Daniel K. Sewell

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Education

- University of Illinois at Urbana-Champaign (2010-2015)
  PhD, Statistics   Advisor: Professor Yuguo Chen
  Dissertation Title: Statistical Models and Inference for Dynamic Networks

- University of Arkansas (2008-2010)
  MS, Statistics

- Harding University, Searcy, AR (2002-2008)
  BA, Education

Publications

- **Sewell, D. K.** and Chen, Y. (2014). Latent space models for dynamic networks. Accepted at *Journal of the American Statistical Association*.

- **Sewell, D. K.** and Chen, Y. (2014). Analysis of the formation of the structure of social networks using latent space models for ranked dynamic networks. Accepted at *Journal of the Royal Statistical Society. Series C*.

- **Sewell, D. K.**, Chen, Y., Bernhard, W. and Sulkin, T. (2014). Model-based longitudinal clustering. Accepted at *Statistica Sinica*.

- Dore, K. M., **Sewell, D. K.**, Mattenet, E. and Turner, T. R. (2014). GIS and GPS techniques in an ethnoprimatological investigation of St. Kitts vervet monkey (Chlorocebus aethiops sabaeus) crop-raiding behavior. In *GIS and GPS in Primatology*. Cambridge: Cambridge University Press.

- **Sewell, D. K.**, Kim, H., Ha, T. and Ma, P. (2014). A parameter estimation method for single molecule fluorescence lifetime data. Invited revision.

- **Sewell, D. K.** and Chen, Y. (2014). Latent space models for dynamic networks with weighted edges. Under Review.

- **Sewell, D. K.** and Chen, Y. (2014). Community detection in dynamic networks. Under review.

- Bernhard, W., Sulkin, T., and **Sewell, D. K.** (2014). Explaining legislative style in the House of Representatives. Under review.

- **Sewell, D. K.**, and Chen, Y. (2014). Deriving the harmonic mean estimator via discrete approximation of the parameter space. Technical Report.

Awards

- 2014 Patrick J. Fett award for the best paper on the scientific study of Congress and the presidency
- Finalist for the Norton Prize for Outstanding Doctoral Thesis in Statistics, 2014
- University of Illinois Graduate College Travel Award, 2014
- Outstanding Calculus Award, Harding University, 2007

Research Interests

- Statistical modeling of network data, Clustering, Bayesian methodology, Statistical computing, Monte Carlo methodology, Data visualization, Machine learning, Applied scientific problems

Teaching Experience

Instructor

- *University of Illinois*
  - (Spring 2014) Stat 200: Statistical Analysis
- *University of Arkansas*
  - (Fall 2009) Stat 2303: Principles of Statistics
  - (Summer 2009) Math 2043: Survey of Calculus
  - (Fall 2008, Spring 2009) Math 1203: College Algebra
- *Instructor Responsibilities*
  - Planned and provided class lectures. Designed syllabus, grading scale, homework, tests and projects.

Lon-Capa Programmer, University of Illinois, 2010-2011
- Developed lon-capa online course material for the Department of Statistics.

Tutor

- *Career Pathways,* Arkansas State University, Searcy, AR, 2008
  - Tutored adult education students in a variety of mathematics courses.
- *Academic Resource Center,* Harding University, Searcy, AR, 2007-2008
  - Tutored undergraduate students in a variety of mathematics courses as well as in inorganic chemistry.

Research Experience

Research Assistant

- *Research Assistant to Professor Yuguo Chen,* University of Illinois, 2012-present
  - Developed statistical models and tools for analyzing dynamic networks, including methodology for prediction, detection of influence, estimation of missing data, extensions to weighted networks, and community detection.
  - Models were developed for the purpose of clustering longitudinal data while capturing temporal dependency, as well as incorporating covariates that help explain clustering results. Efficient computational methods were developed for estimation.
- *Research Assistant to Professor Ping Ma,* University of Illinois, 2011-2012
  - Developed new methodology for analyzing single molecule fluorescence lifetime data, avoiding overfitting while achieving numerical stability.
  - Collaborated with members of the Department of Physics at the University of Illinois.
- *Research Assistant to Professor Joon Jin Song,* University of Arkansas, 2010
  - Developed empirical Bayesian methodology to analyze microarray data.

Collaborative Research

- *Department of Entomology,* 2014-present
  - Investigated structural changes in honeybee networks due to forager removal. Compared post-perturbed network to simulated networks which emulate pre-perturbed network structures.
- *Department of Political Science,* 2013-present
  - Developed novel methodology for clustering longitudinal data. Covariate information explaining the clustering results can be estimated simultaneously with the clustering results themselves.
- *Department of Anthropology,* 2012-2013
  - Implemented a hierarchical generalized linear model to discover the best predictive model for crop damage caused by vervet monkeys in St. Kitts.

Professional Experience

Consultant, Illinois Consulting Office, University of Illinois, 2012-present

- Provided statistical consulting for researchers in the fields of anthropology, biology, psychology, animal science, crop science, education, political science, architecture, geology, food science, speech and hearing science, kinesiology, entomology, communications, nursing, linguistics and educational psychology.

Actuarial Examination

- Successful passing score on SOA/CAS/CIA Exam P/1 (Probability)

Presentations

- Presentation on "Detecting Influence in Dynamic Networks," *Joint Statistical Meetings*, Boston, MA, August 2014.

- Presentation on "Latent Space Models for Dynamic Networks," *Midwest Statistics Research Colloquium*, Chicago IL, March 2014.

- Presentation on "Latent Space Models for Dynamic Networks," *Bohrer Workshop in Statistics*, Department of Statistics, University of Illinois at Urbana-Champaign, November 2013.

- Presentation on "A Parameter Estimation Method for Single Molecule Fluorescence Lifetime Data," *Bohrer Workshop in Statistics*, Department of Statistics, University of Illinois at Urbana-Champaign, November 2011.

Refereed Journals

- Journal of the American Statistical Association

- Statistics and Its Interface

- Journal of Econometrics

Professional Associations

- American Statistical Association

- Institute of Mathematical Statistics

- International Society for Bayesian Analysis

References

Yuguo Chen, Associate Professor
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