching Assistant, CASOS Summer Workshop, Carnegie Mellon University, 2000
 - Teaching Assistant, IS201, “Structured Analysis and Design,” Department of Social and Decision Sciences, Carnegie Mellon University, 1997
 - Teaching Assistant, IS200, “Data Structures,” Department of Social and Decision Sciences, Carnegie Mellon University, 1996
- COURSES TAUGHT:
 - Business Decisions
 - Computational Methods
 - Informant Accuracy – Methods and Findings
 - Issues in Crisis Response

- Network Theory
- Networks and Information Transmission
- Networks and Organizations
- Social Networks
- Professional Development

RESEARCH EXPERIENCE:

- Associate Professor, Department of Sociology, University of California – Irvine, 2007–Present
- Assistant Professor, Department of Sociology, University of California – Irvine, 2002–2007
- Research Assistant for Kathleen M. Carley, Department of Social and Decision Sciences, Carnegie Mellon University, 2000–2002
- Research Assistant for Kathleen M. Carley, Department of Social and Decision Sciences, Carnegie Mellon University, Summer 1997

SERVICE:

- DISCIPLINE
 - Organizing Committee, National Academy of Sciences US-France Frontiers of Science Conference, 2008
 - Co-Organizer, Fourth Japan-North America Mathematical Sociology Conference, 2008
 - Section Awards Committee, ASA Section on Mathematical Sociology, 2006
 - Discussant, NSF Workshop on Modeling Social Dynamics, Washington, DC, 2006
 - Council Member, ASA Section on Mathematical Sociology, 2005–2006
 - Co-Organizer, *statnet* Workshop (held in conjunction with the 26th International Sunbelt Social Network Conference), 2006–2008.
 - Guest Speaker, UCSB Workshop on GIS and Population Science, 2005, 2006
 - NSF Proposal Reviewer, 2003, 2004, 2006
 - Co-Organizer, 25th International Sunbelt Social Network Conference, 2005
 - Session Presider, “Communication” and “Statistical Models,” 25th Sunbelt Network Conference (INSNA), Redondo Beach, CA, 2005
 - Session Chair, “Social Networks,” Japanese/American Beckman Frontiers of Science Conference (National Academy of Sciences/Japanese Society for Promotion of Science), Irvine, CA, 2004
 - Session Chair, “Social Networks,” Japanese/American Beckman Frontiers of Science Conference (National Academy of Sciences/Japanese Society for Promotion of Science), Irvine, CA, 2004
 - Session Presider, Workshop on Networks and the Population Dynamics of Disease Transmission, Institute for Mathematics and Its Applications, University of Minnesota, Minneapolis, MN, 2003
 - Discussant and Presider, “Mathematical Sociology,” Regular Session on Mathematical Sociology, ASA Meeting, Chicago, IL, 2002
 - Student Council Member, ASA Section on Mathematical Sociology, 2000–2001
 - Session Presider, “Interfirm Relations,” Regular Session on Economic Sociology, ASA Meeting, Anaheim, CA, 2001
 - Session Organizer, “Roundtables on Mathematical Sociology,” ASA Meeting, Washing-

ton, D.C., 2000

- Session Presider, “New Analytical Approaches,” 20th Sunbelt Network Conference (IN-SNA), Vancouver, B.C., 2000
- UNIVERSITY
 - Division Council Member, California Institute for Telecommunications and Information Technology, 2005–2008
 - Calit2/Emulex Graduate Fellows Committee, 2006
 - Calit2 Nicholas Prize Committee, 2005
 - Organizer, IMBS Symposium, “Current Research on Network Comparison,” Irvine, CA, 2004
- DEPARTMENT
 - Faculty Recruitment Committee, 2006
 - Merit Review Committee, 2002, 2004, 2006, 2007
 - Co-Organizer, Introduction to Social Network Analysis Workshop, 2003–2008
 - Organizer, UCI Network Research Group, 2003–2008
 - Graduate Education Committee, Department of Sociology, 2004–2005, 2007–2008
 - Undergraduate Education Committee, Department of Sociology, 2003–2004
 - Faculty Computing Committee, Department of Sociology, 2003
 - Graduate Education Committee Student Representative, Department of Social and Decision Sciences, 1997–2000
 - Graduate Curriculum Restructuring Committee, Department of Social and Decision Sciences, 1998–1999

EDITORIAL ACTIVITIES:

- Area Editor for Computation and Social Networks, *Computational and Mathematical Organization Theory*, 2003–Present.
- Editorial Board, *Journal of Mathematical Sociology*, 2007–Present.
- Editorial Board, *Structure and Dynamics*, 2005–Present.

REFEREE ACTIVITIES:

- *American Journal of Sociology*
- *Applied Statistics*
- *Artificial Life*
- *Computational and Mathematical Organization Theory*
- *Economics of Governance*
- *Games and Economic Behavior*
- *Journal of Economic Behavior and Organization*
- *Journal of Mathematical Sociology*
- *Journal of the Royal Economic Society*
- *Journal of Social Structure*
- *Management Science*
- *Organization Science*

- *Rationality and Society*
- *Social Forces*
- *Social Networks*
- *Social Problems*
- *Social Psychology Quarterly*
- *Sociological Forum*

OTHER REVIEWER ACTIVITIES:

- National Science Foundation proposal reviewer
- Reviewer for Brandes, U. and Erlebach, T. (Eds.) 2005. *Network Analysis: Methodological Foundations* Berlin: Springer.

PROFESSIONAL MEMBERSHIPS:

- American Association for the Advancement of Science
- American Sociological Association
- International Network for Social Network Analysis
- Sigma Xi
- Society for Anthropological Sciences
- Society for Mathematical Psychology
- Three Rivers Network

ADDITIONAL ACTIVITIES:

- Apis Beowulf Project; Designed and implemented a Beowulf parallel processing system for scientific computing (w/ John Miller), 1999-2000