

IAN TAYLOR

IAN.M.TAYLOR1@GMAIL.COM • (803) 606-6136

RESEARCH TOPICS AND INTERESTS

Record Linkage, Network Statistics, Statistical Computing, Bayesian Modeling, Markov Chain Monte Carlo, Hierarchical Models, Statistical Consulting, Statistics Education, Data Visualization and Graphics

EDUCATION

- 01/2020 – 10/2023 **Ph.D. Statistics**, *Colorado State University*, Fort Collins, CO.
“Bayesian Models and Streaming Samplers for Complex Data with Application to Network Regression and Record Linkage”
Ph.D. Advisors: Andee Kaplan and Bailey K. Fosdick
- 08/2017 – 12/2019 **M.S. Statistics**, *Colorado State University*, Fort Collins, CO.
- 08/2009 – 05/2013 **B.S. Mathematical Sciences**, *Clemson University*, Clemson, SC.
Concentration: Computer Science
GPA: 3.89 Manga Cum Laude

EMPLOYMENT

ACADEMIC

- 01/2023 – 05/2023 **Graduate Teaching Assistant**, *Colorado State University*, Fort Collins, CO.
- 08/2017 – 12/2019
- Lead recitation and lecture sections ranging from 25–60 students in size.
 - Develop curriculum for STAT 301 and 307 courses (600+ students/semester).
- 08/2022 – 12/2022 **Graduate Statistical Consultant**, *Graybill Statistical Laboratory, CSU*, Fort Collins, CO.
- Guide researchers on statistical methods for a wide variety of subjects.
- 01/2020 – 07/2022 **Graduate Research Assistant**, *Colorado State University*, Fort Collins, CO.
- Develop model for Bayesian record linkage in a streaming context.
 - Create MCMC algorithm for efficient streaming Bayesian updates.
- 08/2010 – 05/2013 **Undergraduate Research**, *Intelligent River, Clemson University*, Clemson, SC.
- Research local correlation scores as statistical quality control test for real-time data.
 - Implement score in distributed computing environment on Palmetto high performance cluster.

INDUSTRY

- 06/2016 – 07/2017 **Senior Analyst**, *CarMax Auto Finance*, Kennesaw, GA.

Extended Service Plans (ESP)

- Manage reserve forecast for ESP returns and claims, explore improvements to actuarial models. With team, refine models creating \$2M reserve surplus.
- Report ESP reserve forecast to company vice presidents; interpret model results.
- Research and implement Markov network clustering algorithm as record linkage solution for ESP claims data. Consolidate 350,000+ records into groups for each distinct repair facility.
- Identify independent repair facilities for vehicle service partnerships in markets with higher ESP claims risk.
- Supervise analyst intern for summer term. Guide research into improvements to risk segmentation by vehicle make/model.

06/2013 – 05/2016 **Strategy Analyst, CarMax Auto Finance, Kennesaw, GA.**

Servicing Analytics/Collections Strategy

- Design and evaluate A/B strategy testing in loan servicing.
- Consult with managers of telephony departments to statistically evaluate business strategies.
- Research and create behavioral scorecard to predict account delinquency. Reduced 1 to 30-day collections costs by 15%.
- Implement strategy for TCPA compliance.
- Automate collection of data from post-call customer surveys, create customer service evaluation metric.

06/2012 – 08/2012 **Application Developer Intern, SCANA Corporation, Cayce, SC.**

Financial Reporting/Peoplesoft

- Develop business-critical financial reports in SAP
- Support generation, transmission, and distribution business financial reports
- Maintain financial report archives

COURSES TAUGHT

FULL COURSES

- STAT 307 – Introduction to Biostatistics (Spring–Fall 2019)
- STAT 301 – Introduction to Statistical Methods (Fall 2018, Spring 2023)
- STAT 204 – General Statistics recitation (Spring 2018)
- STAT 201 – General Statistics recitation (Fall 2017)

GUEST LECTURES

- DSCI 445 – Statistical Machine Learning (Fall 2020)
- STAT 730 – Advanced Theory of Statistics (Spring 2020)
- STAT 440 – Undergraduate Bayes (Spring 2019)

PUBLICATIONS

Taylor, I., Keller, K. P., and Fosdick, B. K. (2023a), “[Restricted Regression in Networks](#),” arXiv.

Taylor, I., Kaplan, A., and Betancourt, B. (2023b), “Fast Bayesian Record Linkage for Streaming Data Contexts,” *Journal of Computational and Graphical Statistics*, 1–20. <https://doi.org/10.1080/10618600.2023.2283571>.

Taylor, I., Kaplan, A., and Betancourt, B. (2023c), “[Generative Filtering for Recursive Bayesian Inference with Streaming Data](#),” arXiv.

Hughes, S., Rondeau, M., Shannon, S., Sharp, J., Ivins, G., Lee, J., **Taylor, I.**, and Bendixsen, B. (2021), “A Holistic Self-learning Approach for Young Adult Depression and Anxiety Compared to Medication-Based Treatment-As-Usual,” *Community Mental Health Journal*, 57, 392–402. <https://doi.org/10.1007/s10597-020-00666-9>.

CONFERENCES

PRESENTATIONS

- JSM 2022 – A Non-degrading Streaming Sampler for Recursive Bayesian Inference
- CMStatistics 2021 (Invited) – Fast Bayesian Record Linkage for Streaming Data Contexts
- JSM 2021 – Streaming Record Linkage for Online Data Deduplication
- ISBA 2021 – Restricted Regression in Networks

POSTERS

- CSU Statistics Student Posters 2022 – Fast Bayesian Record Linkage for Streaming Data Contexts
- ISBA 2021 – Restricted Regression in Networks
- CSU Statistics Student Posters 2021 – Sampling Methods for Streaming Record Linkage Models
- CSU Statistics Student Posters 2020 – Record Linkage: Basics and Streaming RL
- JSM 2019 – The Impact of Prior Choice on Latent Variable Network Models
- CSU Statistics Student Posters 2019 – Impact of Prior Choice on Network Models with Random Effects

ORGANIZATIONAL ROLES

- JSM 2022 Session Chair – Computing in Large and Complex Data Analysis
- IMS NRC 2019 at Colorado State University planning team

SEMINARS AND WORKSHOPS

- Coding and Cookies: Version Control Using Git (Spring 2022)
- Coding and Cookies: Reproducible Reports using Rmarkdown (Fall 2021)
- Coding and Cookies: Version Control Using Git (Spring 2021)

SOFTWARE

AUTHOR

bstrl

R package for Bayesian Streaming Record Linkage

- GitHub: <https://github.com/ianmtaylor1/bstrl>

- CRAN: <https://cran.r-project.org/package=bstrl>
- gammacount R package providing distributions related to renewal processes with gamma-distributed interarrival times
- GitHub: <https://github.com/ianmtaylor1/gammacount>

OPEN-SOURCE CONTRIBUTIONS

adaptMCMC, OpenMQTTGateway, rticles, TrueNAS CORE (documentation), wdman

EXPERIENCE AND TOOLS

R, Python, git, SQL, slurm, Rmarkdown, Quarto, LaTeX, Stan, Bash, Linux

AWARDS AND ACHIEVEMENTS

- Stanford Open Datathon 2021 finalist – data modeling track
- Graybill Award for Excellence in Linear Models 2019
- Phi Beta Kappa 2013
- Clemson University Honors College – General Honors
- National Society of Collegiate Scholars
- William Lowell Putnam Competition, 90th percentile