

Sean Kent

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Education

Ph.D. Student in Statistics | University of Wisconsin – Madison

August 2017 – Present (Expected May 2022)

GPA: 3.97/4.00

Selected Coursework:

Causal Inference | Clinical Trials | Data Visualization | Machine Learning | Mathematical Statistics | Nonlinear Optimization | Optimization in Large Scale Settings | Regression Analysis | Statistical Computing

Master of Science in Statistics | University of Wisconsin – Madison

Received May 2020

Passed the master's exam on statistical collaboration with a letter of merit for outstanding performance.

Bachelor of Science in Honors Mathematics | University of Notre Dame

Received May 2017, summa cum laude

Minor: Actuarial Science

Senior Honors Thesis: Interest Rates: Models and Applications

Glynn Family Honors Program:

Engaged in advanced philosophy, theology, history, and literature seminar courses with a focus on reading, writing, critical thinking, and communication skills.

Honors & Awards

Honorable Mention, John Hunter Excellence in plotting contest at SciPy 2020

Letter of Merit for Outstanding Performance, Dept. of Statistics Master's Exam on statistical collaboration, 2020.

Outstanding TA Performance Award, Dept. of Statistics, 2018

Phi Beta Kappa Honor Society, inducted member, 2017

Research & Related Experience

My research focuses on practical and methodological improvements to multiple-instance learning (MIL), a subset of machine learning where instances are naturally grouped into bags and only bag labels are observed. I also explore applications of MIL to breast-cancer imaging, tissue micro-array, and image recognition data. Prof. Menggang Yu advises these research topics.

Graduate Research Assistant | Department of Statistics

University of Wisconsin – Madison | May 2019 – Present

- Work through new methods for multiple-instance learning to improve performance over existing methods and extend literature to novel data applications.
- Develop new software for multiple-instance support vector machines (MI-SVM) and related algorithms (currently private on GitHub, I can share upon request)

Project Assistant | AFI Data Science Institute, COVID-19 Research Group

University of Wisconsin – Madison | Aug 2020 – Dec 2020

- Developed interactive, web-hosted visualizations in R to understand growth rates of COVID-19. These visualizations were presented to the American Family Insurance Data Science Institute's COVID-19 Research group and were modified for use at Gundersen Health System and Marshfield Clinic (data-viz.it.wisc.edu/wi-metro-growth-rate).
- Created an interactive R shiny dashboard based on Paltiel et al. (2020) "Assessment of SARS-CoV-2 Screening Strategies to Permit the Safe Reopening of College Campuses in the United States" for modelers at UW – Madison. This dashboard was endorsed by the paper's authors and has over 1,000 views from researchers across the country (data-viz.it.wisc.edu/covid-19-screening).
- Won a Wisconsin Alumni Research Foundation COVID-19 Accelerator Challenge Grant for this work.

Undergraduate Research | Department of Mathematics

University of Notre Dame | August 2016 – May 2017

- Researched a variety of mathematical finance topics under the direction of Alex Himonas, including the overlapping generations model, stochastic calculus and Ito's lemma, and affine term structure models for interest rates, including the Vasicek model and the Cox, Ingersoll, and Ross model.

Statistical Collaboration	<p>Seizures and activity in epileptic dogs School of Veterinary Medicine, UW – Madison</p> <ul style="list-style-type: none"> Barry M, Cameron S, Kent S, Barnes Heller H, Grady K (2020). Activity & sleep quality in treated idiopathic epileptic dogs, submitted. Analyze data to determine if assigned additional activity in dogs with idiopathic epilepsy improves sleep quality or seizure incidence <p>Disenrollment for RN coordinated care program Health Innovations Program, UW – Madison</p> <ul style="list-style-type: none"> Determine the feasibility of providing a disenrollment recommendation system for the RN coordinated care program through a dynamic treatment regime analysis, in progress. 				
Teaching Experience	<p>Lecturer (Student Assistant) Department of Statistics <i>University of Wisconsin – Madison Fall 2018</i></p> <ul style="list-style-type: none"> STAT 371 – <i>Introductory Applied Statistics for the Life Sciences</i>. Prepared and presented lecture materials, and designed homework, discussion, and other learning items to better teach 135 students with no prior knowledge in statistics. <p>Teaching Assistant Department of Statistics <i>University of Wisconsin – Madison Fall 2017 – Summer 2019</i></p> <ul style="list-style-type: none"> STAT 679 – <i>Special Topics in Statistics</i>. Overall rating: 4.55/5.00 STAT 333 – <i>Applied Regression Analysis</i>. Overall rating: 4.75/5.00. STAT 324 – <i>Introductory Statistics for Engineers</i>. Overall rating: 4.80/5.00. STAT 371 – <i>Introductory Applied Statistics for the Life Sciences</i>. Overall rating: 4.40/5.00. Tutored groups of students in various introductory statistics courses via drop-in hours to solidify their understanding of course material. <p>Teaching Assistant Department of Mathematics <i>University of Notre Dame Spring 2017</i></p> <ul style="list-style-type: none"> Undergraduate teaching assistant for <i>Mathematical Methods in Financial Economics</i>, a course of 38 juniors, seniors, and graduate students interested in financial and economic applications of mathematics. Revised and provided feedback for lecture notes, resulting in a substantial overhaul of some sections. Graded homework and projects to provide feedback and assist students learning the course material. 				
Industry Experience	<p>PayNet, Inc. Skokie, IL <i>Statistical Modeling Intern Summer 2018</i></p> <ul style="list-style-type: none"> Designed and completed a model for small business owner’s compensation based on location, geography, and other factors from the PayNet database; built this model from start to finish using a combination of R and SQL. <p><i>Statistical Modeling Intern Summer 2017</i></p> <ul style="list-style-type: none"> Created almost completely automated tools in R and SQL for analyzing AbsolutePD model performance using 4 key metrics across hundreds of combinations of categorical information. Developed new models in Python using state of the art machine learning algorithms—including neural networks, random forests, and gradient boosting—for comparison and improvement of current products. <p><i>Analytics Intern Summer 2015</i></p> <ul style="list-style-type: none"> Assisted in back-testing and coding of a 5-level hierarchal credibility model, in R, which gives the probability of default for any county and industry combination. Designed and ran SQL drill-downs on a database of over 23 million small business loans. Improved efficiency on various deliverables by creating automated worksheets in Excel. Increased small business matching accuracy through careful review of new logic results. 				
Leadership / Service	<p>Statistics Graduate Student Association Madison, WI <i>Founding Treasurer Dec 2017 – Jan 2020</i></p> <ul style="list-style-type: none"> Co-founded the organization with the goal of building a community for statistics students at UW – Madison. Built a budget of over \$1000 to support student seminars, department happy hours, and outreach activities. <p>TA Evaluation Review Subcommittee Department of Statistics <i>Member Jan 2020 – Present</i></p> <ul style="list-style-type: none"> Review TA evaluations of graduate students in the department to improve teaching quality. 				
Technical Skills	<table border="0"> <tr> <td data-bbox="305 1785 812 1848"> <p>Programming/Statistical Software R (package development), Python, MATLAB, Stata</p> </td> <td data-bbox="925 1785 1515 1848"> <p>Other SQL, Google Cloud Platform, Git, Linux, Bash scripting</p> </td> </tr> <tr> <td colspan="2" data-bbox="305 1869 1515 1934"> <p>Data Visualization ggplot2, Plotly, Tableau, Plotnine</p> </td> </tr> </table>	<p>Programming/Statistical Software R (package development), Python, MATLAB, Stata</p>	<p>Other SQL, Google Cloud Platform, Git, Linux, Bash scripting</p>	<p>Data Visualization ggplot2, Plotly, Tableau, Plotnine</p>	
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