

# 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:

- Professor, Department of Sociology and Institute for Mathematical Behavioral Sciences, University of California – Irvine
- Professor (Courtesy), Department of Statistics, University of California – Irvine
- Professor (Courtesy), Department of Computer Science, University of California – Irvine
- Professor (Courtesy), Department of Electrical Engineering and Computer Science, University of California – Irvine

## CAMPUS AFFILIATIONS:

- Department of Sociology
- Department of Statistics
- Department of Computer Science
- Department of Electrical Engineering and Computer Science
- Institute for Mathematical Behavioral Sciences
- California Institute for Telecommunications and Information Technology (Calit2)
- Chemistry and Materials Physics Program (ChAMP)
- Networked Systems Program (NetSys)
- UCI Graduate Program in Networked Systems
- UCI Center for Networks and Relational Analysis

- UCI Center for Machine Learning and Intelligent Systems
- UCI Center for Emergency Response Technology
- UCI Center for Organizational Research

#### RESEARCH INTERESTS

- Mathematical Sociology
- Social and Biological Networks
- Computational, Bayesian, and Applied Statistics
- Simulation and Computational Methods
- Human Judgment and Decision Making
- Disasters

#### AWARDS AND HONORS:

- Best Methodological Poster Award for “Contending Parties: a Logistic Choice Analysis of Inter and Intra-group Blog Citation Dynamics in the 2004 US Presidential Election” (with Zack Almquist), 4th Annual Political Networks Conference, Ann Arbor, MI, 2011.
- Leo A. Goodman Award, ASA Section on Methodology, 2010
- James Coleman Paper Award for “Rational and Empirical Play in the Simple Hot Potato Game” (with David Rode), ASA Section on Rationality and Society, 2009
- 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:

- Butts, Carter T. (PI). (10/1/2018–9/30/21). “Statistical Models for Dynamic Networks with Endogenous Vertex Migration.” Grant #SES-1826589, NSF MMS. \$441,705.
- Butts, Carter T. (PI). (10/1/2015–9/30/2019). “Collaborative Research: Online Hazard Communication in the Terse Regime: Measurement, Modeling, and Dynamics.” Grant #CMMI-1536319, NSF CMMI. \$458,876.
  - Supplemental award: Butts, Carter T. (PI). “Collaborative Research: Message Re-transmission and Amplification in the Context of Meteorological Hazards.” NOAA. \$49,743.

- Markopoulou, Athina (PI) and Butts, Carter T. (Co-PI). (9/1/2015-8/31/2019). “III: Small: Network Sampling and Construction Methods for Inference and Anonymization.” Grant #IIS-1526736, NSF IIS. \$499,758.
- Butts, Carter T. (PI) and Martin, Rachel W. (Co-PI). (10/1/2014–9/30/2019). “Bayesian Methods for Protein Fibrillization: Model Integration and Network Dynamics.” Grant #DMS-1361425, NSF DMS. \$1,308,441.
- Butts, Carter T. (PI). (8/10/2014–10/9/2017). “Advancing Statistical Methods for Analysis of Multiple Networks.” Grant #W911NF-14-1-0552, ARO. \$448,706.
- Butts, Carter T. (PI) and Almquist, Zack W. (Co-PI). (3/2013–3/2014). “Doctoral Dissertation Research: Dynamic Network Models for the Scalable Analysis of Networks with Missing or Sampled Joint Edge/Vertex Evolution.” Grant #SES-1260798, NSF SBE, MMS. \$15,140.
- Anandkumar, Anima (PI) and Butts, Carter T. (Co-PI). (9/1/2013–8/30/2016). “BIG-DATA: Small: DA: DCM: Measurement and Learning in Large-Scale Social Networks.” Grant #IIS-1251267, NSF IIS. \$746,783.
- Lakon, Cynthia M. (PI); Butts, Carter T. (Co-Investigator); Hipp, John R. (Co-Investigator); Timberlake, David. (6/1/2012–5/30/2015). “Cascades of Network Structure and Function: Pathways to Adolescent Substance Use.” Grant #1R21DA031152-01A1, NIH NIDA. \$402,820
- Morris, Martina (PI); Butts, Carter T. (Co-Investigator); Steven M. Goodreau (Co-Investigator); Hunter, David (Co-Investigator); Bender-deMoll, Skye (Co-Investigator); and Krivitsky, Pavel (Co-Investigator). (5/2011–4/2016). “Statistical Methods for Network Epidemiology.” Grant #1R01HD068395-01, NIH NICHD. \$3,092,315.00.
- Butts, Carter T. (PI). (10/2010–9/2014). “Collaborative Research: Informal Online Communication in Extreme Events: Content, Dynamics, and Structure.” Grant #CMMI-1031853, NSF CMMI, Infrastructure Management and Extreme Events. \$404,948.00.
- Markopoulou, Athina (PI); Przulj, Natasa (Co-PI); and Butts, Carter T. (Co-PI). (10/2010–8/2016). “CDI-Type II: Topology and Function in Computer, Social and Biological Networks.” Grant #NSF OIA-1028394, Cyber-enabled Discovery and Innovation. \$2,152,181.00.
- Butts, Carter T. (PI); Hipp, John (Co-PI); Nagle, Nicholas N. (Co-PI). (10/2008-3/2014). “DHB: Large-scale Spatially Embedded Interpersonal Networks: Measurement, Modeling, and Dynamics.” Grant #BCS-0827027, NSF BCS, Human Social Dynamics. \$749,245.00.
- Smyth, Padhraic (PI); Butts, Carter T. (Co-PI); Eppstein, David (Co-PI); Goodrich, Michael T. (Co-PI); Handcock, Mark S. (Co-PI); Hunter, David R. (Co-PI); Mount, David (Co-PI). (5/2008–5/2015). “Scalable Methods for the Analysis of Network-based Data.” Award #N00014-08-1-1015, ONR. \$5,381,300.00.
- Mendonça, David (PI); Butts, Carter T. (Co-PI); Webb, Gary (Co-PI). (10/2006–9/2011). “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

#### ARTICLES AND PEER REVIEWED CONFERENCE PAPERS:

- Almquist, Zack W. and Butts, Carter T. (2018). “Dynamic Network Analysis with Missing Data: Theory and Methods.” *Statistica Sinica*, 28, 1245–1264. DOI: 10.5705/ss.202016.0108.
- Baldesi, Luca; Butts, Carter T.; and Markopoulou, Athina. (2018). “Spectral Graph Forge: Graph Generation Targeting Modularity.” *Proceedings of the 2018 IEEE Conference on Computer Communications*. (IEEE INFOCOM). Forthcoming.
- Butts, Carter T. (2018). “A Dynamic Process Interpretation of the Sparse ERGM Reference Model.” *Journal of Mathematical Sociology*, forthcoming.
- Butts, Carter T. (2018). “A Perfect Sampling Method for Exponential Family Random Graph Models.” *Journal of Mathematical Sociology*, 42(1), 17–36. DOI: 10.1080/0022250X.2017.1396985
- Fitzhugh, Sean M. and Butts, Carter T. (2018). “Patterns of Co-membership: Techniques for Identifying Subgraph Composition.” *Social Networks*, 55, 1–10. <https://doi.org/10.1016/j.socnet.2018>
- Lee, Francis and Butts, Carter T. (2018). “Mutual Assent or Unilateral Nomination? A Performance Comparison of Intersection and Union Rules for Integrating Self-reports of Social Relationships.” *Social Networks*, forthcoming.
- Smith, Gilbert; Kelly, John E.; Macias-Muoz, Aide; Butts, Carter; Martin, Rachel W.; and Briscoe, Adriana D. (2018). “Evolutionary and Structural Analyses Uncover a Role for Solvent Interactions in the Diversification of Cocoonases in Butterflies.” *Proceedings of the Royal Society, Series B*, 285(1870), 20172037. DOI: 10.1098/rspb.2017.2037
- Sutton, Jeannette; Vos, Sarah C.; Olson, Micki K.; Woods, C. W.; Cohen, E.; Gibson, C. Ben; Phillips, Nolan; Studts, J.; Eberth, J.; and Butts, Carter T. (2018). “Lung Cancer Messages on Twitter: Content Analysis and Evaluation.” *Journal of the American College of Radiology*, 15(1B), 210-217. DOI: 10.1016/j.jacr.2017.09.043
- Vos, Sarah C.; Sutton, Jeannette; Yu, Yue; Renshaw, Scott; Olson, Micki K.; Gibson, C. Ben; Butts, Carter T. (2018). “Retweeting Risk Communication: The Role of Threat and Efficacy.” *Risk Analysis*, forthcoming. DOI: 10.1111/risa.13140
- Wang, Cheng; Hipp, John R.; Butts, Carter T.; and Lakon, Cynthia M. (2018). “The Interdependence of Cigarette, Alcohol, and Marijuana Use in the Context of School-Based Social

Networks.” *PLoS ONE*, 13(7), e0200904. <https://doi.org/10.1371/journal.pone.0200904>

- Boessen, Adam; Hipp, John R.; Butts, Carter T.; Nagle, Nicholas N.; and Smith, Emily J. (2017). “Social Fabric and Fear of Crime: Considering Spatial Location and Time of Day.” *Social Networks*, 51, 60-72. <https://doi.org/10.1016/j.socnet.2016.12.001>
- Boessen, Adam; Hipp, John R.; Butts, Carter T.; Nagle, Nicholas N.; and Smith, Emily J. (2017). “The Built Environment, Spatial Scale, and Social Networks: Do Land Uses Matter for Personal Network Structure?” *Environment and Planning B: Planning and Design*, 2399808317690158. DOI: 10.1177/2399808317690158
- Grazioli, Gianmarc; Butts, Carter T.; and Andricioaei, Ioan. (2017). “Automated Placement of Interfaces in Conformational Kinetics Calculations Using Machine Learning.” *Journal of Chemical Physics*, 147(15), 152727. <https://doi.org/10.1063/1.4989857>
- Krivitsky, Pavel N. and Butts, Carter T. (2017). “Exponential-Family Random Graph Models for Rank-Order Relational Data.” *Sociological Methodology*, 47, 68–112.
- Lakon, Cynthia; Wang, Cheng; Butts, Carter T.; Jose, Rupa; and Hipp, John. (2017). “Cascades of Emotional Support in Friendship Networks and Adolescent Smoking.” *PLoS ONE*, 2(6), e0180204. <https://doi.org/10.1371/journal.pone.0180204>.
- Tillman, Balint; Markopoulou, Athina; Butts, Carter T.; and Gjoka, Minas. (2017). “Construction of Directed 2K Graphs.” In *Proceedings of the 23rd ACM SIGKDD Conference on Knowledge Discovery and Data Mining (2017 KDD)*, 1115–1124. DOI: 10.1145/3097983.3098119
- Unhelkar, Megha H.; Duong, Vy T.; Kaosoluchi, N. Enendu; Kelly, John E.; Tahir, Seemal; Butts, Carter T.; and Martin, Rachel W. (2017). “Structure Prediction and Network Analysis of Chitinases from the Cape Sundew, *Drosera Capensis*.” *Biochimica et Biophysica Acta - General Subjects*, 1861(3), 636–643. <http://dx.doi.org/10.1016/j.bbagen.2016.12.007>
- Wang, Cheng; Hipp, John R.; Butts, Carter T.; Jose, Rupa; and Lakon, Cynthia M. (2017). “Peer Influence, Peer Selection, and Adolescent Alcohol Use: a Simulation Study Using a Dynamic Network Model of Friendship Ties and Alcohol Use.” *Prevention Science*, 18(4), 382-393. DOI: 10.1007/s11121-017-0773-5
- Zhang, Xuhong and Butts, Carter T. (2017). “Activity Correlation Spectroscopy: A Novel Method for Inferring Social Relationships from Activity Data.” *Social Network Analysis and Mining*, 7(1). DOI: 10.1007/s13278-016-0419-9
- Zhang, Xuhong; Mallepudi, Venkata; and Butts, Carter T. (2017). “An Integrated Platform for Collecting Mobile Phone Data and Learning Demographic Features.” WiP paper, *IEEE International Conference on Pervasive Computing and Communications (PerCom)*. DOI: 10.1109/PERCOMW.2017.7917514
- Butts, Carter T. (2016). “On the Equivalence of the Edge/Isolate and Edge/Concurrent Tie ERGM Families, and their Extensions.” *Journal of Mathematical Sociology*, 40(1), 1–6. DOI: 10.1080/0022250X.2015.1112386
- Butts, Carter T.; Bierma, Jan; and Martin, Rachel W. (2016). “Novel Proteases from the Genome of the Carnivorous Plant *Drosera Capensis*: Structural Prediction and Comparative Analysis.” *Proteins: Structure, Function, and Bioinformatics*, 84(10), 1517–1533. DOI: 10.1002/prot.25095. (Cover article.)
- Butts, Carter T.; Zhang, Xuhong; Kelly, John E.; Roskamp, Kyle W.; Unhelkar, Megha H.; Freitas, J. Alfredo; Tahir, Seemal; and Martin, Rachel W. (2016). “Sequence Comparison, Molecular Modeling, and Network Analysis Predict Structural Diversity in Cys-

teine Proteases from the Cape Sundew, *Drosera Capensis*.” *Computational and Structural Biotechnology Journal*, 14, 271–282. DOI: 10.1016/j.csbj.2016.05.003

- Fitzhugh, Sean M.; Gibson, C. Ben; Spiro, Emma S.; and Butts, Carter T. (2016). “Spatio-temporal Filtering Techniques for the Detection of Disaster-related Communication.” *Social Science Research*, 59, 137–154. DOI: 10.1016/j.ssresearch.2016.04.023
- Jose, Rupa; Hipp, John R.; Butts, Carter T.; Wang, Cheng; Lakon, Cynthia M. (2016). “Network Structure, Influence, Selection, and Adolescent Delinquent Behavior: Unpacking a Dynamic Process.” *Criminal Justice and Behavior*, 43(2), 264–284. DOI: 10.1177/0093854815605524.
- Prytkova, Vera; Heyden, Matthias; Khago, Domarin; Freites, J.; Butts, Carter T.; Martin, Rachel; and Tobias, Douglas. (2016). “Multi-Conformation Monte Carlo: A Method for Introducing Flexibility in Efficient Simulations of Many-Protein Systems.” *The Journal of Physical Chemistry, B*, 120 (33), 8115–8126. DOI: 10.1021/acs.jpcc.6b00827
- Reed, Philip J.; Spiro, Emma S.; and Butts, Carter T. (2016). “Thumbs up for privacy?: Differences in Online Self-disclosure Behavior Across National Cultures.” *Social Science Research*, 59, 155–170. DOI: 10.1016/j.ssresearch.2016.04.022
- Spiro, Emma S.; Almquist, Zack W.; and Butts, Carter T. (2016). “The Persistence of Division: Geography, Institutions, and Online Friendship Ties.” *Socius*, 2, 1–15. DOI: 10.1177/2378023116634340
- Wang, Cheng; Butts, Carter T.; Hipp, John R.; and Jose, Rupa; and Lakon, Cynthia M. (2016). “Multiple Imputation for Missing Edge Data: A Predictive Evaluation Method with Application to Add Health.” *Social Networks*, 45, 89–98. DOI: 10.1016/j.socnet.2015.12.003
- Wang, Cheng; Hipp, John R.; Butts, Carter T.; and Jose, Rupa; and Lakon, Cynthia M. (2016). “Co-Evolution of Adolescent Friendship Networks and Smoking and Drinking Behaviors with Consideration of Parental Influence.” *Psychology of Addictive Behaviors*, 30(3), 312–324. DOI: 10.1037/adb0000163
- Zhang, Xuhong and Butts, Carter T. (2016). “A Novel Multivariate Spectral Regression Model for Learning Relationships Between Communication Activity and Urban Ecology.” *IEEE International Conference on Pervasive Computing and Communications (PerCom)*. DOI: 10.1109/PERCOM.2016.7456525
- Almquist, Zack W. and Butts, Carter T. (2015). “Predicting Regional Self-Identification from Spatial Network Models.” *Geographical Analysis*, 47(1): 50–72. PMID: PMC4322384. DOI: 10.1111/gean.12045
- Arabshahi, Furough; Huang, Furong; Anandkumar, Anima; Butts, Carter T.; and Fitzhugh, Sean M. (2015). “Are you going to the party: Depends, who else is coming? – Learning Hidden Group Dynamics via Conditional Latent Tree Models.” *IEEE International Conference on Data Mining (IEEE ICDM)*. DOI: 10.1109/ICDM.2015.146
- Cici, Blerim; Gjoka, Minas; Markopoulou; and Butts, Carter T. (2015). “On the Decomposition of Cell Phone Activity Patterns and their Connection with Urban Ecology.” *ACM International Symposium on Mobile Ad Hoc Networking and Computing (ACM MobiHoc)*. DOI: 10.1145/2746285.2746292
- Butts, Carter T. (2015). “A Novel Simulation Method for Binary Discrete Exponential Families, with Application to Social Networks.” *Journal of Mathematical Sociology*, 39(3), 174–202. DOI: 10.1080/0022250X.2015.1022279
- Butts, Carter T. and Almquist, Zack W. (2015). “A Flexible Parameterization for Baseline

Mean Degree in Multiple-Network ERGMs.” *Journal of Mathematical Sociology*, 39(3), 163–167. DOI: 10.1080/0022250X.2014.967851

- Fitzhugh, Sean M.; Pixley, Joy E.; and Butts, Carter T. (2015). “A Life History Graph Approach to the Analysis and Comparison of Life Histories.” *Advances in Life Course Research*, 25, 16–34.
- Hipp, John R.; Wang, Cheng; Butts, Carter T.; Jose, Rupa; and Lakon, Cynthia M. (2015). “The Consequences of Different Methods for Handling Missing Network Data in Stochastic Actor-Based Models.” *Social Networks*, 41, 56–71.
- Lakon, Cynthia M.; Hipp, John R.; Wang, Cheng; Butts, Carter T.; and Jose, Rupa. (2015). “Simulating Dynamic Network Models and Adolescent Smoking: The Impact of Varying Peer Influence and Peer Selection.” *American Journal of Public Health*, 105(12), 2438–2448.
- Marcum, Christopher S. and Butts, Carter T. (2015). “Constructing and Modifying Sequence Statistics for relevant using informR in R.” *Journal of Statistical Software*, 64(5). <http://www.jstatsoft.org/v64/i05>
- Smith, Emily J.; Marcum, Christopher S.; Boessen, Adam; Almquist, Zack W.; Hipp, John R.; Nagle, Nicholas N.; and Butts, Carter T. (2015). “The Relationship of Age to Personal Network Size, Relational Multiplexity, and Proximity to Alters in the Western United States.” *Journal of Gerontology, Series B*, 70(1), 91–99. PMID: PMC4296207.
- Sutton, Jeannette; Gibson, C. Ben; Phillips, Nolan E.; Spiro, Emma S.; League, Cedar; Johnson, Britta; Fitzhugh, Sean M.; and Butts, Carter T. (2015). “A Cross-hazard Analysis of Terse Message Retransmission on Twitter.” *Proceedings of the National Academy of Sciences*. DOI: 10.1073/pnas.1508916112.
- Sutton, Jeannette; Gibson, C. Ben; Spiro, Emma S.; League, Cedar; Fitzhugh, Sean M.; and Butts, Carter T. (2015). “What it Takes to Get Passed On: Message Content, Style, and Structure as Predictors of Retransmission in the Boston Marathon Bombing Response.” *PLoS ONE*, 10(8), e0134452, DOI: 10.1371/journal.pone.0134452.
- Wang, Cheng; Hipp, John R.; Jose, Rupa; and Lakon, Cynthia M. (2015). “Alcohol Use among Adolescent Youth: The Role of Friendship Networks and Family Factors in Multiple School Studies.” *PLoS ONE*, 10(3), e0119965. DOI: 10.1371/journal.pone.0119965.
- Yaveroğlu, Ömer Nebil; Fitzhugh, Sean M.; Kurant, Maciej; Markopoulou, Athina; Butts, Carter T.; and Pržulj, Nataša. (2015). “`ergm.graphlets`: A Package for ERG Modeling Based on Graphlet Statistics.” *Journal of Statistical Software*, 65(12). <http://www.jstatsoft.org/v65/i12>
- Almquist, Zack W. and Butts, Carter T. (2014). “Logistic Network Regression for Scalable Analysis of Networks with Joint Edge/Vertex Dynamics.” *Sociological Methodology*, 44(1), 273–321.
- Boessen, Adam; Hipp, John R.; Smith, Emily J.; Butts, Carter T.; Nagle, Nicholas N.; and Almquist, Zack W. (2014). “Networks, Space, and Residents’ Perception of Cohesion” *American Journal of Community Psychology*, 53(3), 447–461.
- Gjoka, Minas; Smith, Emily J.; and Butts, Carter T. (2014). “Estimating Clique Composition and Size Distributions from Sampled Network Data.” *Proceedings of the Sixth IEEE Workshop on Network Science for Communication Networks*. (NetSciCom 2014).
- Lakon, Cynthia M.; Wang, Cheng; Butts, Carter T.; Jose, Rupa; Timberlake, David

- S.; and Hipp, John R. (2014). “A Dynamic Model of Adolescent Friendship Networks, Parental Influences, and Smoking.” *Journal of Youth and Adolescence*, 147, 1–20. DOI: 10.1007/s10964-014-0187-7
- Mendonça, David; Webb, Gary; Butts, Carter T.; and Brooks, James. (2014). “Cognitive Correlates of Improvised Behaviour in Disaster Response: the Cases of the Murrah Building and the World Trade Center.” *Journal of Contingencies and Crisis Management*, 22(4), 185-195.
  - Sutton, Jeannette; Spiro, Emma S.; Johnson, Britta; Fitzhugh, Sean; Gibson, Ben; and Butts, Carter T. (2014). “Warning Tweets: Serial Transmission of Warning Messages During a Disaster Event.” *Information, Communication, and Society*, 17(6), 765-787.
  - Sutton, Jeannette; Spiro, Emma S.; Johnson, Britta; Fitzhugh, Sean; Gibson, Ben; and Butts, Carter T. (2014). “Terse Message Amplification in the Boston Bombing Response.” In *Proceedings of the 11th International Conference on Information Systems for Crisis Response and Management*. (ISCRAM).
  - Almquist, Zack W. and Butts, Carter T. (2013). “Dynamic Network Logistic Regression: A Logistic Choice Analysis of Inter and Intra-group Blog Citation Dynamics in the 2004 US Presidential Election.” *Political Analysis*, 21(4), 430-448. PMID: PMC3797130.
  - DuBois, Christopher; Butts, Carter T.; and Smyth, Padhraic. (2013). “Stochastic Block-modeling of Relational Event Dynamics.” *Proceedings of the 16th International Conference on Artificial Intelligence and Statistics*. (AISTATS).
  - DuBois, Christopher; Butts, Carter T.; McFarland, Daniel; and Smyth, Padhraic. (2013). “Hierarchical Models for Relational Event Sequences.” *Journal of Mathematical Psychology*, 57(6), 297–309.
  - Hipp, John R.; Butts, Carter T.; Acton, Ryan; Nagle, Nicholas N.; Boessen, Adam. (2013). “Extrapolative Simulation of Neighborhood Networks Based on Population Spatial Distribution: Do They Predict Crime?” *Social Networks*, 35, 614–625.
  - Spiro, Emma S.; Acton, Ryan M.; and Butts, Carter T. (2013). “Extended Structures of Mediation: Re-examining Brokerage in Dynamic Networks.” *Social Networks*, 35, 130–143.
  - Sutton, Jeannette; Spiro, Emma S.; Greczek, Matt; Johnson, Britta; Fitzhugh, Sean; and Butts, Carter T. (2013). “Tweeting the Spill: Online Informal Communications, Social Networks, and Conversational Microstructures during the Deepwater Horizon Oil Spill.” *International Journal of Information Systems for Crisis Response and Management*, 5(1), 58–76.
  - Almquist, Zack W. and Butts, Carter T. (2012). “Point Process Models for Household Distributions within Small Areal Units.” *Demographic Research*, 26(12), 593–632.
  - Beckage, Nicole; Styvers, Mark; and Butts, Carter T. (2012). “Route Choice in Individuals’ Semantic Network Navigation.” In *Proceedings of the 2012 Cognitive Science Conference (CogSci2012)*, pp108-113. Sapporo, Japan.
  - Butts, Carter T.; Acton, Ryan M.; and Marcum, Chris. (2012). “Interorganizational Collaboration in the Hurricane Katrina Response.” *Journal of Social Structure*, 13(1) 1–36.
  - Butts, Carter T.; Acton, Ryan M.; Hipp, John R.; and Nagle, Nicholas N. (2012). “Geographical Variability and Network Structure.” *Social Networks*, 34(1), 82–100.
  - Kurant, Maciej; Gjoka, Minas; Wang, Yan; Almquist, Zack W.; Butts, Carter T.; and



- Markopoulou, Athina. (2012). “Coarse-Grained Topology Estimation via Graph Sampling.” In *Proceedings of the ACM SIGCOMM Workshop on Online Social Networks (WOSN) '12*.
- Marcum, Christopher S.; Bevc, Christine, and Butts, Carter T. (2012). “Mechanisms of Control in Emergent Interorganizational Networks.” *Policy Studies Journal*, 40(3):515–545.
  - Spiro, Emma S.; Sutton, Jeannette; Fitzhugh, Sean; Greczek, Matt; Pierski, Nicole; and Butts, Carter T. (2012). “Rumoring During Extreme Events: A Case Study of Deepwater Horizon 2010.” In *Proceedings of the ACM Web Science 2012 Conference*. (WebSci12).
  - Spiro, Emma S.; DuBois, Christopher; and Butts, Carter T. (2012). “Waiting for a Retweet: Modeling Waiting Times in Information Propagation.” In *Proceedings of the NIPS 2012 Workshop on Social Media and Social Networks*.
  - Sutton, Jeannette; Spiro, Emma S.; Greczek, Matt; Johnson, Britta; Fitzhugh, Sean; and Butts, Carter T. (2012). “Connected Communications: Network Structures of Official Communications in Disaster.” In *Proceedings of the 9th International Conference on Information Systems for Crisis Response and Management*. (ISCRAM).
  - Butts, Carter T. (2011). “Bayesian Meta-Analysis of Social Network Data via Conditional Uniform Graph Quantiles.” *Sociological Methodology*, 41(1), 257–298.
  - Butts, Carter T. (2011). “Bernoulli Graph Bounds for General Random Graphs.” *Sociological Methodology*, 41(1), 299–345.
  - Foulds, James; Asuncion, Arthur; DuBois, Christopher; Butts, Carter T.; and Smyth, Padhraic. (2011). “A Dynamic Relational Infinite Feature Model for Longitudinal Social Networks.” *Proceedings of the 14th International Conference on Artificial Intelligence and Statistics*. (AISTATS).
  - Gjoka, Minas; Butts, Carter T.; Kurant, Maciej; and Markopoulou, Athina. (2011). “Multi-graph Sampling of Online Social Networks.” *IEEE Journal on Selected Areas in Communications* (special issue on *Measurement of Internet Topologies*).
  - Gjoka, Minas; Kurant, Maciej; Butts, Carter T.; and Markopoulou, Athina. (2011). “Practical Recommendations on Sampling OSN Users by Crawling the Social Graph.” *IEEE Journal on Selected Areas in Communications* (special issue on *Measurement of Internet Topologies*).
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- Butts, Carter T. (2008). “Social Networks: A Methodological Introduction.” *Asian Journal of Social Psychology*, 11(1), 13–41.
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#### CHAPTERS AND OTHER PROCEEDINGS PAPERS:

- Almquist, Zack W.; Spiro, Emma S.; and Butts, Carter T. (2017). “Shifting Attention: Modeling Follower Relationship Dynamics Among US Emergency Management-Related Organizations During a Colorado Wildfire.” In Eric Jones and A.J. Faas (Eds.), *Social Network Analysis of Disaster Response, Recovery, and Adaptation*, 93–112. Amsterdam:

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- Butts, Carter T. and Marcum, Christopher S. (2017). “A Relational Event Approach to Modeling Behavioral Dynamics.” In Andrew Pilney and Marshall Scott Poole (Eds.), *Group Processes: Data-Driven Computational Approaches*. Springer.
- Almqvist, Zack W. and Butts, Carter T. (2014). “Bayesian Analysis of Dynamic Network Regression with Joint Edge/Vertex Dynamics.” In Ivan Jaliaskov and Xin-She Yang (Eds.), *Bayesian Inference in the Social Sciences*, 1–32. John Wiley and Sons.
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#### BOOK REVIEWS AND INVITED COMMENT PAPERS:

- Butts, Carter T. (2017). “Actor Orientation and Relational Event Models: A Comment on Stadtfeld et al. (2017).” *Sociological Methodology*, 47, 47-56. <https://doi.org/10.1177/0081175017728929>
- Butts, Carter T. (2016). “Why I Know but Don’t Believe.” *Science*, 354(6310), 286-287. DOI: 10.1126/science.aaj1817
- 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.
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- 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:

- Sutton, Jeannette; Johnson, Britta; Spiro, Emma S.; and Butts, Carter T. (2013). “Tweeting What Matters: Information, Advisories, and Alerts Following the Boston Marathon Events.” Online Research Highlight. <http://www.heroicproject.org/>
- Sutton, Jeannette; Spiro, Emma S.; Johnson, Britta; Fitzhugh, Sean; and Butts, Carter T. (2013). “Tweeting Boston: The Influence of Microstructure in Broadcasting Messages through Twitter.” Online Research Highlight. <http://www.heroicproject.org/>
- Sutton, Jeannette; Spiro, Emma S.; Johnson, Britta; and Butts, Carter T. (2013). “Following the Bombing.” Online Research Highlight. <http://www.heroicproject.org/>

- Spiro, Emma S.; Sutton, Jeannette; Johnson, Britta; Fitzhugh, Sean; and Butts, Carter T. (2012). “Superstorm Sandy: Exploring the Twitter Response.” Online Research Highlight. <http://www.heroicproject.org/>
- Spiro, Emma S.; Sutton, Jeannette; Johnson, Britta; Fitzhugh, Sean; and Butts, Carter T. (2012). “HEROIC Team Explores Waldo Canyon Wildfire in Colorado.” Online Research Highlight. <http://www.heroicproject.org/>
- 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:
  - Handcock, Mark S.; Hunter, David R.; Butts, Carter T.; and Morris, Martina M. (2005–Present). *ergm*: Exponential Random Graph Modeling of Network and Graph Data.
  - Butts, Carter T. (2001–2011). *metamatrix*: Metamatrix Analysis of Organizational Structure.
  - Butts, Carter T.; Handcock, Mark S.; Hunter, David R.; and Morris, Martina M. (2005–Present). *network*: Classes for Relational Data.
  - Butts, Carter T. (2005–2011). *netperm*: Permutation Models for Relational Data.
  - Butts, Carter T. (2004–2011). *nettheory*: Routines for Exploring Social Network Theory.
  - Butts, Carter T. (2010–Present). *relevent*: Tools to Fit Relational Event Models.
  - Butts, Carter T. (2000–Present). *sna*: Tools for Social Network Analysis.
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  - Butts, Carter T. (2009–2011). *yacca*: Yet Another Canonical Correlation Analysis Package.
- 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. (2018). “A Dynamic Process Interpretation of the Sparse ERGM Reference Model.” arXiv:1801.09911.
- Butts, Carter T. (2017). “Baseline Mixture Models for Social Networks.” arXiv:1710.02773.
- Schweinberger, Michael; Krivitsky, Pavel N.; and Butts, Carter T. (2017). “Foundations of Finite-, Super-, and Infinite-Population Random Graph Inference.” arXiv:1707.04800.
- Schweinberger, Michael; Krivitsky, Pavel N.; and Butts, Carter T. (2017). “A Note on the Role of Projectivity in Likelihood-based Inference for Random Graph Models.” arXiv:1707.00211.
- Gjoka, Minas; Smith, Emma; and Butts, Carter T. (2013). “Estimating Clique Composition and Size Distributions from Sampled Network Data.” arXiv:1308.3297.
- Krivitsky, Pavel N. and Butts, Carter T. (2012). “Exponential-Family Random Graph Models for Rank-Order Relational Data.” arXiv:1210.0493.

- Kurant, Maciej; Butts, Carter T.; and Markopoulou, Athina. (2012). “Graph Size Estimation.” arXiv:1210.0460.
- Kurant, Maciej; Gjoka, Minas; Wang, Yan; Almquist, Zack W.; Butts, Carter T.; and Markopoulou, Athina. (2011). “Coarse-Grained Topology Estimation via Graph Sampling.” arXiv.org:cs.SI:1105.5488.
- Almquist, Zack W. and Butts, Carter T. (2011). “Logistic Network Regression for Scalable Analysis of Networks with Joint Edge/Vertex Dynamics.” IMBS Technical Report MBS 11-03, University of California, Irvine.
- Butts, Carter T. (2010). “Bayesian Meta-Analysis of Social Network Data via Conditional Uniform Graph Quantiles.” IMBS Technical Report MBS 10-04, University of California, Irvine.
- Butts, Carter T. (2010). “Bernoulli Graph Bounds for General Random Graphs.” IMBS Technical Report MBS 10-07, University of California, Irvine.
- Butts, Carter T. (2010). “A Note on Generalized Edges.” IMBS Technical Report MBS 10-03, University of California, Irvine.
- Gjoka, Minas; Butts, Carter T.; Kurant, Maciej; and Markopoulou, Athina. (2010). “Multi-graph Sampling of Online Social Networks.” arXiv.org:1008.2565v1.
- Gjoka, Minas; Kurant, Maciej; Butts, Carter T.; and Markopoulou, Athina. (2009). “A Walk in Facebook: Uniform Sampling of Users in Online Social Networks.” arXiv.org:0906.0060.
- 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. (2/2018). “Attention, Amplification, Resilience, and Hazard Messaging at the Organizational/Public Interface.” Keynote Address, Social Web for Disaster Management 2018 Workshop. Los Angeles, CA.
- Butts, Carter T. (5/2017). “From Conversation to Plant Carnivory: Using Data Science to Tackle Complex Problems.” Invited Presentation, Data Science Initiative Colloquium, University of California, Davis. Davis, CA.
- Butts, Carter T. (10/2016). “Leveraging Computational Advances to Approach Hard Problems.” Invited Keynote Presentation, Informatics Institute, University of Georgia. Athens, GA.
- Butts, Carter T. (8/2016). “Some Applications of Graph Mixtures for Social Network

Analysis.” Invited Panel Presentation, Joint Statistical Meeting. Chicago, IL.

- Butts, Carter T. (5/2016). “Some Properties of Stochastic Network Models.” Nonlinear Physics Group Seminar, Institute of Physical Sciences (Instituto de Ciencias Físicas), National Autonomous University of Mexico. Cuernavaca, Mexico.
- Butts, Carter T. (5/2016). “Mechanisms, Context, and Interaction in a Messy World: Statistical Models for Complex Relational Systems.” Invited Presentation, Center for Complexity Sciences, National Autonomous University of Mexico. Mexico City, Mexico.
- Butts, Carter T. (2/2016). “Geography, and the Warped Fabric of Social Ties.” Invited Presentation, Informatics Institute, University of Florida. Gainesville, FL.
- Butts, Carter T. (1/2016). “Inferring Complex Behavioral Mechanisms in Difficult Places.” Invited Lecture, Data Science Colloquium, University of Washington. Seattle, WA.
- Butts, Carter T. (11/2015). “Geography and the Structure of Interpersonal Networks.” Transportation Seminar, Institute for Transportation Studies, University of California, Berkeley. Berkeley, CA.
- Butts, Carter T. (10/2015). “Modeling Interaction Dynamics: Mechanisms, Contexts, and Roles.” Invited Lecture, Sociology, Criminology, and Law Department Colloquium, University of Florida. Gainesville, FL.
- Butts, Carter T. (11/2014). “Measuring ‘Bulk’ Online Communication Dynamics in Response to Hazard Events: Some Methodological Innovations.” Invited Presentation, Hazard Communication Workshop, University of Kentucky. Lexington, KY.
- Butts, Carter T. (9/2014). Keynote Address, Applied Statistics 2014, Statistical Society of Slovenia. “Statistical Models for Interaction Dynamics.” Ribno, Slovenia.
- Butts, Carter T. (8/2014). “Measuring and Modeling Online Communication Dynamics in Response to Hazard Events.” Keynote Address, KDD Workshop on Learning about Emergencies from Social Information. New York, NY.
- Butts, Carter T. (5/2014). “Sampling in a Brave New World: Promises and Cautionary Notes.” Invited Presentation, Population Association of America Meeting. Boston, MA.
- Butts, Carter T. (10/2013). “Curved, Warped, and Lumpy: Some Initial Results from the American Social Fabric Project.” Invited Lecture, Sociology Colloquium, University of Chicago. Chicago, IL.
- Butts, Carter T. (6/2013). “Space, Heterogeneity, and Relational Dynamics.” Invited Talk, Fifth International Workshop on Social Network Analysis (ARS 2013). Rome, Italy.
- Butts, Carter T. (12/2012). “Challenges and Directions in Modeling Large-scale Networks.” Invited Talk, NIPS Workshop on Algorithmic and Statistical Approaches for Large Social Networks. Lake Tahoe, CA.
- Butts, Carter T. (12/2012). “The Aftermath of Disasters.” Invited Talk, Kavli/National Academy of Sciences US/Japan Frontiers of Science Conference. Irvine, CA.
- Butts, Carter T. (4/2012). “Social Fields In and From Spatially Embedded Networks.” Invited Talk, Quantifying Social Fields Workshop, University of California, Berkeley. Berkeley, CA.
- Butts, Carter T. (12/2011). “Parametrizing Order-Stable Exponential Family Random Graph Models.” Invited Talk, IASC-ARS Joint Taipei Symposium. Taipei, Taiwan.
- Butts, Carter T. (6/2011). “Dynamic Logit Models for Emergent Collaboration Networks.”



Invited Talk, Third International Workshop on Social Network Analysis – Collaboration Networks and Knowledge Diffusion: Theory, Data, and Methods (ARS 2011). Naples, Italy.

- Butts, Carter T. (3/2011). “Detecting Structural Biases Across Networks: Bayesian Meta-Analysis of Social Network Data Using Reference Quantiles.” Invited Lecture, Computational Social Science Colloquium, University of Massachusetts, Amherst. Amherst, MA.
- Butts, Carter T. (1/2011). “Modeling Complex Social Interaction Within and Across Settings via Relational Events.” Invited Lecture, Workshop on Complex Networks: The Dynamics of Networks, Statistical and Applied Mathematical Sciences Institute. Research Triangle Park, NC.
- Butts, Carter T. (12/2010). “Social Networks, Coordination, and Resilience During Disasters: Some Basic Lessons.” Invited Lecture, UASI Shared Strategies for Homeland Security Workshop. Denver, CO.
- Butts, Carter T. (12/2010). “Bounding Complex Network Models with Bernoulli Graphs.” Invited Lecture, Workshop on Networks Across Disciplines, 2010 Neural Information Processing Systems Conference. Whistler, BC.
- Butts, Carter T. (6/2010). “Error, Missing Data, and Network Inference.” Invited Lecture, 2010 PIMS Summer School on Social Networks. Whistler, BC.
- Butts, Carter T. (5/2010). “Modeling Interaction Dynamics Using Relational Events.” Invited Lecture, MAPSS Series, Stanford University. Palo Alto CA.
- Butts, Carter T. (4/2010). “Statistical Models for Social Networks: Overview and Prospect.” Keynote Address, 29th Annual Workshop on Applied Statistics, Southern California Chapter of the American Statistical Association, RAND Corporation. Santa Monica, CA.
- Butts, Carter T. (4/2010). “Robustness in Emergency Response Networks: Basic Principles and New Directions.” Departmental Colloquium, Bush School of Government, Texas A&M University. College Station, TX.
- Butts, Carter T. (4/2010). “Modeling Complex Interactions in a Disrupted Environment: Relational Events in the WTC Response.” Frontiers in Network Science Lecture Series, Penn State University. University Park, PA.
- Butts, Carter T. (3/2010). “Inferring Behavioral Mechanisms Using Cross-Sectional Network Models.” UCLA Social Network Workshop, UCLA. Los Angeles, CA.
- Butts, Carter T. (1/2010). “Modeling Action and Interaction in Complex Environments.” Marschak Colloquium, Anderson School of Management, UCLA. Los Angeles, CA.
- Butts, Carter T. (12/2009). “Dynamic Robustness in Emergent Communication Networks.” Program on Networked Governance Colloquium, Kennedy School of Government, Harvard University. Cambridge, MA.
- Butts, Carter T. (9/2009). “Geographic Variability and Network Structure.” Invited presentation, 2009 Northwestern Institute on Complex Systems (NICO) Complexity Conference. Northwestern University, Evanston, IL.
- Butts, Carter T. (7/2009). “Assessing Resilience in Networked Systems.” Invited panel presentation, Community and Regional Resilience Institute/Natural Hazards Center Resilience Research Workshop, Broomfield, CO.
- Butts, Carter T. (6/2009). “Merging Space and Structure: Modeling Spatially-Embedded Networks.” Invited presentation, “Capturing Context” Conference, Columbia University.

New York, NY.

- Butts, Carter T. (3/2009). “The Importance of Simple Things.” Freeman Award Lecture, 29th Sunbelt Network Conference (INSNA), San Diego, CA.
- Butts, Carter T. (3/2009). “Coping with Disruption: Emergent Networks During Disasters.” Stern School of Business Colloquium, New York University. New York, NY.
- Butts, Carter T. (2/2009). “Ground Zero Personnel, Impacted Populations, and Emergent Networks: ‘Soft’ Infrastructure During Disasters.” Invited Panel Session, National Academy of Science Disaster Roundtable Workshop, “Cascading Disasters: How Disasters Unfold.” Irvine, CA.
- 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. Palo Alto, 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. Palo Alto, 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:

- Bierma, Jan; Kelly, John E.; Payne, Brooke; Kim, Suhan H.; Butts, Carter T.; and Martin, Rachel W. (8/2018). “Darwin’s Ferment: Droserasins and Nepenthesins from the *Drosera capensis* Genome.” International Carnivorous Plant Society Meeting, Santa Rosa, CA.
- Butts, Carter T. (8/2018). “A Dynamic Process Interpretation of the Sparse ERGM Reference Model.” ASA Meeting, Philadelphia, PA.
- Lee, Francis; Krivitsky, Pavel; and Butts, Carter T. (8/2018). “Extending the Ranked Exponential Random Graph Modeling Framework to Network Data from Subjective Ratings.”

ASA Meeting, Philadelphia, PA.

- Phillips, Nolan and Butts, Carter T. (8/2018). “Held-Out Predictive Evaluation (HOPE) of Exponential Family Random Graph Models.” ASA Meeting, Philadelphia, PA.
- Smith, Emily J; Hipp, John R.; Nagle, Nicholas N.; and Butts, Carter T. (8/2018). “Spatial and Social Embeddedness of Emergency Contact Ties.” ASA Meeting, Philadelphia, PA.
- Unhelkar, Megha H.; Zhang, Xuhong; Kelly, John E.; Duong, Vy; Bierma, Jan; Roskamp, Kyle W.; Tair, Seemal; Kaosoluchi, N. Enendu; Frietes, J. Alfredo; Martin, Rachel W.; and Butts, Carter T. (8/2018). “Enzyme Discovery from the *Drosera capensis* Genome.” International Carnivorous Plant Society Meeting, Santa Rosa, CA.
- Butts, Carter T. (6/2018). “Obtaining the Sparse ERGM Reference Model from Marginalized Latent Dynamics.” 38th Sunbelt Network Conference (INSNA), Utrecht, Netherlands.
- Phillips, Nolan and Butts, Carter T. (6/2018). “Comparing States’ Emergency Operations Plans as Networks Using Exponential Family Random Graph Models.” 38th Sunbelt Network Conference (INSNA), Utrecht, Netherlands.
- Renshaw, Scott; Prestley, Robert; Olson, Michelle; Yu, Yue; Gibson, C. Ben; Sutton, Jeanette; and Butts, Carter T. (6/2018). “Strategic Inter-organizational Message Amplification through Online Networks: Implications from the National Weather Service.” 38th Sunbelt Network Conference (INSNA), Utrecht, Netherlands.
- Smith, Emily J.; Buhler-Kane, Jennifer; Butts, Carter T.; Hipp, John R.; and Farshchi, Ehsan. (6/2018). “Local Social Network Ties and Prenatal Smoking.” 38th Sunbelt Network Conference (INSNA), Utrecht, Netherlands.
- Thomas, Loring and Butts, Carter T. (6/2018). “An Examination of Urban Ecology as a Conductor for Social Behavior in Networks of Areal Units.” 38th Sunbelt Network Conference (INSNA), Utrecht, Netherlands.
- Grazioli, Gianmarc; Andricioaei, Ioan; and Butts, Carter T. (3/2018). “Using Machine Learning to Automate Calculations of Conformational Kinetics in Molecular Simulations.” American Chemical Society Annual Meeting, New Orleans, LA.
- Lee, Francis and Butts, Carter T. (8/2017). “On the Reliability of Friendship.” ASA Meeting, Montreal, Quebec.
- Phillips, Nolan and Butts, Carter T. (8/2017). “Tools for Assessing the Model Adequacy of Exponential Graph Models (ERGMs) Using Labeled Networks.” ASA Meeting, Montreal, Quebec.
- Smith, Emily J.; Butts, Carter T.; Hipp, John R.; and Nagle, Nicholas N. (8/2017). “The Geography and Multiplexity of Job Lead Ties.” ASA Meeting, Montreal, Quebec.
- Butts, Carter T.; Sutton, Jeannette; Gibson, C. Ben; Li, Kevin; Olson, Michele; Phillips, Nolan E.; Renshaw, Scott; Vos, Sarah C.; and Yu, Yue. (7/2017). “HEROIC Project Update: Predictors of Message Passing, Social Media Adoption, and Social Media Use in Meteorological and Health Hazard Settings.” Natural Hazards Workshop, Broomfield, CO.
- Lee, Francis and Butts, Carter T. (7/2017). “On the Validity of the Bayesian Network Accuracy Model.” 1st North American Social Networks Meeting (NASN), Washington, DC.
- Phillips, Nolan and Butts, Carter T. (7/2017). “Tools for Assessing the Model Adequacy of Exponential Graph Models (ERGMs) and Comparing Sets of Networks Using Labeled Features.” 1st North American Social Networks Meeting (NASN), Washington, DC.

- Smith, Emily J.; Butts, Carter T.; Hipp, John; and Nagle, Nicholas. (7/2017). “Spatial and Social Embeddedness of Emergency Contact Ties.” 1st North American Social Networks Meeting (NASN), Washington, DC.
- Wang, Cheng; Butts, Carter T.; Hipp, John; Jose, Rupa; and Lakon, Cynthia M. (7/2017). “Goodness-of-Fit Testing for Behavior in Joint Dynamic Network/Behavior Models with an Extension to Two-Mode Networks.” 1st North American Social Networks Meeting (NASN), Washington, DC.
- Yin, Fan and Butts, Carter T. (5/2017). “Scalable ERGM Inference for Organizational Interaction and Behavioral Simulation Data.” 37th Sunbelt Network Conference (INSNA), Beijing, China.
- Yu, Yue and Butts, Carter T. (5/2017). “Simulating Sexual Contact Networks with ERGMs: an Investigation of the Parameter Space.” 37th Sunbelt Network Conference (INSNA), Beijing, China.
- Butts, Carter T.; Smith, Emily J.; Hipp, John R.; Nagle, Nicholas N.; Boessen, Adam; Acton, Ryan M. Marcum, Christopher S.; and Almquist, Zack W. (8/2016). “Large-scale Geographical Structure in Interpersonal Networks within the Western United States.” ASA Meeting, Seattle, WA.
- Gibson, C. Ben and Butts, Carter T. (8/2016). “Relational Event Modeling of Emergency Management Organizations’ Communications during the Boston Marathon Bombing.” ASA Meeting, Seattle, WA.
- Lee, Francis and Butts, Carter T. (8/2016). “A Tale of Two LASes: Comparative Performance Between the Union and Intersection Rules in Network Inference.” ASA Meeting, Seattle, WA.
- Smith, Emily J.; Butts, Carter T.; Hipp, John R.; and Nagle, Nicholas N. (8/2016). “Predicting Respondent Precision of Geographic Location.” ASA Meeting, Seattle, WA.
- Phillips, Nolan E.; Vos, Sarah; Sutton, Jeannette; Butts, Carter T.; Fitzhugh, Sean M.; Espinoza, Brian; Spiro, Emma S.; Gibson, C. Ben. (7/2016). “Research Updated on Project HEROIC: Hazards, Emergency Response, and Online Informal Communications.” Natural Hazards Workshop, Broomfield, CO.
- Boessen, Adam; Hipp, John H.; Butts, Carter T.; Nagle, Nicholas N.; and Smith, Emily J. (4/2016). “Social Fabric: Time of Day, and Fear of Crime.” 36th Sunbelt Network Conference (INSNA), Newport Beach, CA.
- Butts, Carter T. (4/2016). “Hamming Trajectory Sampling.” 36th Sunbelt Network Conference (INSNA), Newport Beach, CA.
- Espinoza, Brian; Phillips, Nolan P.; Gibson, C. Ben; League, Cedar; Johnson, Britta; Spiro, Emma S.; Fitzhugh, Sean M.; Sutton, Jeannette; and Butts, Carter T. (4/2016). “Emergency Management Organizations’ Twitter Follower Growths During and After Disasters.” 36th Sunbelt Network Conference (INSNA), Poster Presentation. Newport Beach, CA.
- Gibson, C. Ben and Butts, Carter T. (4/2016). “Relational Dynamics Between Emergency Management Organizations During a Terrorism Event.” 36th Sunbelt Network Conference (INSNA), Newport Beach, CA.
- Harrington, Stephanie; Smith, Emily J.; and Butts, Carter T. (4/2016). “Toward a Reference Network Cartography for the United States.” 36th Sunbelt Network Conference (INSNA), Newport Beach, CA.

- Lakon, Cynthia; Jose, Rupa; Hipp, John H.; Wang, Chang; and Butts, Carter T. (4/2016). “Social Integration in Friendship Networks and Adolescent Smoking: the Role of Ties Outside of School.” 36th Sunbelt Network Conference (INSNA), Newport Beach, CA.
- Phillips, Nolan E.; League, Cedar; Johnson, Britta; Sutton, Jeannette; Butts, Carter T. (4/2016). “Assignment of Emergency Support Functions to Emergency Management Organizations in the United States: ERGM GoF Visualizations From Simulations.” 36th Sunbelt Network Conference (INSNA), Newport Beach, CA.
- Lee, Francis and Butts, Carter T. (4/2016). “Mutual Assent or Unilateral Nomination? A Performance Comparison of Intersection and Union Rules for Integrating Self-reports of Social Relationships.” 36th International Sunbelt Social Network Conference (INSNA), Newport Beach, CA.
- Smith, Emily J.; Butts, Carter T.; Hipp, John R.; and Nagle, Nicholas N. (4/2016). “Predicting Respondent Precision of Geographic Location.” 36th International Sunbelt Network Conference (INSNA), Newport Beach, CA.
- Yu, Yue; Gibson, C. Ben; and Butts, Carter T. (4/2016). “Scalable Dynamic Sexual Contact Network Analysis with DNR Structure Using Retrospective Life History Data.” 36th International Sunbelt Network Conference (INSNA), Newport Beach, CA.
- Wang, Cheng; Hipp, John H.; Butts, Carter T.; Jose, Rupa; and Lakon, Cynthia. (4/2016). “SIENA Models of Interdependent Use of Cigarettes, Alcohol, and Marijuana.” 36th International Sunbelt Network Conference (INSNA), Newport Beach, CA.
- Zhang, Xuhong and Butts, Carter T. (4/2016). “Inferring Urban Activity Distributions from Aggregated Egocentric Communication Data.” 36th International Sunbelt Network Conference (INSNA), Newport Beach, CA.
- Butts, Carter T. (8/2015). “A Perfect Sampling Method for Exponential Family Random Graph Models.” ASA Meeting, Chicago, IL.
- Fitzhugh, Sean M. and Butts, Carter T. (8/2015). “Patterns of Co-membership: Techniques for Identifying Subgraph Composition.” ASA Meeting, Chicago, IL.
- Gibson, C. Ben; Yu, Yue; and Butts, Carter T. (8/2015). “Scalable Estimation of Temporal ERGMs with DNR Structure from Egocentrically Sampled Data.” ASA Meeting, Chicago, IL.
- Lee, Francis and Butts, Carter T. (8/2015). “Testing for Structural and Institutional Correlates of Accuracy in Individual Perceptions of Social Network Structure.” ASA Meeting, Chicago, IL.
- Butts, Carter T. (6/2015). “Collapsed ERGM Estimation for Multiple-network Models with Hierarchical Baseline Effects.” 35th International Sunbelt Social Network Conference (INSNA), Brighton, UK.
- Fitzhugh, Sean M. and Butts, Carter T. (6/2015). “Spatial Excitation: Testing a Network Activation Theory of Disaster-related Rumoring Activity.” 35th International Sunbelt Social Network Conference (INSNA), Brighton, UK.
- Gibson, C. Ben and Butts, Carter T. (6/2015). “Effects of Temporal Resolution Adjustments on Dynamic Sexual Contact Models.” 35th International Sunbelt Social Network Conference (INSNA), Brighton, UK.
- Lee, Francis and Butts, Carter T. (6/2015). “Leveraging Network Inference for Efficient Data Collection.” 35th International Sunbelt Social Network Conference (INSNA),

Brighton, UK.

- Phillips, Nolan E.; Sutton, Jeannette; Fitzhugh, Sean M.; League, Cedar; Johnson, Britta; Spiro, Emma S.; Gibson, C. Ben; and Butts, Carter T. (6/2015). “Emergency Management Interorganizational Networks.” 35th International Sunbelt Social Network Conference (INSNA), Brighton, UK.
- Yu, Yue; Gibson, C. Ben; and Butts, Carter T. (6/2015). “How to Know When Your Partner’s Sleeping Around: Imputing Concurrency in Dynamic Sexual Contact Networks.” 35th International Sunbelt Social Network Conference (INSNA), Brighton, UK.
- Cici, Blerim; Markopoulou, Athina; Gjoka, Minas; and Butts, Carter T. (4/2015) “Seasonal Decomposition of Cell Phone Activity Series and Urban Dynamics.” NetMob 2015, Boston, MA.
- Reed, Philip J.; Spiro, Emma S.; and Butts, Carter T. (3/2015). “Using Facebook Data to Examine Culture and Self-Disclosure Behaviors.” iConference 2015, Newport Beach, CA.
- Butts, Carter T. (8/2014). “A Novel Simulation Method for Binary Discrete Exponential Families, with Application to Social Networks.” ASA Meeting, San Francisco, CA.
- Fitzhugh, Sean M.; Spiro, Emma S.; and Butts, Carter T. (8/2014). “Did You Feel It? Spatial Filtering Techniques for Detection of Local Disaster Events.” ASA Meeting, San Francisco, CA.
- Smith, Emma J.; Marcum, Christopher S.; Almquist, Zack W.; Hipp, John R.; Nagle, Nicholas N.; and Butts, Carter T. (8/2014). “The Relationship of Age to Personal Network Size, Relational Multiplexity, and Proximity to Alters in the Western United States.” ASA Meeting, San Francisco, CA.
- Fitzhugh, Sean M.; Sutton, Jeannette; Butts, Carter T.; Spiro, Emma; Gibson, C. Ben; League, Cedar; and Johnson, Britta. (6/2014). “Project HEROIC: Hazards, Emergency Response, and Online Informal Communication.” 39th Annual Natural Hazards Research and Applications Workshop. Broomfield, CO.
- Yaveroglu, Omer; Fitzhugh, Sean M.; Kurant, Maciej; Markopoulou, Athina; Butts, Carter T.; and Przulj, Natasa. (6/2014). “ergm.graphlets: A Package for ERG Modeling Based on Graphlet Statistics.” NetSci 2014. Berkeley, CA.
- Spiro, Emma; Fitzhugh, Sean M.; Gibson, C. Ben; Sutton, Jeannette, and Butts, Carter T. (5/2014). “Online Communication Dynamics During Natural Hazard Events.” 64th Annual Conference of the International Communication Association. Seattle, WA.
- Almquist, Zack W. and Butts, Carter T. (2/2014). “Bayesian Analysis of Dynamic Network Regression with Joint Edge/Vertex Dynamics.” 34th Sunbelt Network Conference (INSNA), St. Pete’s Beach, FL.
- Butts, Carter T. (2/2014). “Asymptotic Bayesian Inference for Pooled ERGMs.” 34th Sunbelt Network Conference (INSNA), St. Pete’s Beach, FL.
- Fitzhugh, Sean and Butts, Carter T. (2/2014). “Network Lithology: Techniques for Identifying Subgraph Composition.” 34th Sunbelt Network Conference (INSNA), St. Pete’s Beach, FL.
- Gibson, Ben; Yu, Yue; Almquist, Zack; and Butts, Carter T. (2/2014). “Scalable Estimation of Temporal ERGMs with DNR Structure from Egocentrically Sampled Data.” 34th Sunbelt Network Conference (INSNA), St. Pete’s Beach, FL.
- Gjoka, Minas; Smith, Emma; and Butts, Carter T. (2/2014). “Design-based Estimators

for Attribute-labeled, Low-semidiameter Subgraphs.” 34th Sunbelt Network Conference (INSNA), St. Pete’s Beach, FL.

- Yu, Yue; Smith, Emma; and Butts, Carter T. (2/2014). “Retrospective Network Imputation from Life History Data: the Impact of Designs.” 34th Sunbelt Network Conference (INSNA), St. Pete’s Beach, FL.
- Almquist, Zack W. and Butts, Carter T. (8/2013). “Dynamic Network Logistic-Regression: A Dynamic Logistic Choice Analysis of DNC and RNC Blog Citation Networks in the 2004 US Presidential Election.” ASA Meeting, New York, NY.
- Butts, Carter T. (8/2013). “Baseline Mixture Models for Social Networks.” ASA Meeting, New York, NY.
- Gibson, Charles; Spiro, Emma S.; Fitzhugh, Sean; and Butts, Carter T. (8/2013). “Estimating Active User Population Dynamics in Online Social Networks.” ASA Meeting, New York, NY.
- Spiro, Emma S. and Butts, Carter T. (8/2013). “When Bad Things Happen to Good People: Online Communication Dynamics During Natural Hazard Events.” ASA Meeting, New York, NY.
- Sutton, Jeannette; Spiro, Emma S.; Johnson, Britta; Fitzhugh, Sean; Gibson, Charles; and Butts, Carter T. (8/2013). “Warning Tweets: Serial Transmission of Warning Messages during a Disaster Event.” ASA Meeting, New York, NY.
- Sutton, Jeannette; Butts, Carter T.; Spiro, Emma S.; Johnson, Britta; Fitzhugh, Sean; and Gibson, Ben. (7/2013). “HEROIC Project Update: Hazards, Emergency Response, and Online Informal Communications.” 2013 Natural Hazards Research and Applications Workshop, Broomfield, CO.
- Spiro, Emma S. and Butts, Carter T. (5/2013). “Degree Dynamics: Spikes and Decay in Attention Relationships.” 33rd Sunbelt Network Conference (INSNA), Hamburg, Germany.
- Almquist, Zack W.; Spiro, Emma S.; and Butts, Carter T. (5/2013). “Missing Data Methods for Dynamic Network Logistic-Regression.” 33rd Sunbelt Network Conference (INSNA), Hamburg, Germany.
- Fitzhugh, Sean; Gibson, Ben; and Butts, Carter T. (5/2013). “Extended Brokerage Structures in Organizational Networks: a Model-Driven Approach.” 33rd Sunbelt Network Conference (INSNA), Hamburg, Germany.
- Gibson, Ben; Spiro, Emma S.; Fitzhugh, Sean; and Butts, Carter T. (5/2013). “Estimating Active User Population Dynamics in Online Social Networks.” 33rd Sunbelt Network Conference (INSNA), Hamburg, Germany.
- Spiro, Emma and Butts, Carter T. (5/2013). “Degree Dynamics: Spikes and Decay in Attention Relationships.” 33rd Sunbelt Network Conference (INSNA), Hamburg, Germany.
- Smith, Emma; Almquist, Zack W.; Boessen, Adam; Butts, Carter T.; Hipp, John R.; and Nagle, Nicholas N. (5/2013). “Social Cohesion across Demographics and Space.” 33rd Sunbelt Network Conference (INSNA), Hamburg, Germany.
- Boessen, Adam; Hipp, John R.; Butts, Carter T.; Nagle, Nicholas N.; Almquist, Zack W.; Marcum, Christopher S.; and Acton, Ryan M. (11/2012). “Neighborhoods and Space: Situating Residents Networks.” American Society of Criminology Annual, Meeting, Chicago, IL.
- Almquist, Zack W. and Butts, Carter T. (8/2012). “Logistic Network Regression for Scal-



- able Analysis of Networks with Joint Edge/Vertex Dynamics.” ASA Meeting, Denver, CO.
- Almquist, Zack W.; Spiro, Emma S.; and Butts, Carter T. (8/2012). “Dynamic Network Logistic Regression with Missing Data, with an Application to a Dynamic US Governmental Emergency Management-related Friend/Follower Network on Twitter.” 2012 Joint Japan/North America Mathematical Sociology Conference, Denver, CO.
  - Butts, Carter T. (8/2012). “Spectral Analysis of Feedback Centrality Indices.” 2012 Joint Japan/North America Mathematical Sociology Conference, Denver, CO.
  - Fitzhugh, Sean; Butts, Carter T.; Kurant, Maciej; Gjoka, Minas; and Markopoulou, Athina. (8/2012). “The Enumeration Problem: Link-Trace Methods for Enumeration of Vertex Sets.” ASA Meeting, Denver CO.
  - Spiro, Emma S.; Sutton, Jeannette; Johnson, Britta; Fitzhugh, Sean; and Butts, Carter T. (8/2012). “Diffusion of Innovation Among Government Organizations: Asymmetric Effects of Organizational Lineage on Social Media Adoption.” 2012 Joint Japan/North America Mathematical Sociology Conference, Denver, CO.
  - Sutton, Jeannette; Butts, Carter T.; Spiro, Emma S.; Fitzhugh, Sean; and Johnson, Britta. (7/2012). “HEROIC: Hazards, Emergency Response, and Online Informal Communications.” 2012 Natural Hazards Research and Applications Workshop, Broomfield, CO.
  - Beckage, Nicole; Butts, Carter T.; and Smith, Linda. (6/2012). “Network Models of Language Acquisition.” NetSci Conference, Evanston, IL.
  - Spiro, Emma S.; Sutton, Jeannette; and Butts, Carter T. (6/2012). “Shifting Attention: The Effect of External Stimuli on Social Ties Among Emergency Management Organizations.” Political Networks Conference, Boulder, CO.
  - Fitzhugh, Sean; Butts, Carter T.; Kurant, Maciej; Gjoka, Minas; and Markopoulou, Athina. (6/2012). “The Enumeration Problem: An Illustration with Political Activist Networks.” Political Networks Conference, Boulder, CO.
  - Johnson, Britta; Sutton, Jeannette; Spiro, Emma S.; Fitzhugh, Sean; and Butts, Carter T. (6/2012). “Technology Lineage and Adoption: Diffusion of Microblog Technologies Among Government Organizations.” Political Networks Conference, Boulder, CO.
  - Almquist, Zack W. and Butts, Carter T. (5/2012). “Point Process Models for Household Distributions within Small Areal Units.” Poster presentation at The 2012 Annual Meeting of the Population Association of America, San Francisco, CA.
  - Almquist, Zack W. and Butts, Carter T. (3/2012). “Evolving Context: Evidence from Temporal Change in Organizational Collaboration over the Course of the 2005 Katrina Disaster.” 2012 Pacific Sociological Association Meeting, San Diego, CA.
  - Almquist, Zack W. and Butts, Carter T. (3/2012). “Network Diffusion and the Effects of Geographic Heterogeneity within Human Populations.” 32nd Sunbelt Network Conference (INSNA), Redondo Beach, CA.
  - Butts, Carter T. (3/2012). “Approximate Sampling for Binary Discrete Exponential Families, with Fixed Execution Time and Quality Guarantees.” 32nd Sunbelt Network Conference (INSNA), Redondo Beach, CA.
  - Fitzhugh, Sean; Butts, Carter T.; Kurant, Maciej; Gjoka, Minas; and Markopoulou, Athina. (3/2012). “Link-Trace Methods for Enumeration of Vertex Sets.” 32nd Sunbelt Conference (INSNA), Redondo Beach, CA.
  - Johnson, Britta; Sutton, Jeannette; Spiro, Emma S.; Fitzhugh, Sean; and Butts, Carter

- T. (3/2012). “Disruptive Diffusion: Adoption of Microblog Technologies Among Urban Organizations.” 32nd Sunbelt Network Conference (INSNA), Redondo Beach, CA.
- Hipp, John R.; Butts, Carter T.; Acton, Ryan M.; Nagle, Nicholas N.; Boessen, Adam; Marcum, Christopher S.; and Almquist, Zack W. (3/2012). “Spatial Networks and the Perception of Neighborhood.” 32nd Sunbelt Network Conference (INSNA), Redondo Beach, CA.
  - Beckage, Nicole; Styvers, Mark; and Butts, Carter T. (3/2012). “Navigation in Semantic Memory.” 32nd Sunbelt Conference (INSNA), Redondo Beach CA.
  - Boessen, Adam; Hipp, John R.; Butts, Carter T.; Acton, Ryan M.; Nagle, Nicholas N.; Marcum, Christopher S.; and Almquist, Zack W. (3/2012). “If Theres a Crime in Your Neighborhood, Who you Gonna Call?” 32nd Sunbelt Network Conference (INSNA), Redondo Beach, CA.
  - Spiro, Emma S.; Sutton, Jeannette; Fitzhugh, Sean; and Butts, Carter T. (3/2012). “A Microstructure Topology for Hyperedge Communication Events.” 32nd Sunbelt Network Conference (INSNA), Redondo Beach, CA.
  - Sutton, Jeannette; Spiro, Emma S.; Johnson, Britta; Greczek, Matt; Fitzhugh, Sean; and Butts, Carter T. (3/2012). “Connected Communications: Network Structures of Official Communications in Disaster.” 32nd Sunbelt Network Conference (INSNA), Redondo Beach, CA.
  - Valluvan, Ragupathyraj; Almquist, Zack W.; Butts, Carter T.; and Anandkumar, Anima. (3/2012). “Vertex Set Prediction of Dynamic Networks Using Semi-parametric Latent Tree Models.” 32nd Sunbelt Network Conference(INSNA), Redondo Beach, CA.
  - Butts, Carter T. and Pixley, Joy E. (8/2011). “The Ties That Bound: Within-Couple Heterogeneity as an Upper Bound On Between-Group Inequality.” ASA Meeting, Las Vegas, NV.
  - Fitzhugh, Sean M.; Butts, Carter T.; Pixley, Joy E. (8/2011). “Shared Spells: How Co-participation Limits Differences. Between Life Histories.” ASA Meeting, Las Vegas, NV.
  - Spiro, Emma S.; Almquist, Zack W.; and Butts, Carter T. (8/2011). “Maintaining Ties from Coast to Coast: Selective Mixing Between Universities on Facebook.” ASA Meeting, Las Vegas, NV.
  - Spiro, Emma S.; Butts, Carter T.; Sutton, Jeannette; Greczek, Matt; Fitzhugh, Sean M.; and Pierski, Nicole M. (7/2011). “Informal Online Communication in the Deepwater Horizon Disaster.” Poster presentation, 2011 Natural Hazards Research and Applications Workshop, Broomfield, CO.
  - Butts, Carter T. and Almquist, Zack W. (6/2011). “Modeling the Dynamics of Emergent Networks: Collaboration and Mass Convergence in the Hurricane Katrina Disaster.” 4th Annual Political Networks Conference, Ann Arbor, MI.
  - Almquist, Zack W. and Butts, Carter T. (6/2011). “Contending Parties: a Logistic Choice Analysis of Inter and Intra-group Blog Citation Dynamics in the 2004 US Presidential Election.” Poster presentation, 4th Annual Political Networks Conference, Ann Arbor, MI.
  - Fitzhugh, Sean M.; Butts, Carter T.; and Pixley, Joy E. (6/2011). “A Cross-National Comparison of the Effects of Military and Political Participation on Life Histories.” Poster presentation, 4th Annual Political Networks Conference, Ann Arbor, MI.
  - Pierski, Nicole M. and Butts, Carter T. (6/2011). “Semantic Networks in the Political

Blogosphere.” 4th Annual Political Networks Conference, Ann Arbor, MI.

- Spiro, Emma S.; Sutton, Jeannette; Greczek, Matt; and Butts, Carter T. (6/2011). “Rumoring During Extreme Events: Deepwater Horizon 2010.” Poster presentation, 4th Annual Political Networks Conference, Ann Arbor, MI.
- Almquist, Zack W. and Butts, Carter T. (2/2011). “Contending Parties: a Logistic Choice Analysis of Inter- and Intra-group Blog Citation Dynamics in the 2004 US Presidential Election.” 31st Sunbelt Network Conference (INSNA), St. Pete’s Beach, FL.
- Butts, Carter T. (2/2011). “A Technique for Analyzing ERGM Behavior Using Bernoulli Graphs.” 31st Sunbelt Network Conference (INSNA), St. Pete’s Beach, FL.
- Fitzhugh, Sean M.; Butts, Carter T.; and Pixley, Joy E. (2/2011). “A Network Approach to Pattern Discovery in Spell Data.” 31st Sunbelt Network Conference (INSNA), St. Pete’s Beach, FL.
- Hipp, John R.; Butts, Carter T.; Nagle, Nicholas N.; Acton, Ryan M.; Boessen, Adam; and Marcum, Christopher. (2/2011). “Homophily and Propinquity in Social Ties, and the Consequences for Neighborhood Cohesion.” 31st Sunbelt Network Conference (INSNA), St. Pete’s Beach, FL.
- Kurant, Maciej; Gjoka, Minas; Butts, Carter T.; and Markopoulou, Athina. (2/2011). “Link-Trace Sampling for Social Networks: Advances and Applications.” 31st Sunbelt Network Conference (INSNA), St. Pete’s Beach, FL.
- Pierski, Nicole M.; DuBois, Christopher; Butts, Carter T.; and McFarland, Dan. (2/2011). “Comparative Analysis of Classroom Interactions Using Relational Event Models.” 31st Sunbelt Network Conference (INSNA), St. Pete’s Beach, FL.
- Spiro, Emma S.; Acton Ryan M.; Sutton, Jeannette; Greczek, Matt; and Butts, Carter T. (2/2011). “Rumoring in Informal Online Communication Networks.” 31st Sunbelt Network Conference (INSNA), St. Pete’s Beach, FL.
- Butts, Carter T. (8/2010). “Bayesian Meta-Analysis of Social Network Data via Conditional Uniform Graph Quantiles.” ASA Meeting, Atlanta, GA.
- Fitzhugh, Sean and Butts, Carter T. (8/2010). “Effects of Individual and Group-level Properties on the Robustness of Emergency-phase Communication Networks.” ASA Meeting, Atlanta, GA.
- Spiro, Emma S.; Acton, Ryan M.; and Butts, Carter T. (8/2010). “Extended Structures of Mediation: Re-examining Brokerage in Dynamic Networks.” ASA Meeting, Atlanta GA.
- Butts, Carter T.; Mendonça, David; Webb, Gary; Jasny, Lorien; Marcum, Christopher S.; Fitzhugh, Sean; Cirik, Ali A.; and Elsasser, Shaun. (7/2010). “Key Findings from the Improvisation in Emergency Response Project: Linking Cognition, Behavior, and Social Interaction.” 2010 Annual Hazards Research and Application Workshop, Broomfield, CO.
- Acton, Ryan M.; Spiro, Emma S.; and Butts, Carter T. (7/2010). “Change and External Events in Online Networks.” 30th Sunbelt Network Conference (INSNA), Riva del Garda, Italy.
- Almquist, Zack W. and Butts, Carter T. (7/2010). “Predicting Regional Self-Identification from Spatial Network Models.” 30th Sunbelt Network Conference (INSNA), Riva del Garda, Italy.
- Butts, Carter T. (7/2010). “A Perfect Sampling Method for Random Graph Models.” 30th Sunbelt Network Conference (INSNA), Riva del Garda, Italy.

- Fitzhugh, Sean and Butts, Carter T. (7/2010). “Effects of Individual and Group-level Properties on the Robustness of Emergency-phase Communication Networks.” 30th Sunbelt Network Conference (INSNA), Riva del Garda, Italy.
- Spiro, Emma S.; Acton, Ryan M.; and Butts, Carter T. (7/2010). “Extended Structures of Mediation: Re-examining Brokerage in Dynamic Networks.” 30th Sunbelt Network Conference (INSNA), Riva del Garda, Italy.
- Butts, Carter T. (8/2009). “A Behavioral Micro-foundation for Cross-sectional Network Models.” ASA Meeting, San Francisco, CA.
- Marcum, Christopher S.; Bevc, Christine A.; and Butts, Carter T. (8/2009). “Mechanisms of Control in Emergent Interorganizational Networks.” ASA Meeting, San Francisco, CA.
- Jasny, Lorien; Marcum, Christopher S.; and Butts, Carter T. (3/2009). “Relating Events to Structure: Evidence from the World Trade Center Police Reports.” 29th Sunbelt Network Conference (INSNA), San Diego, CA.
- 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. (5/2008). “Latent Focus Models for Network Structure.” Fourth Joint Japan-North America Mathematical Sociology Conference, Redondo Beach, CA.
- 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:
  - Member, Networked Systems Program (NetSys), University of California – Irvine, 2016–Present
  - Member, Program in Chemistry and Materials Physics (ChaMP), University of California – Irvine, 2013–Present
  - Professor, Department of Sociology, University of California – Irvine, 2012–Present
  - Professor (Courtesy), Department of Computer Science, University of California – Irvine, 2017–Present
  - Professor (Courtesy), Department of Electrical Engineering and Computer Science, University of California – Irvine, 2013–Present
  - Professor (Courtesy), Department of Statistics, University of California – Irvine, 2012–Present
  - Professor, Department of Sociology, University of California – Irvine, 2012–Present
  - Associate Professor, Department of Sociology, University of California – Irvine, 2007–2012
  - Associate Professor (Courtesy), Department of Statistics, University of California – Irvine, 2011–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:
  - Analysis of Social Network Data

- 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
- DOCTORAL COMMITTEE CHAIR:
  - Fan Yin
  - Yue Yu
  - Kyle Roskamp (Co-advised w/Rachel Martin)
  - Emma Smith (Ph.D. Summer 2018)
  - Ben Gibson (Ph.D. Summer 2018)
  - Nolan Phillips (Ph.D. Fall 2017)
  - Xuhong Zhang (Ph.D. Summer 2017)
  - Sean Fitzhugh (Ph.D. Summer 2015)
  - Emma Spiro (Ph.D. Fall 2013)
  - Zack Almquist (Ph.D. Spring 2013)
  - Lorien Jasny (Ph.D. Spring 2012)
  - Ryan Acton (Ph.D. Summer 2010)
  - Miruna Petrescu-Prahova (Ph.D. Spring 2009)
  - Liana Christin Landivar (Christin Hilgeman) (Ph.D. Spring 2007) (Co-advised w/Judy Treas)
- POSTDOCTORAL ADVISOR:
  - Gianmarc Grazioli

RESEARCH EXPERIENCE:

- Professor, Department of Sociology, University of California – Irvine, 2012–Present
- Professor (Courtesy), Department of Computer Science, University of California – Irvine, 2017–Present
- Professor (Courtesy), Department of Electrical Engineering and Computer Science, University of California – Irvine, 2013–Present
- Professor (Courtesy), Department of Statistics, University of California – Irvine, 2012–Present
- Associate Professor (Courtesy), Department of Statistics, University of California – Irvine, 2011–2012
- Associate Professor, Department of Sociology, University of California – Irvine, 2007–2012
- Associate Professor (Courtesy), Department of Statistics, University of California – Irvine, 2011–2012
- 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
  - Chair, ASA Section on Mathematical Sociology, 2018-2019
  - Organizer, Regular Session on Mathematical Sociology, 2019
  - Section Council Member, ASA Section on Methodology, 2017-2019
  - Chair-elect, ASA Section on Mathematical Sociology, 2017-2018
  - Section Council Member, ASA Section on Mathematical Sociology, 2015-2018
  - Career Award Committee Chair, ASA Section on Mathematical Sociology, 2018
  - Organizer, ASA Section and Regular Sessions on Mathematical Sociology, 2018
  - External promotion reviewer (UC Campus), 2018
  - External promotion reviewer (Non-UC Campus), 2018
  - Book/Career Award Committee Chair, ASA Section on Mathematical Sociology, 2017
  - Board of Directors, International Network for Social Network Analysis (INSNA), 2011-2016
  - Publication Committee Chair, INSNA, 2014-2016
  - NIH Special Emphasis Panel Member (“Harnessing Big Data to Halt HIV”), 2016
  - Session Presider, Sixth Japan-US Conference on Mathematical Sociology and Rational Choice, 2016
  - Paper Award Committee Member, ASA Section on Mathematical Sociology, 2016
  - External promotion reviewer (Non-UC Campus), 2016
  - Organizer and Lecturer, *statnet* Workshop at the International Sunbelt Social Network Conference, 3/2016, Newport Beach, CA.
  - Leo Goodman Award Committee Member, ASA Section on Methodology, 2015
  - Organizer and Lecturer, *statnet* Workshop at the International Sunbelt Social Network Conference, 6/2015, Brighton, UK.
  - Linton C. Freeman Award Committee Chair, INSNA, 2014
  - External promotion reviewer (Non-UC Campus), 2014
  - Organizer and Lecturer, *statnet* Workshop at the International Sunbelt Social Networks Networks Conference, 2/2014, St. Pete’s Beach, FL.
  - Organizer and Lecturer, *statnet* Workshop at the Political Networks Conference, 6/2013, Bloomington, IN.
  - Organizer and Lecturer, *statnet* Workshop at the International Sunbelt Social Networks Networks Conference, 5/2013, Hamburg, Germany.
  - Leo Goodman Award Committee Chair, ASA Section on Methodology, 2012
  - Organizer, ASA Section and Regular Sessions on Mathematical Sociology, 2012
  - Organizer and Lecturer, *statnet* Workshop at the Political Networks Conference, 6/2012, Boulder, CO.
  - Organizer and Lecturer, *statnet* Workshop at the International Sunbelt Social Networks Networks Conference, 3/2012, Redondo Beach, CA.

- Chair, Section Naming Committee, ASA Section on Rationality and Society, 2011–2012
- Organizer, Session on Network Methodology at the Third International ARS Workshop on Social Network Analysis - Collaboration Networks and Knowledge Diffusion: Theory, Data, and Methods, 6/2011, Naples, Italy.
- Organizer and Lecturer, *statnet* Workshop at the Third International ARS Workshop on Social Network Analysis - Collaboration Networks and Knowledge Diffusion: Theory, Data, and Methods, 6/2011, Naples, Italy.
- Organizer and Lecturer, *statnet* Workshop at the Political Networks Conference, 6/2011, Ann Arbor, MA.
- Organizer and Lecturer, *statnet* Workshop at the International Sunbelt Social Networks Networks Conference, 2/2011, St. Pete’s Beach, FL.
- Graduate Student Paper Award Committee, ASA Section on Rationality and Society, 2010.
- Organizer, ASA Section on Rationality and Society session on “Theories of Choice: New Perspectives and Applications,” ASA Annual Meeting, 2010.
- Organizer and Lecturer, *statnet* Workshop at the Political Networks Conference, 6/2010, Durham, NC.
- Co-Organizer and Lecturer, *statnet* and *sna* Workshops at the Networks in Political Science Conference, 6/2009, Cambridge, MA.
- Organizing Committee, National Academy of Sciences US-France Frontiers of Science Conference, 2008
- Co-Organizer, Fourth Japan-North America Mathematical Sociology Conference, 2008
- Organizer and Lecturer, *statnet* and *sna* Workshops at the Networks in Political Science Conference, 6/2008, Cambridge, MA.
- 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 and Lecturer, *statnet* Workshop (held in conjunction with the International Sunbelt Social Network Conference), 2006–2014.
- Guest Speaker, UCSB Workshop on GIS and Population Science, 2005, 2006
- NSF Proposal Reviewer
- 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, Washington, D.C., 2000
- Session Presider, “New Analytical Approaches,” 20th Sunbelt Network Conference (IN-SNA), Vancouver, B.C., 2000
- UNIVERSITY
  - Founding director, UCI Center for Networks and Relational Analysis, 2012–Present
  - University of California Cancer Research Coordinating Committee, 2013–Present
  - Executive Committee Member, Institute for Mathematical Behavioral Sciences, 2009–Present
  - Division Council Member, California Institute for Telecommunications and Information Technology, 2005–Present
  - Organizer, UCI Social Network Research Group, 2003–Present
  - Participating Faculty, UCI Networked Systems Program 2016–Present.
  - Participating Faculty, UCI Chemistry and Materials Physics Program 2013–Present.
  - Dean’s Search Committee, UCI School of Information and Computer Science, 2016
  - High-impact Hiring Proposal Committee Member (in conjunction with the UCI Data Science Initiative), 2015.
  - Co-organizer, IMBS Conference on “Behavior In and On Networks,” Irvine, CA, 2011.
  - External promotion reviewer (UC Campus), 2010
  - Calit2/Emulex Graduate Fellows Committee, 2006
  - Calit2 Nicholas Prize Committee, 2005
  - Organizer, IMBS Symposium, “Current Research on Network Comparison,” Irvine, CA, 2004
- DEPARTMENT
  - Graduate Education Committee, Department of Sociology, 2004–2005, 2007–2012, 2016–2018
  - Culture Cluster Exam Reader, 2018
  - Merit/Promotion Review Committee, 2002, 2004, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2014, 2015, 2016, 2017
  - Social Network Cluster Qualifying Exam Coordinator/Proctor, 2005, 2007, 2012, 2013, 2015, 2016
  - Awards Committee, Department of Sociology, 2014–2015
  - Strategic Planning Committee Chair, Department of Sociology 2012–2013
  - Departmental Space Committee, 2010–2011
  - Co-Organizer, Introduction to Social Network Analysis Workshop, 2003–2008
  - Faculty Recruitment Committee, 2006
  - 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:

- Board of Reviewing Editors, *Science*, 2015–Present.
- Area Editor for Computation and Social Networks, *Computational and Mathematical Organization Theory*, 2003–Present.
- Editorial Board, *Journal of Mathematical Sociology*, 2007–Present.
- Editorial Board, *Sociological Methodology*, 2009–2012.
- 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*
- *Proceedings of the National Academy of Sciences*
- *PLoS One*
- *Rationality and Society*
- *Science*
- *Social Forces*
- *Sociological Methodology*
- *Social Networks*
- *Social Problems*
- *Social Psychology Quarterly*
- *Sociological Forum*

OTHER REVIEWER ACTIVITIES:

- National Institutes of Health proposal reviewer
- 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
- American Statistical Association
- Association for Computing Machinery (ACM)
- Institute of Electrical and Electronics Engineers (IEEE)
- International Carnivorous Plant Society (ICPS)
- International Network for Social Network Analysis (INSNA)
- 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