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DANIEL LIDEN

EDUCATION

University of Chicago, Chicago, IL
B.A. in the *History, Philosophy, and Social Studies of Science and Medicine*
University of Minnesota, Twin Cities
M.S. in *Statistics* expected May 2018

WORK HISTORY

Data Analyst (February 2012-September 2016); Statistical Consultant (September 2016-Present)
Context Matters, Inc. **February 2012-Present**

- Detailed research and analysis (quantitative and qualitative) of Health Technology Assessment (HTA) reviews from a variety of agencies around the world
- Helping to compile and maintain a relational database of HTA decision data
- Statistical analysis of HTA data (mostly GLMs, linear regression, ANOVA, misc. significance tests, nonparametric methods)
- Writing and editing disease condition summaries, research papers, detailed analytic reports, client reports, blog posts, and presentations, as well as presenting original research

Historical Research Assistant
University of Chicago Biological Sciences Division, project for Dr. Daniel Brauner **April 2013-September 2016**

- Research the history of cardiac arrest and resuscitation with an eye toward the ethical implications, specifically as they relate to DNR (do not resuscitate) orders
- Organize and format references based on various style guides

Research Assistant
University of Chicago Department of Microbiology, Dr. Howard Shuman's Laboratory **March 2012-August 2012**

- Worked on project to determine whether or not amoebae digest bacterial lipopolysaccharide outer membranes
- Searched for amoeba species capable of feeding on legionella pneumophila

Biomedical Research Intern

- Van Andel Research Institute, Grand Rapids, Michigan **June 2010-September 2010**
- Worked on a bioinformatics project in a pancreatic cancer lab
- Collected, formatted, and analyzed publicly-available information on sugar-binding proteins
- Helped to organize findings into journal article

Scientific and Medical Freelance Writer and Editor **May 2009-Present**
Self-employed (work completed for Conjecture Corporation, Stripes39, Association for Computing Machinery, science and health blogs, and other clients)

SELECTED PUBLICATIONS

- Maupin K, Liden D, Haab B. *The fine-specificity of mannose-binding and galactose-binding lectins revealed using outlier-motif analysis of glycan array data* (Glycobiology, Oxford Press, 2012)
- Liden D, Jaksa J. *CADTH Recommendations as Predictors for Drug Availability in British Columbia and Ontario* (Value in Health abstract; presented at ISPOR Montreal in 2014).
- Liden D, Jaksa J. *Cancer Drugs Fund Allocation Under NICE: The First Six Months* (HTAi abstract, Presented at HTAi Rome 2017)
- Liden D, Jaksa J. *Trends in NICE Cancer Drugs Fund Reconsiderations* (HTAi abstract, Presented at HTAi Rome 2017)

OTHER SKILLS

Computer skills: Skilled with R statistical programming language, data visualization (R base, lattice, and ggplot2; MS excel), git version control, Microsoft Office suite. some experience with Python, Ruby, C, and Fortran.

Detailed CV

Education

University of Minnesota, Twin Cities

M.S. in Statistics Expected May 2018

Coursework: One-year mathematical statistics sequence; one-year applied statistics sequence focusing on advanced regression and experimental design; one semester statistical computing course focusing on simulation and monte-carlo methods, one semester on categorical data analysis, one semester on Bayesian data analysis (will complete by May 2018); one semester on machine learning and data mining (will complete by May 2018). Additional mathematical coursework on linear algebra and mathematical analysis.
Research: My thesis project focuses on tests for heterogeneity of risk difference in clinical trial data. Typically, one uses Poisson regression with an interaction term between treatment group and a covariate of interest as one of the coefficients. The estimate and p-value associated with that coefficient is used to assess heterogeneity. However, such tests often fail to converge. The core of my project is a simulation study assessing the usefulness of a bootstrap Q-statistic-based test of heterogeneity across subgroups. Preliminary results suggest that such a test is highly unstable and is extremely dependent on the cutpoints used in establishing the subgroups. The rest of the project will focus on devising a new test that is not so dependent on the choice of cutpoints, or a description of the optimal choice of cutpoints to ensure sufficient power and acceptable type-II error.
Other: Grader for upper undergraduate/nonmajor graduate Mathematical Statistics course, Spring 2018.

University of Chicago

B.A. in the History, Philosophy, and Social Studies of Science and Medicine awarded with general honors in 2013

Coursework: General undergraduate coursework in calculus, biology, and chemistry. Graduate-level coursework in history and philosophy of biology. Miscellaneous courses in history of science research methods.
Research: My undergraduate thesis was titled *Classification Guiding Practice: The Effects of Classification on Knowledge Production and Work Practice*. It comprised two parts. The first was a discussion, based on the work of Hans-Jörg Rheinberger, of the role of classification manuals in knowledge production. I argue that "Practice based on a formal information infrastructure reifies the classifications comprising it, resulting in the appearance of fixity and the generation of "the natural."" That is, a classification guide is not just a dusty reference manual, but a prescriptive device that both guides and is reinforced by research practice. The second part is a case study focusing on the changing definitions of Rickettsiae in subsequent editions of *Bergey's Manual of Determinative Bacteriology* published throughout the 1950s-60s. In the paper, I state that "The Rickettsiae provide a powerful illustrative case because, in the mid-20th century, they inhabited a vague taxonomic position between bacteria and viruses. Yet in Bergey's, the Rickettsiae are classified unambiguously and without reference to the actual uncertainty of their taxonomic situation."
Honors and Awards: Graduated with general honors because of thesis project; on Dean's List all four years.

Other Academic Research

Historical Research Assistant, April 2013-September 2016

University of Chicago, working with Dr. Daniel Brauner

Research Project: I worked with Dr. Brauner on a project addressing the history of cardiac arrest and resuscitation, starting from the 16th-17th centuries when the role of the heart was still poorly understood and resuscitation methods were practiced without a direct aim of restarting the heart, and continuing to the present when some attempt at resuscitation is attempted on almost all patients who die in a hospital without a "Do Not Resuscitate" order. My role largely consisted of archival research, literature reviews and summaries, and draft reading and editing.

Microbiology Research Assistant, March 2012-August 2012

University of Chicago Department of Microbiology, Dr. Howard Shuman's lab

Research Project: I worked on project to determine whether amoebae digest bacterial lipopolysaccharide outer membranes and searched for amoeba species capable of feeding on legionella pneumophila.

Biomedical Research Intern, June 2010-September 2010

Van Andel Research Institute, Grand Rapids, Michigan

Research Project: I worked on a bioinformatics project to develop a novel approach to interpreting glycan-array data called outlier-motif analysis. The goal of this analysis was to obtain fine-specificity data from glycan-array data. From the published results, "We developed a systematic approach, called outlier-motif analysis, for extracting fine-specificity information from glycan-array data, and we applied the method to the study of four commonly used lectins: two mannose binders (concanavalin A and Lens culinaris) and two galactose binders (Bauhinia purpurea and peanut agglutinin). The study confirmed the known, primary specificity of each lectin and also revealed new insights into their binding preferences." I conducted much of the original research and developed the initial workflow for processing and analyzing the publicly-available glycan-array data. I also assisted in the writing and editing of the resulting paper, published in *Glycobiology* in 2012.

Publications

Note: Most of these are published conference abstracts. This is noted in parentheses after each item in the list.

- *Forthcoming*: Cancer Drugs Fund Allocation Under NICE: The First Six Months; Trends in NICE Cancer Drugs Fund Reconsiderations (Both Presented at HTAi Rome 2017. Liden D; Jaksa A)
- Jaksa, A., & Liden, D. (2016). Institute for Clinical and Economic Review (ICER) VS. Health Technology Assessment (HTA) Agencies: The Case of Multiple Myeloma and PCSK9S. *Value in Health*, *19*(7), A494. https://doi.org/10.1016/j.jval.2016.09.851 (abstract)
- Jaksa, A., Liden, D., & Ho, Y. (2015a). A Comparison of G-BA's additional benefit score to NICE ICERs. *Value in Health*, *18*(3), A95–A96. https://doi.org/10.1016/j.jval.2015.03.559 (abstract)
- Jaksa, A., Liden, D., & Ho, Y. (2015b). Predictors of a positive Cancer Drug fund decision. *Value in Health*, *18*(3), A219. https://doi.org/10.1016/j.jval.2015.03.1273 (abstract)
- Liden, D., & Jaksa, A. (2016). Different Values In Cost-Effectiveness Research: Institute for Clinical and Economic Review (ICER) VS. The National Institute for Care Excellence (NICE). *Value in Health*, *19*(7), A501. https://doi.org/10.1016/j.jval.2016.09.897 (abstract)
- Liden, D., Jaksa, A., Daniel, K., & Ho, Y. (2014). Cadth Recommendations As Predictors For Drug Availability In British Columbia And Ontario. *Value in Health*, *17*(3), A6. https://doi.org/10.1016/j.jval.2014.03.040 (abstract)
- Maupin, K. A., Liden, D., & Haab, B. B. (2012). The fine specificity of mannose-binding and galactose-binding lectins revealed using outlier motif analysis of glycan array data. *Glycobiology*, *22*(1), 160–169. https://doi.org/10.1093/glycob/cwr128 (full article)
- Rubinstein, J., Rubinstein, E., Jaksa, A., Jao, R., Satyarthi, H., & Liden, D. (2013). A Case Study of FDA Practices and Its Influence on Regulatory and Reimbursement Decisions for Darunavir. *Value in Health*, *16*(7), A365. https://doi.org/10.1016/j.jval.2013.08.249 (abstract)
- Rubinstein, J., Rubinstein, E., Jaksa, A., & Liden, D. (2013). HIV Regulatory Practices and Their Influence Over Reimbursement Decisions. *Value in Health*, *16*(7), A365. https://doi.org/10.1016/j.jval.2013.08.247
- Versoza, L., Jaksa, A., Liden, D., & Ho, Y. (2015). Do evidence review groups bias nice decisions? *Value in Health*, *18*(7), A335. https://doi.org/10.1016/j.jval.2015.09.113 (abstract)

Employment

Data Analyst (2015-2016); Statistical and analytic consultant (2016-Present), Context Matters, Inc.

- Analyze Health Technology Assessment (HTA) decision data from countries with national healthcare systems/HTA agencies. HTA agencies determine whether new pharmaceutical products should be reimbursed by their respective countries' healthcare systems.
- Assemble presentations (slide decks, reports, plots, etc.) for clients and internal stakeholders ranging from other analytics specialists to businesspeople in upper management.
- Conduct statistical analyses in the course of analytics work (typically using GLMs, linear regression, ANOVA, and some nonparametric methods). Most statistical analyses were conducted using the R programming language.
- Write and edit research reports, blog posts, and marketing materials

Junior Data Analyst (2012-2014); Operations and Analytics coordinator (2014-2015), Context Matters, Inc.

- Develop and maintain a relational database of HTA decision data
- Develop methods for systematically collecting and processing HTA decision documents from a variety of online sources
- Clean and enter data in the relational database
- Analyze sales data and coordinate activities between sales and analytics teams
- Conduct original research for presentation (poster and oral) at conferences
- Write and edit research reports, blog posts, and marketing materials
- Write software in Ruby to facilitate easier pricing calculations

Freelance Science and Medical Writer and Editor (2009-2014)

- Research and write original articles on technical and scientific topics for a variety of clients. Some were highly technical and required more research while others focused on clarifying difficult scientific topics to lay audiences.
- Edit reviews of books and journal articles related to computer science, machine learning, and other computing-related topics for the Association for Computing Machinery. Many of these were written by scholars for whom English was not their first language, so my job was to edit their reviews for clarity in order to ensure that their work reached a broader audience, giving readers the benefits of their expertise and helping the writers gain more exposure.