

Julia C Schedler

CONTACT INFORMATION

Rice University
Department of Statistics, MS-138
Houston, TX, 77251-1892

Phone: (408) 306-7572
E-mail: juliacschedler@gmail.com
Website: www.juliaschedler.com

EDUCATION

Rice University, Houston, TX USA

Ph.D. in Statistics, May, 2020

- Dissertation Title: “Advances in the Analysis of Spatially Aggregated Data”
 - Novel techniques are presented to account for the spatial dependence between regions using the extended Hausdorff distance. Methods developed balance the geometry of the underlying process while permitting analysis on a level relevant to policy and municipal decision-making processes. Also, a spatio-temporal case-crossover model is explored.
- Advisor: Katherine B. Ensor

M.A. in Statistics, May, 2018

California Polytechnic State University, San Luis Obispo, CA USA

B.S. Statistics and Mathematics (Pure Mathematics), June, 2014

- Senior Project Topic: “An Exploration of Stein’s Paradox”
- Advisor: Kevin J. Ross

TEACHING EXPERIENCE

Rice University, Houston, TX USA

Instructor: Methods of Data Analysis and System Optimization **January-May 2019**

- Introduce students with a broad range of more advanced Statistical techniques they are likely to encounter in management positions.
- Emphasis on ability to understand the results of analyses and how you could (and could not) use them to make business decisions.
- Reading/discussions of the book *Naked Statistics* as well as articles from the website fivethirtyeight.com
- Semester-long project: formulating a research question, finding data, assessing whether their data could answer their research question, analyze and present their findings to the class.

Instructor: Probability and Statistics

May-June 2017

Engaged students using a problem-based approach and emphasized effective statistical communication. Assessments included:

- Oral Final Exam
- In-class discussions based on readings from books like “The Lady Tasting Tea” or YouTube videos such as “Bertrand’s Paradox”.
- Collaborative group work (regular class and portion of midterm grade)

Graduate Certificate in Teaching and Learning

compl. 2017

I completed a four course, accredited certificate program that focused on course design, pedagogy, designing and interpreting research in the area of the Scholarship of Teaching and Learning (SoTL), a peer feedback course with teaching demos, and a final independent study to build my teaching portfolio.

Teaching Assistant

August 2014 - December 2015

Duties included designing and grading homeworks and exams as well as guest lecturing and holding office hours.

California Polytechnic State University, San Luis Obispo, CA USA

Supplemental Workshops in Science Facilitator

Sept 2011-Dec 2013

Provided extra, course-specific practice for students twice a week. I prepared activities for the students such as practice exams, games, worksheets, and data sets to analyze in Minitab, R or JMP.

Study Session Leader

Jan - March 2011

Met with students in various sections of a given course twice a week. I provided worksheets and answered homework questions.

Teaching Assistant

Fall 2013

Attended lectures to help the instructor answer student questions during programming activities and provided occasional guest lecturing.

RESEARCH INTERESTS

Spatial and Spatio-temporal statistics, time series, statistical communication and literacy, effective collaboration, simulation and problem-based statistics education

RESEARCH EXPERIENCE

Rice University, Houston, TX USA

Research Scientist 1

February 2023- Present

My position is part of the Rice University/City of Houston wastewater epidemiology partnership, a CDC National Wastewater Surveillance System Center of Excellence.

- **Time series modeling-** *Moving the spline methodology currently employed by the City of Houston into a state-space modeling framework, allowing for separate estimates of process and sampling/lab variability.*
- **Spatial modeling -** *Analyzing dependence among the sewer catchment areas for the City of Houston using lattice models for spatial data*
- **Statistical process control-** *Applying the tools of statistical process control to compare information gained from large, centralized wastewater treatment plants to that of upstream sampling sites.*
- **Reproducible research-** *GitHub and Shiny app for sharing code, tutorials, and apps to help advance the use of appropriate statistical models*

PhD Candidate

August, 2014 - November 2019

In graduate school, my research focused on the methodological side of spatial statistics, particularly in the context of areal count data (observed on or aggregated to regions).

- **(Extended) Hausdorff Distance for spatial weight matrices)**
- **A Zero-Inflated Hierarchical Poisson model with a spatial component-** *We investigate the relationships between crime, streetlights, and racial/ethnic background using crime counts and light density at the block level, and racial/ethnic composition at the block group level.*
- **Geometrically aware spatial weight matrices -** *An extension of the ideas behind the Hausdorff distance are used to construct a spatial weighting scheme which accounts for irregular lattice structure*
- **Short Course on Spatial Statistics -** *Topics included choice of neighborhood weighting structure, SAR and CAR models, Kriging, Geographically Weighted Regression, and Land Use Regression. Example code was provided in both R and Stata.*

Research Assistant

March 2015 - August 2017

Various projects with Dr. Quianta Moore at Rice's Baker Institute for Public Policy. Responsibilities

include analysis of survey data, write-ups for the Board of Directors of the funding organization, and on-site visits to determine data and analytics needs.

PROFESSIONAL
EXPERIENCE

zyBooks, A Wiley Brand, Campbell, CA, USA

Originally a startup which was acquired, zyBooks focuses on the creation of digitally native, interactive textbook replacements for computer science, math, statistics, data science, and engineering.

Statistics Content Lead

July 2021-November 2022

- Research, planning, and implementation of new statistics titles for the catalog, such as *R for Data Science*
- Supervised a team of 3 mathematicians/statisticians
- Trained new authors
- Participated in the creation of a new junior position for those with Bachelors degrees
- Created demos and provided instructor support in collaboration with sales and marketing teams

Statistics Content Author

October 2019-July 2021

- Completed training on the zyBooks authoring style and pedagogy
- Collaborated with enginners and external authors to create interactive web apps for supporting simulation-based instruction
- Authored interactive content as part of a digital versioning of the print book *Introduction to Statistical Investigations, 2E*

Q-Aces, LLC, San Luis Obispo, CA USA

Director of Data Development

June 2013 - August 2014

Start-up focused on the creation of a Search Engine Optimization (SEO) firm auditing tool to help lawyers make informed decisions about who to hire for their SEO needs.

- Created a database system in collaboration with Dr. Alex Dekhtyar implemented on an Amazon EC2 instance.
- Applied web scraping and SEO APIs to collect data on site relevance to create a lawyer-friendly process to identify and target the best keywords in order to maximize Search Engine Marketing ROI.
- Performed SEO work for client websites.

IMVU, Inc, Redwood City, CA USA

Data Science Intern

Summer 2010, 2011, 2012

IMVU is an online social entertainment destination where members use 3D avatars to meet new people, chat, create and play games with their friends.

- Performed an in-depth analysis and critique of the current A/B testing analysis system. Findings were presented to an inter-departmental meeting which included company VPs. I pointed out the statistical methodology flaws and explained how they impacted the company.
- Survival analysis models in R to analyze new customer behavior and retention.
- Obtained and cleaned data for analysis by marketing teams.

PUBLICATIONS

Ensor KB, **Schedler J**, Sun T, Schneider R, Mulenga A, Stadler LB, et al. Online trend estimation and detection of trend deviations in sub-sewershed time series of SARS-CoV-2 RNA measured in wastewater. *In preparation*.

Fagnant C, **Schedler JC**, Ensor KB. Spatial-Temporal Extreme Modeling for Point-to-Area Random Effects (PARE). Submitted to *Journal of Data Science*.

Schedler JC, Ensor KB. A spatiotemporal case-crossover model of asthma exacerbation in the City of Houston. *Stat.* 2021;10(1):e357. doi:10.1002/sta4.357

PRESENTATIONS Schedler, Julia (presenter) “Online trend estimation and detection of trend deviations in sub-sewershed time series of SARS-CoV-2 RNA measured in wastewater” upcoming Colloquium talk, Cal Poly Humboldt, October 2023

Fagnant, Carlynn; Schedler, Julia (presenter); and Ensor, Katherine (2023) “Spatial-Temporal Extreme Modeling through Point-to-Area Random Effects (PARE)” at Symposium on Data Science and Statistics, May 2023, St. Louis, MO

Schedler, Julia (2020) ‘A spatiotemporal case crossover model of asthma attacks in the City of Houston’ at Symposium on Data Science and Statistics, 2020 (virtual)

Schedler, Julia and Ensor, Katherine (2019) “Understanding Urban Pollution Through Spatial Modeling” at Joint Statistical Meeting 2019, Denver, CO.

Schedler, J.C. (2016), “Data Science in the Classroom: A Focus on Student Learning”. Poster Session at Data Science Meetup, Rice University, Houston, TX.

Ensor, K. B., Guerra, R., Schedler, J.C., Melnikov, O., Raath, K., (2016), “Urban Data Platform (UDP)”. Poster Session at Data Science Meetup, Rice University, Houston, TX.

COMPUTING SKILLS • Statistical Packages: R, Stan, SAS, WinBUGS, Stata.
 • Languages: Python, MySQL, HiveQL.
 • Applications: \LaTeX , ArcGIS.
 • Version Control: Git

HONORS AND **2014** Cal Poly State University: graduated with Honors, 2014
 AWARDS **2014** Cal Poly State University: Statistics Department Outstanding Senior Award, 2014
 2013 Western Users of SAS Software Honorable Mention Student Scholar, 2013
 2013 Advancement of Science and Technology Scholarship, 2013
 2012 Mu Sigma Rho