

AUSTIN MENGER

Contact Information

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Research Interests

Survival Analysis, Machine Learning, Bayesian Deep Learning

Education

University of Connecticut, Storrs, CT

Ph.D. in Statistics (Expected) May 2022
Qualification Exam Cleared
Advisor: Ming-Hui Chen, Ph.D. (Chair)

Master of Science in Statistics (Expected) May 2022

Graduate Certificate in College Instruction (Expected) May 2022

Columbia University, New York, NY

Master of Science in Applied Analytics August 2017

Georgetown University, Washington, DC

B.S. with Honors in Mathematics; Minor in Economics May 2016
Honor's Thesis Title: *A Flexible Longitudinal Study Model for Count Data*
Thesis Advisor: Kimberly Sellers, Ph.D.

Teaching Experience

University of Connecticut – Department of Statistics, Storrs, CT **August 2017 - Present**

Primary Instructor

- Elementary Concepts of Statistics (1100Q) Summer 2018, Summer 2019, Fall 2020, Spring 2021
- Introduction to Mathematical Statistics I (3375Q) Fall 2018
- Statistical Methods (Calculus Level I) (3025Q) Fall 2018

Teaching Assistant

- Elementary Concepts of Statistics (1100Q) Spring 2020
- Introduction to Statistics I (1000Q) Fall 2017, Spring 2018, Summer 2020

Georgetown University - Department of Mathematics & Statistics, Washington, DC **August 2014 – May 2016**

Teaching Assistant

- Multivariable Calculus (MATH 137) Fall 2015
- Computer Science Math Methods (COSM 030) Fall 2015, Spring 2016
- Probability & Statistics (MATH 040) Fall & Spring 2014 - 2016

Research Positions

IDEA Grant Program (University of Connecticut), Storrs, CT

November 2020 – Present

Research Mentor

- Mentoring a current freshman applying for the IDEA Grant Program at the University of Connecticut. Her research will focus on understanding ethical treatment of laboratory animals using a psychometric survey scoring approach. Mentorship will focus on factor analysis methodology exploration, survey construction, & analysis.

NIH R01 Grant, Storrs, CT

January 2020 – August 2020

Research Assistant

- Worked as the primary author in developing methodological advancements for 1 of the 3 aims in the proposal. Responsible for methodology exploration, implementation, & weekly team presentations.
- Work done under P.I.: Ming-Hui Chen, Ph.D. (University of Connecticut, department head)

Pratt & Whitney, East Hartford, CT

January 2019 – May 2020

Research Assistant

- Survival analysis to perform engine lifetime modeling interval prediction (material is classified). Responsible for methodology exploration, implementation, & company stakeholder presentations.
- Invited back to apply for summer internship, but with COVID the positions were hence omitted.
- Work done under 2 co-P.I.'s: Ming-Hui Chen, Ph.D. & HaiYing Wang, Ph.D. (both of the University of Connecticut)

Georgetown University, Washington, DC

September 2015 – May 2016

Full-Year Honors Thesis Candidate

- Application of the Conway-Maxwell-Poisson distribution to construct a longitudinal model for analysis of count data over time accounting for dispersion using R and SAS (pending publication)
- Met twice weekly with advisor for relevant literature review, culminating in publication.
- Allowed for graduation with honors in mathematics and nomination for membership into the National Scientific Research Honor Society Sigma Xi
- Honors Thesis Title: *A Flexible Longitudinal Study Model for Count Data*
- Advisor: Kimberly Sellers, Ph.D. (Georgetown University), with mention to Darcy Morris, Ph.D. (U.S. Census Bureau)

Statistical Consulting

Menger Education, LLC, Providence, RI
Independent Statistical Consultant

September 2014 – Present

Brown University Hospital – Impact of Virtual Learning on Pediatric Cancer Patients

November 2020 - Present

- Working with a Brown University Hospital pediatric resident physician in determining the impact of virtual learning on pediatric patient mood and overall socialization. Solely responsible for data preparation & analysis. Assisting with survey construction. Project is in early stages right now, preparing for IRB submission.
- Role: Statistician on Record
- Primary Contact: Jenna McClane, M.D. (Brown University Hospital)

- University of Connecticut Dental School – Oral Health Screening* May 2019 - Present
- Working with the University of Connecticut Dental School in determining oral health knowledge and screening procedures of other medical professionals in the UConn health network. Solely responsible for survey construction, as well as data preparation & analysis. 1 publication in progress.
 - Role: Statistician on Record
 - Primary Contact: Geraldine Weinstein, D.D.S. (UConn Health Center)

- Cooper Medical School – Colorectal Surgery* March 2019 - Present
- Working with three Colorectal surgeons to study the accuracy of localizing studies for rectal cancer, ileostomy methodology, and MRI/Flexible Sigmoidoscopy landmark measurement lengths. Solely responsible for statistical analyses on 1 of the 2 projects, managing the work of the 2nd done by an intern. 1 publication submitted for review, 1 other in progress (abstract submitted).
 - Role: Statistician on Record
 - Primary Contacts: Steven McClane, M.D., Andrew Morgan, M.D., Robert Emery, M.D. (all Colorectal Surgeons at Cooper University Hospital)

- Hashemite University – Arabic Reminiscence Functions Scale & Dementia Knowledge* March 2019 - Present
- Working with an Assistant Professor in Psychological Health Nursing in psychometric testing of the Arabic version of the reminiscence functions scale, as well as testing nursing student knowledge about dementia. Solely responsible for statistical analysis, including all relevant portions of the IRB proposal. 1 publication accepted (to appear), 1 submitted, 1 other in progress.
 - Role: Statistician on Record
 - Primary Contact: Abdallah Abu Khait, Ph.D. (Dept of Community & Mental Health Nursing)

- Montclair State University RYTE Institute – GISO Community Support* September 2018 – May 2019
- Worked with the Montclair State University RYTE Institute School in exploring sources of community support for youths from marginalized GISO groups. Responsible for the preparation and analysis of data with Ofer Harel, Ph.D.. Results used in the primary contact's Ph.D. dissertation.
 - Role: Statistician on Record
 - Primary Contact: Lisa Chauveron, Ph.D. (RYTE Institute at the time)

- Columbia University Dept. of Orthopedic Surgery – Spinal Surgeon Lobbying Interests* August 2018 – June 2019
- Worked with the Columbia University Department of Orthopedic Surgery studying the political lobbying interests of key Spinal Surgeon committees. Solely responsible for the preparation and analysis of data. 1 accepted publication.
 - Role: Statistician on Record
 - Primary Contact: Richard Menger, M.D. (Columbia University at the time)

- Louisiana State University Dept. of Neurosurgery – Rugby Concussion Prevention* September 2015 – January 2016
- Worked with the Louisiana State University Department of Neurosurgery to determine prevalence and misconceptions surrounding “protective” headgear in rugby matches. Solely responsible for survey construction, survey distribution (to a network of rugby contacts I had developed), data preparation & analysis. 1 accepted publication.
 - Role: Statistician on Record
 - Primary Contact: Richard Menger, M.D. (Louisiana State University at the time)

UConn Statistical Consulting Services, Storrs, CT **January 2020 – June 2020**
Statistical Consultant

- Exploring Testing Accommodation Use by College Students with Disabilities* February 2020 – April 2020
- Methodology: Mixed Effects Longitudinal Analysis
 - Used In: Research Publication
 - Primary Contact: Nick Gelbar, Ph.D. (Associate Research Professor, Dept. of Educational Psychology)

- Optimization of Titanium Sample Preparation with Multi-Etch* February 2020 – March 2020
- Methodology: 2^k Factorial Design Analysis
 - Used In: Undergraduate Research – Technical Report
 - Primary Contact: Joshua Ambrose (Undergraduate, Dept. of Chemical & Biomolecular Engineering)
- Ethnic-Racial Socialization in Biracial Kindergarten Students* February 2020 – June 2020
- Methodology: Structural Equation Modeling/Path Analysis
 - Used In: Research Publication
 - Primary Contact: Annamaria Csizmadia, Ph.D. (Associate Professor, Dept. of Human Development & Family Sciences)
- Effectiveness of Management Accounting Performance Measures* January 2020 – March 2020
- Methodology: Structural Equation Modeling
 - Used In: Ph.D. Dissertation
 - Primary Contact: Omnia Hanafy (University of Connecticut Ph.D. Student, Accounting Dept.)
- Walk-In Appointments* January 2020 – May 2020
- Methodology and uses varied by walk-in client. Issues handled ranged from data manipulation to survey construction/analysis.

Professional Experience

Menger Education, Garden City, NY
 Founder

August 2018 – Present

- Menger Education focuses on educating those preparing to enter the work force. We triangulate our offerings in educational seminars, private tutoring, & statistical consulting for both professional & academic research projects.
- Work originated while At Georgetown. Worked as a private tutor for 5 students approximately 12-15 hours a week in: Decision Analytics for the Georgetown Executive MBA program, Analysis and Research for Villanova's Master of Public Administration Program, Statistical Methods for Policy Analysis for the Georgetown Master of Public Policy Program, Real Analysis for Georgetown undergraduates, Economic Statistics for Georgetown undergraduates, and PRAXIS exam preparation for an aspiring high school educator.
- Taught statistical analysis of business applications using Excel in ways relevant to the jobs of those taking the courses.
- Tutoring continued into the University of Connecticut, where I hence created the LLC to accommodate incoming consulting requests.

University of Connecticut, Storrs, CT
 Graduate Assistant

August 2017 – Present

- Served as a teaching assistant for a total of 10 sections of introductory courses (5 sections Fall 2017, 3 sections Spring 2018, 1 section Spring 2020, and 1 section Summer 2020)
- Served as a primary instructor for 6 courses (1100Q Summer 2018, 3025Q and 3375Q Fall 2018, 1100Q Summer 2019, 1100Q Fall 2020, 1100Q Spring 2021)
- Served as a research assistant for 17 months on a project with Pratt and Whitney, and then again for 8 months assisting as primary author on an NIH R01 grant proposal write-up.
- Served as a Statistical Consultant for 1 semester with the UConn Statistical Consulting Services (Spring 2020).
- Served as a course grader for one 3025Q course (Fall 2017) and as a departmental tutor for 1-2 hours a week for Fall 2017 and Spring 2018.
- Responsible for organizing the monthly paper discussion among the department.

New York Engineers, New York, NY
Lead Data Scientist

May 2017 – September 2017

- Brought in to build and temporarily lead the Data Science Team at New York Engineers before beginning my doctoral studies. The primary focus was scaling the company at large using data-backed actionable insight.
- API systems implemented increased company revenue by nearly 30% within 5 months through targeted sales tactics (starting revenue approx. 4 million). Such systems allowed New York Engineers to enter a new market in Chicago, as well as improve efficiency at their offices in New York City & India.
- Developed attrition models to help create an actionable list of target clients from Salesforce Data.
- Worked across the Sales and Accounting teams to identify key company inefficiencies, as well as working toward creating a measurable metric to track production month-by-month.
- Met with members from each Engineering Department (Mechanical, Electrical, & Plumbing) to extract stakeholder input on target areas for analytics within the company.
- Developed multiple internship programs, structured to both allow students to gain valuable experience within the field of Data Science, as well as to provide concrete actionable insight for teams across the company.
- Responsible for interviewing and hiring Data Scientists to join the team. Over the course of 5 months conducted numerous interviews, ultimately hiring 1 Data Scientist & 2 Data Engineers prior to my departure.

Reed Exhibitions, Norwalk, CT
Database Analyst

October 2016 – May 2017

- Lead an attrition modeling project through an application of logistic regression, scoring customers' likelihood to attrite
- Segmented and managed target audience clusters aligned with event growth cycles through an application of an RFM (Recency, Frequency, & Monetary) model
- Handled daily SQL queries for the marketing team and worked toward becoming SAS certified (we used SAS and R daily, worked on self-learning Python)
- Researched text mining techniques to perform a comparison of customer-entered survey interest data

Consolidated Edison, New York, NY
Statistical Analyst Intern

July 2015 – September 2015

- Managed financial Time Series Analysis research project pertaining to 173,000 Corrective Action Requests
- Contacted 155 users with multiple company computers and updated user profiles, resulting in company savings of \$22,750
- Gained technical proficiency in: Minitab, Tableau, Lync, Outlook, Excel, and SQL Server

Service/Leadership Experience

NextGen (New England Statistical Society)

October 2019 – Present

- New England Statistical Society (NESS) member since November 2019.
- Invited to be a NextGen Committee Member by the President of NESS at the time (Ming-Hui Chen, Ph.D.) and current Vice President for NextGen (Abidemi Adeniji, Ph.D.).
- Diversity, Inclusion, & Outreach sub-committee team lead
 - Initialized and currently leading work toward the development of a NESS scholarship for minorities. Proposal had gained approval from NESS leadership and resulted in a formal Letter of acknowledgement from NESS.
 - Managed the Data Science Day 2020 outreach efforts to 148 schools.
 - Spearheaded the opening of university-specific events to the larger NESS audience (UConn paper of the month).

- Also contributing member of the Data Science Day sub-committee. Asked to chair and lead the Data Science Day (2020) Careers in Data Science panel session.
- Lead a search for other student members to the Sub-Committee from various universities across New England.
- Responsible for opening up UConn events to the whole network of NESS.

Graduate Student Committee – Statistics (UConn)

September 2018 – Present

- Active Member for the 2020 to 2021 academic year.
- Elected President for the 2019 to 2020 academic year.
- Elected Secretary for the 2018 to 2019 academic year.

American Statistical Association – UConn Student Chapter Representative.

September 2018 – December 2018

- Asked to be the UConn Student Chapter Representative for the ASA.

American Statistical Association - DataFest Consultant

April 2018 – Present

- Each Spring the ASA hosts a weekend-long DataFest for STEM students. My role is to act as a statistical consultant to the participating teams, assisting with questions ranging from methodology to coding inquiries.
- In 2018, the UConn team won an award for “Best Data Integration” at the ASA DataFest held at Wesleyan University.
- Starting in 2020, also began taking an active leading role in preparing the UConn undergraduate DataFest team through various orientations/trainings.

Alumni Interviewer (Georgetown & Columbia)

September 2017 – Present

- Responsible for interviewing, on average 6-8 students per university, per application cycle. Write-ups used in measuring factors not easily assessed in a typical application.

Co-Founder - Analytical Alchemist Club of Columbia University

September 2016 – August 2017

- Co-founded the club at Columbia University, acting as initial Vice President during my time at the university.
- Acted as principal statistical modeler for the group, including the overseeing of all meetings and ultimately responsible for determining direction for analytics initiatives concerning real-world applications.
- Managed club activities and helped the Treasurer with managing and maintaining the internal budget for a membership of approximately 55 Columbia University Applied Analytics master’s degree student members.
- Prepared and presented at board meetings, having meet with Columbia University club officials regarding club policy and initiatives.
- Shared responsibility for securing guest industry speakers for official club meetings.
- Continued membership, periodically going back to the university and contributing.

Sigma Xi – Scientific Research Society

May 2016 – Present

- Elected Associate Member by the Georgetown University Chapter of the society upon recommendations following undergraduate honors thesis.

Awards & Honors

Letter of Acknowledgement – New England Statistical Society

(Expected) November 2021

Awarded a formal letter of acknowledgement for my efforts leading a team of 7 members through the establishment of the NESS Scholarship for underprivileged students.

Statistics Department Service Award – University of Connecticut

September 2020

Awarded the annual Statistics Department award for service to the department.

Team of the Year – Reed Exhibitions

January 2017

The Data Analytics Team won team of the year award for our work with Attrition Modeling.

Graduated with Honors – Georgetown University

May 2016

For my year-long work on an honors research thesis, I was the only undergraduate in the Department of Mathematics and Statistics to be awarded the distinction of graduating “with Honors” in 2016.

Talks

UConn Department of Statistics – Weekly Departmental Student Seminar Series, Storrs, CT

A Flexible Longitudinal Study Model for Count Data

February 24th, 2020

Sponsor: University of Connecticut: Weekly Departmental Student Seminar Series

Columbia University – Invited Talk, New York, NY

Sharpening Our Statistical Toolkit – A Rebirth of Classical Powerful Techniques

March 23rd, 2018

Sponsor: Columbia University Analytical Alchemists

Publications & Presentations

Accepted

1. Abu Khait, **A.**, Menger, **A.**, Shellman J. (To appear 2022). Psychometric testing of the Arabic version of the reminiscence functions scale. *Journal of Nursing Measurement*, Volume 30, Number 2.
2. Menger, R., Shaw, T., Bunch, J., Barry, J., Marciano, G., **Menger, A.**, Martino, A., Lenke, L., & Vitale, M. G. (2020). Healthcare lobbying, political action committees, and spine surgery. *Spine*, 45(24), 1736-1742.
3. Morris, D.S., Sellers, K.F., **Menger, A.** (2017) Fitting a flexible model for longitudinal count data using the NLMIXED procedure, In SAS Global Forum Proceedings.
4. Menger, R. **Menger, A.** Nanda A. (2016). Rugby headgear and concussion prevention: misconceptions could increase aggressive play. *Neurosurgical focus*, 40(4), E12.

Under Review

1. Morgan, A.B., Hakim, A., **Menger, A.**, Gefen, R., Kovacs, J., Kwiatt, M., Guigliano, D., McClane, S.J. Comparison of localizing studies for mid and upper rectal cancers: a single center experience. *International Journal of Colorectal Disease*. (Under Review)
2. Abu Khait, A., **Menger, A.**, Hamaideh, S., Al-Modallal, H., Abdalrahim, A. Prediction of nursing students’ knowledge about biological, behavioral, and psychosocial domains of dementia and measuring effects of demographic variables: a cross-sectional survey study. *Nurse Education Today*. (Under Review)

In Progress

1. **Menger, A.**, Sheikh, M.T., Chen, M-H. A flexible likelihood-based model for cure-rate, competing risk time-to-event data. (Publication in Progress)
2. Emery, R., **Menger, A.**, McClane, S.J. Ileostomy methodology. *Surgical Endoscopy*. (Abstract Submitted)
3. Abu Khait, A., **Menger, A.** Confirmatory factor analysis of the Arabic version of the reminiscence functions scale with strict measurement invariance across gender. (Publication in Progress)
4. Weinstein, G., **Menger, A.** Oral health screening. (Publication in Progress)

Posters & Oral Presentations

1. **Menger, A.**, Sellers K. (2016) An application of the Conway-Maxwell-Poisson distribution through a longitudinal study. Poster Presentation, 2016 Undergraduate Research Conference: Washington, DC.
2. Menger, R. **Menger, A.** Nanda A. (2014) Rugby headgear and concussion prevention: misconceptions increase aggressive play. Digital Poster, 2014 Congress of Neurological Surgeons: Boston, MA.
3. Menger, R. **Menger, A.** Nanda, A. (2014, February). Misconceptions about rugby headgear and concussion prevention: a call for education, evaluation, and a cultural shift. Oral Presentation, 2014 Annual Meeting Southern Neurosurgery Society Meeting: San Juan, PR.
4. Menger R. **Menger A.** Nanda A. (2014, January). Misconceptions about rugby headgear and concussion prevention: initial data. Oral Presentation, 2014 Louisiana State Neurosurgery Society Academic Meeting: Baton Rouge, LA.

Statistical Software Used in Above Projects

R, SAS, Julia, Mplus, Minitab, SQL, JMP

Supplemental Education

Disability Awareness & Inclusive Teaching Online Training

March 2020

Instructors: Allison Lombardi, Ph.D. (University of Connecticut) & Emily Tarconish (University of Connecticut)