Andrea J. Kaplan

Contact Information

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Research Interests

Statistical Learning, Computational Statistics, Mathematical Statistics, Spatial Resampling, Exploratory Data Analysis and Interactive Statistical Graphics, Reproducible Research

Education

Iowa State University, Ames, Iowa USA

Ph.D., Statistics, May 2017

- Advisors: Daniel Nordman, Stephen Vardeman

M.S., Statistics, May 2014

- Creative Component: "gravicom - a web-based tool for community detection in networks"
- Advisors: Heike Hofmann, Daniel Nordman

The University of Texas, Austin, Texas USA

M.A., Mathematics, December 2010

- Report: "An Overview of Multilevel Regression"
- Advisors: Martha Smith, John Luecke

B.S., Mathematics (Option: Applied), May 2006

- Elements of Computing Certificate

Honors and Awards

2016 - Poster Grant (Conference on Data Analysis)
2015 - George W. Snedecor Award (ISU Department of Statistics)
2015 - Student Paper Award (ASA Computing Section)
2015 - Travel Award (Fields Institute Workshop on Visualization for Big Data)
2014 - Holly and Beth Fryer Scholarship (ISU Department of Statistics)
2014 - Special Student Funding Travel Award (ASA Joint Statistical Meeting)
2014 - Poster Award & Travel Award (Women in Statistics Conference)
2013 - 1^{st} Place (ASA Data Exposition)
2013 - Vera David Fellowship (ISU Department of Statistics)
2006 - Research Experiences for Undergraduates (National Science Foundation)
2005 & 2006 - Honors and Dean's List (University of Texas at Austin)

Academic Experience

Iowa State University, Ames, Iowa USA

Graduate Student **August, 2012 - Present**
Includes Masters and PhD level coursework.

Research Assistant **May, 2015 - Present**
Nonparametric Likelihood Enhancements for Dependent Data, funded by NSF, with Nordman, D.

Research Assistant **May, 2013 - August, 2015**
Exploring the STEM Gender Gap: Introductory College Mathematics and Statistics Instruction and its Association with Self-Efficacy, funded by NSF, with Genschel, U., Carriquiry, A., Kliemann, W., Johnston, E., Koehler, K., Nguyen, X., Mouzon, I.

Instructor **January, 2013 - May, 2013**

Course instructor for Introduction to Business Statistics. Responsible for lecture and the development of course notes, homework assignments, and exams. Approximately 80 students.

Teaching Assistant **August, 2012 - December 2012**
Coordinated a team of seven undergraduates to grade for Introduction to Business Statistics. Duties included creating a rubric each week and ensuring consistent grading across all sections.

The University of Texas, Austin, Texas USA

Research Assistant **April, 2011 - July, 2012**
Worked under Prof. Tasha Beretvas to conduct a simulation study assessing use of Bayesian estimation procedures to estimate a two-level cross-classified random effects model (CCREM) with correlated Level 2 residuals.

Graduate Student **August, 2006 - December, 2010**
Includes Masters level coursework and report research.

Teaching Assistant **August, 2008 - May 2009**
Lead 130 students in six weekly discussions with the analysis of concepts and introduction of applications for Calculus II and Introduction to Mathematics. Assisted faculty with the conduct and delivery of classroom material. Graded exams and supervised homework grader.

Summer REU **June, 2006 - August 2006**
Participant in Extensible Undergraduate Research in Communications Applications, a summer REU in the Department of Electrical Engineering sponsored by the National Science Foundation for research in the areas of Communications, Networks and Systems. Worked on optimization of binary erasure channels project with Prof. Sriram Vishwanath at the University of Texas.

Research Assistant **June, 2005 - March 2006**
Worked under Prof. Tasha Beretvas to identify different methods of effect size estimation and helped to evaluate the advantages and disadvantages of each method. Designed a JAVA program that facilitated data entry and assisted in other researchers' data analysis.

Applied Research Laboratories, Austin, Texas USA

Graduate Research Assistant **August, 2006 - February 2007**
Research with a concentration in active and passive data fusion. Programmed graphical work in signal processing using Matlab.

Refereed Journal Publications

Kaplan, A., Hare, E., Hofmann, H., and Cook, D., *Can you buy a president? Politics after the Tillman Act.* CHANCE Vol. 27, Iss. 1 (2014)

Manuscripts Submitted

Hare, E. and **Kaplan, A.**, *Introductory statistics with intRo.* (Submitted)

Kaplan, A., Hofmann, H., and Nordman, D. J., *gravicom - a web-based tool for community detection in networks.* (Submitted)

Kaplan, A. and Hare, E. *Putting Down Roots: A Graphical Exploration of Community Attachment.* (Submitted)

Invited Talks

Kaplan, A.*, Kaiser, M., Nordman, D., Lahiri, S., *Goodness-of-Fit Tests for Spatial Markov Random Fields.* Organized Invited Session (CM Statistics), December 12 - 14, 2015, London, UK

Hare, E.*, **Kaplan, A.***, *intRo: Statistical Analysis Software for Teaching.* Departmental Seminar

(Iowa State University), January 12, 2015, Ames, IA, USA

Kaplan, A.*, Hare, E.*, *Putting Down Roots: A Graphical Exploration of Community Attachment.* Census Data Visualization Seminar (U.S. Census Bureau), September 19, 2013, Washington, D.C. USA

*Denotes presenter.

Contributed Talks

Kaplan, A.*, Hare, E., *Introducing Statistics with intRo.* Topic Contributed Paper (JSM), August 8 - 13, 2015, Seattle, WA, USA

Hare, E.*, **Kaplan, A.**, *IntRo: Software for Introductory Statistics.* Contributed Paper (JSM), August 8 - 13, 2015, Seattle, WA, USA

Kaplan, A.*, Hofmann, H., Nordman, D. J., *gravicom - A web-based tool for community detection in networks.* Contributed Paper (JSM), August 2 - 7, 2014, Boston, MA, USA

Mouzon, I.*, Genshel, U., Carriquiry, A., Nguyen, X., **Kaplan, A.**, Johnston, E., Kliemann, W., Koehler, K., *Early College Performance, Gender, and Other Factors Influencing Continuation in STEM Fields.* Contributed Paper (JSM), August 2 - 7, 2014, Boston, MA, USA

Genschel, U.*, **Kaplan, A.**, Carriquiry, A., Johnston, E., Kliemann, W., Koehler, K., Mouzon, I., *Statistical and Mathematical Self-Efficacy of Incoming Students at a Large Public University.* Contributed Paper (JSM), August 2 - 7, 2014, Boston, MA, USA

Genschel, U.*, **Kaplan, A.**, Carriquiry, A., Johnston, E., Kliemann, W., Koehler, K., Mouzon, I., *Statistical and Mathematical Self-Efficacy of Incoming Students at a Large Public University.* Contributed Paper (ICOTS9), July 13 - 18, 2014, Flagstaff, AZ, USA

*Denotes presenter.

Contributed Posters

Kaplan, A.*, Nordman, D., Vardeman, S., *An Exposition on the Propriety of Restricted Boltzmann Machines.* Contributed Poster (CoDA 2016), March 2 - 4, 2016, Santa Fe, NM, USA

Kaplan, A., Lin, Y., Mulrow, E.*, *Visualizing Linked Data Sources for the National Childrens Study.* Contributed Poster (ASA CSP), February 18 - 20, 2016, San Diego, CA, USA

Kaplan, A.*, Genschel, U., Carriquiry, A., Johnston, E., Kliemann, W., Koehler, K., Mouzon, I., Nguyen, X., *Mathematical Self-Efficacy of Incoming Students at a Large Public University.* Student Poster Session (Women in Statistics Conference), May 15 - 17, 2014, Cary, NC, USA

Kaplan, A.*, Hare, E., *Putting Down Roots: A Graphical Exploration of Community Attachment.* ASA Data Exposition (JSM), August 3 - 8, 2013, Montreal, QC, Canada

Hare, E.*, **Kaplan, A.**, Hofmann, H., and Cook, D., *Can you buy a president? Politics after the Tillman Act* ASA Graphics Section Poster (JSM), August 3 - 8, 2013, Montreal, QC, Canada

*Denotes presenter.

Refereed Conference Preceedings

Mouzon, I., Genschel, U., Nguyen, X.H., **Kaplan, A.**, Mann, C., Carriquiry, A., *A Cluster Analysis of STEM Gender Differences*, 2015, In Proceedings of the RUME (Research on Undergraduate Mathematics Education) Annual Conference. Pittsburgh, February 2015.

Unrefereed Conference Preceedings

Hofmann, H., Cook, D., **Kaplan, A.**, Hare, E., Leos-Barajas, V., Sievert, C., Tyner, S. *On the*

move at DinoFun world. VAST, 2015, 2015 IEEE Conference on Visual Analytics Science and Technology (VAST), 2015 IEEE Conference on Visual Analytics Science and Technology (VAST) 2015, pp. 159-160

Hofmann, H., Cook, D., **Kaplan, A.**, Hare, E., Leos-Barajas, V., Sievert, C., Tyner, S. *Visualizing communication patterns at DinoFun World*. VAST, 2015, 2015 IEEE Conference on Visual Analytics Science and Technology (VAST), 2015 IEEE Conference on Visual Analytics Science and Technology (VAST) 2015, pp. 159-160

Genschel, U., **Kaplan, A.**, Carriquiry, A., Johnston, E., Kliemann, W., Koehler, K., Mouzon, I., Nguyen, H., *Statistical and Mathematical Self-efficacy of Incoming Students at a Large Public University*, 2014, In Proceedings of the ICOTS Conference. Flagstaff, 2014.

Professional Experience

NORC at the University of Chicago, Chicago, Illinois USA

Graduate Research Assistant **May, 2015 - August, 2015**

Summer internship with Statistics and Methodology Department. Primarily developed web-based interactive graphics using JavaScript library D3 to explore data linkage for extant sources. Additionally, performed data munging and low level data analysis as well as report generation for third-party clients in R and R Markdown.

Banks Information Group, Austin, Texas USA

Independent Contractor **July, 2011 - July, 2012**

Developed web-based environmental GIS reporting tool for Phase I reporting. Additionally, developed and implemented a web-based tool to convert images to PDF files programatically. Utilized ESRI ArcSDE and .NET/C#, as well as Microsoft SQL Server for development.

Sense Corp, Austin, Texas USA

Consultant **July, 2009 - July, 2011**

Designed monthly subscriber activity forecasts across key markets at a top-five broadband telecommunications company using ARIMA time series modeling in R. Developed an automated process and custom web application designed for Business Intelligence (BI) Group use to run forecasts and analyze long-term trends in activity. Analyzed the effects of explanatory factors on elevated truck rolls and presented findings to corporate leadership. Provided BI Group with statistical insight including sample size estimation, forecasting, and analysis design using R and SPSS.

Gelb Consulting Group, Houston, Texas USA

Intern Analyst **June, 2008 - August, 2008**

Internal consultant focusing on revising several standard operating procedures, including regression and factor analysis. Produced and analyzed quantitative reports for several clients. Assisted analysis in extrapolating themes from survey data for qualitative reports.

Computer Skills

- Mathematical and Statistical Computing: R, Julia, JAGS, BUGS, SAS, Matlab; some experience with Python and SPSS.
- Other Languages: JavaScript (and D3), Java, SQL, C#, .NET, HTML5, CSS3, Markdown; some experience with C and C++.
- Applications: ESRI ArcMap, Microsoft Sharepoint.
- Typesetting: LaTeX
- Content Management: Git

Service and Leadership

- StatCom, community service organization
  - Executive Committee, 2013 - Present

  - Network Outreach Coordinator, 2015 - Present
- STATers, social organization for graduate students, Vice President, 2013 - 2014
- Graduate and Professional Student Senate, Senator, 2012 - 2013

Professional Affiliations

- American Statistical Association, Member, 2012 - Present
- Institute of Mathematical Statistics, Member, 2012 - Present