

Matthew W. Brems

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RESEARCH INTERESTS Missing data, data visualization, machine learning, data science training and education

EDUCATION **The Ohio State University**, Columbus, OH

M.S., Statistics, May 2015

- Thesis: *The Rare Disease Assumption: The Good, The Bad, and The Ugly*
- Advisor: Shili Lin, Ph.D.

Franklin College, Franklin, IN

B.A., Pure Mathematics, Applied Mathematics, Quantitative Analysis, and Economics (quadruple major), May 2013

- Graduated *cum laude*
- Minor in Political Science
- Thesis: *Determinants of College Success: What Determines Undergraduate Grade Point Average?*

PROFESSIONAL EXPERIENCE **Global Lead Data Science Instructor** January 2018 to present
General Assembly, Washington, D.C.

- Teach Python, SQL, machine learning, statistics, linear algebra, data visualization, and communicating data science in 12-week full-time data science immersive program across ten U.S. campuses to 125 students
- Coordinated client-student projects with The World Bank, Deloitte, The Lab @ D.C. (D.C. Mayor's data science team), and New Light Technologies (FEMA and U.S. Census Bureau contractor)
- Advise ten local lead instructors and five instructional associates on data science methods and addressing organizational challenges
- Serve as a subject-matter expert for General Assembly by participating in business-to-business (B2B) projects, sales pitches, internal data science projects, and other strategic initiatives
- Assist in hiring new lead data science instructors and instructional associates; streamlined hiring process for data science instructors
- Chair the General Assembly Data Science Product Advisory Board; responsible for standardizing, updating, and maintaining curriculum for full-time and part-time data courses across the globe
- Named to General Assembly's inaugural "Distinguished Faculty" program; consists of top 1% of instructors company-wide

Local Lead Data Science Instructor October 2016 to December 2017
General Assembly, Washington, D.C.

- Taught Python, SQL, machine learning, statistics, linear algebra, data visualization, and communicating data science in 12-week full-time data science immersive program to 15 to 25 adults
- Developed new curriculum, including Bayesian methodology, spatiotemporal data analysis, neural networks, and statistical rigor
- Hired and managed 5 data scientists in residence
- Coordinated client-student projects with TrackMaven and Deloitte
- Promoted from Instructor to Local Lead Instructor after seven months

Junior Data Scientist

May 2015 to November 2016

Optimus Consulting, Washington, D.C.

- Managed survey-to-model pipeline: designed questionnaires, responsible for administering 55,000,000 telephone surveys, analyzed results, built and evaluated models, and communicated findings to campaign staff
- Ran data operations for a successful gubernatorial campaign
- Executed field experiments for Presidential and Congressional candidates
- Researched, implemented, and documented methods of analysis and inference including missing data imputation, Bayesian modeling, and survey sampling
- Managed hiring of fellows and interns; created onboarding protocol for new hires
- Promoted from Data Science Fellow to Junior Data Scientist after six months

Lecturer

January 2015 to May 2015

Department of Statistics, The Ohio State University, Columbus, OH

- Instructed over 300 students in biweekly lecture setting and 45 students in biweekly recitation setting
- Tutored in OSU Mathematics and Statistics Learning Center
- Earned average score of 4.8/5.0 on student evaluations of instructors for lecturers (4.1 is campus average) and 4.9/5.0 on student evaluations of instructors for recitation TAs (4.2 is campus average)

Graduate Teaching Associate

August 2013 to December 2014

Department of Statistics, The Ohio State University, Columbus, OH

- Taught 4-6 weekly recitation sections of 25-70 students
- Implemented best educational practices in large-scale introductory courses totaling 1,200 students
- Earned average score of 4.7/5.0 on student evaluations of instructors (4.2 is campus average)
- Coordinated and managed two teams of approximately 10 graduate teaching associates (Spring 2014)

Interim Course Coordinator

February 2014 to March 2014

Department of Statistics, The Ohio State University, Columbus, OH

- Led introductory statistics course of 860 students
- Managed team of three lecturers and 10 graduate teaching associates
- Oversaw six weekly lectures and 26 weekly recitation sections, coordinated exams, ran instructional team meetings and was the main point of contact for students and teaching associates

Enterprise Analytics Intern

May 2014 to August 2014

The J.M. Smucker Company, Orrville, OH

- Implemented summer-long project designed to establish connections between demographically-defined groups of consumers and sales of various products
- Used R and SAS to clean data, to build models, and to visualize results
- Collaborated on policy-related research team designed to promote changes in Michigan legislation

PAPERS IN
PREPARATION

1. Hendershot, A., **Brems, M.**, Lobo, N., Coulibaly, M. “Bionomic characterization of *Anopheles spp.* in Selingue, Mali.”

Invited Talks

1. *Good, Fast, Cheap: How to do Data Science with Missing Data*. Immersive AI Training & Career Development Conference. New York City, NY. June 2019.
2. *Critical Skills of Tomorrow: Math & Data Science*. 22nd Annual Gleger Center of Mathematics Awards Ceremony. Baltimore, MD. May 2019.
3. *Good, Fast, Cheap: How to do Data Science with Missing Data*. Open Data Science Conference East 2019. Boston, MA. April 2019.
4. *Data Visualization: From Square One to Interactivity*. Open Data Science Conference East 2019. Boston, MA. April 2019.
5. *Turning Data into Actionable Intelligence: Evolving from Reactive to Proactive*. Florida State University, Department of Risk Management / Insurance, Real Estate & Legal Studies. Tallahassee, FL. April 2019. Co-presented with Susan Shemanski, Teresa Gunter, and Julia Orellana.
6. *The Ethics of Gathering and Using Data*. General Assembly Expert Network Technical Training Session. Remote. February 2019.
7. *Data Visualization: From Square One to Interactivity*. 3rd Annual Global Artificial Intelligence Conference. Santa Clara, CA. January 2019.
8. *Good, Fast, Cheap: How to do Data Science with Missing Data*. 3rd Annual Global Artificial Intelligence Conference. Santa Clara, CA. January 2019.
9. *Data Visualization: From Square One to Interactivity*. Open Data Science Conference West 2018. San Francisco, CA. November 2018.
10. *Good, Fast, Cheap: How to do Data Science with Missing Data*. Open Data Science Conference West 2018. San Francisco, CA. November 2018.

Contributed Talks

1. *Updating Undergraduate Courses to Include Bayesian Inference*. United States Conference on Teaching Statistics (USCOTS) 2019. State College, PA. May 2019. Co-presented with Timothy Book.
2. *Learning How to Effectively Communicate Your Science*. Society of Behavioral Medicine Annual Meeting & Scientific Sessions. Washington, DC. March 2019. Co-presented with Dani Arigo and John Torous.
3. *Recreating, Understanding, and Visualizing FiveThirtyEight's Elections Forecast*. PyData DC. Washington, DC. November 2018. Co-presented with Joseph Nelson.
4. *Advanced Data Science, Part 2: Five ways to handle missing data in Jupyter notebooks*. JupyterCon. New York City, NY. August 2018.
5. *"Help! I have missing data. How do I fix it (the right way)?"* Open Data Science Conference East 2018. Boston, MA. May 2018.
6. *Not "Politics as Usual" - How Data Science Revolutionizes the World of Politics*. Data-Driven Insights: How Data is Reshaping Your Industry Conference. George Washington University, Washington, DC. December 2015. Co-presented with Michael Morgan.
7. *The Rare Disease Assumption: The Good, The Bad, and The Ugly*. Thesis Defense. Department of Statistics, The Ohio State University, Columbus, OH. April 2015.

8. *The Rare Disease Assumption: The Good, The Bad, and The Ugly*. Franklin College BIO 350 (Genetics) Class. Franklin, IN. March 2015.
9. *From Politics to Peanut Butter: The Role of Analytics in Making Decisions*. Big Data and Analytics Association Meeting. The Ohio State University, Columbus, OH. March 2015.
10. Discussion of “Chen, Z. (2013), Association tests through combining p-values for case control genome-wide association studies”. Statistical Genetics Reading Group. The Ohio State University, Columbus, OH. October 2014.
11. *Determinants of College Success: What Predicts Undergraduate Grade Point Average?* Thesis Presentation. Franklin College 11th Economics Club Seminar. May 2013.
12. *Equal Circle Packing on the Flat Klein Bottle*. Undergraduate Mathematics & Computing Colloquium Series. Franklin College, Franklin, IN. November 2012.
13. *Equal Circle Packing on the Flat Klein Bottle*. Pi Mu Epsilon Undergraduate Student Conference. Miami University, Oxford, OH. September 2012.
14. *Equal Circle Packing on the Flat Klein Bottle*. Mathematical Association of America 2012 MathFest, Madison, WI. August 2012. Co-presented with Alex Wagner. **Earned “Outstanding Presentation” award.**
15. *Equal Circle Packing on the Flat Klein Bottle*. Summer Undergraduate Michigan Mathematics Research (SUMMR) Conference, Michigan State University, East Lansing, MI. July 2012. Co-presented with Alex Wagner.
16. *Saving Money & Going Green with Minimal Change: How Statistics Changes the Bottom Line*. Undergraduate Mathematics & Computing Colloquium Series. Franklin College, Franklin, IN. April 2012.
17. *How Quickly Can We Break Codes? The Rail-Fence Cipher*. Franklin College High School Math Day 2010. Franklin College, Franklin, IN. December 2010.
18. *How Quickly Can We Break Codes? The Rail-Fence Cipher*. Undergraduate Mathematics & Computing Colloquium Series. Franklin College, Franklin, IN. November 2010.
19. *How Quickly Can We Break Codes? The Rail-Fence Cipher*. Pi Mu Epsilon Undergraduate Student Conference. Miami University, Oxford, OH. September 2010.

Panels

1. (upcoming) *Student Engagement and Interaction in Online/Hybrid Courses*. Joint Statistical Meetings. Panelist. July 2019.
2. *Talk Data To Me: Changing the Way Businesses Run and People Live*. Moderator. June 2019.
3. *Talk Data To Me with Booz Allen Hamilton*. Moderator. January 2019.
4. *GOV2071 Roundtable Discussion, “Governance and Resilience”, GovHack DC, World Government Summit Organization*. Panelist. November 2018.
5. *IBM & General Assembly Webinar: Defining the Data Science Roles on Your Team*. Panelist. November 2018.

6. *Talk Data To Me with Political Data Scientists*. Moderator. October 2018.
7. *IBM & General Assembly Webinar: Optimizing Business Decisions With Data Science*. Panelist. September 2018.
8. *Data and You: Privacy, Ethics, and GDPR*. Panelist. May 2018.
9. *Talk Data To Me with ENABLD*. Moderator. March 2018.
10. *Big Data Q & A*. Franklin College PDP 330 (Big Data & the Professional Workplace) Class. Panelist. April 2018.
11. *Talk Data To Me with Mapbox*. Moderator. March 2018.
12. *Talk Data To Me with D.C. Data Scientists*. Moderator. February 2018.
13. *Talk Data To Me with Deloitte Insight Studio*. Moderator. February 2018.
14. *Talk Data To Me with The Lab @ DC*. Moderator. August 2017.
15. *Introduction to the DC Tech Community*. Panelist. August 2016.

SERVICE

Statistics Without Borders

- Chair, Project & Client Management Committee December 2018 - present
- Assistant, Project & Client Management Committee June 2018 - December 2018

Local Service

- Mentor, Civic Digital Fellows May 2019 - present
- Mentor, Washington Statistical Society November 2018 - present
- Judge (Statistics Category), D.C. STEM Fair March 2019
- Judge, DCFemTech Awards April 2017, April 2018
- Judge, D.C. DataFest April 2018
- Consultant, D.C. DataFest April 2017

University Service

- Chair, Graduate Recruitment Committee January 2014 - May 2015
- Hearing Panelist, Committee on Academic Misconduct January 2014 - May 2015
- Delegate, Council of Graduate Students September 2013 - May 2015
- Judge, Fall Undergraduate Research Student Poster Forum September 2014
- Judge, ASA Statistical Analysis Award, Ohio State Science Day May 2014

AWARDS

Student Awards

- Thomas & Jean Powers Award for Outstanding Teaching, Finalist May 2015
- Graduate Teaching Full Associateship, The Ohio State University 2013 - 2015
- Commencement Speaker, Franklin College May 2013
- Rho Phi Award for Graduate Studies May 2013
 - The Rho Phi Award for Graduate Studies is a scholarship awarded annually by the Department of Political Science faculty to the Pi Sigma Alpha (political science honorary) member who shows the most promise for graduate work.
- Dwight Heath Memorial Mathematics Scholarship May 2012
 - The Dwight Heath Memorial Scholarship is a scholarship awarded annually by the Department of Mathematics faculty to the top mathematics student at Franklin College.
- Benjamin Franklin Distinguished Full Tuition Scholarship 2009 - 2013

Professional Awards

- Outstanding Presentation, Mathematical Association of America August 2012
 - The Mathematical Association of America has an annual conference at its summer MathFest meeting and recognizes outstanding presenters on the basis of professionalism, ability to communicate mathematics and level of mathematics presented.

ADDITIONAL SKILLS AND CERTIFICATIONS

Languages

- Advanced: Python (4 yrs.), R (7 yrs.), SQL (4 yrs.)
- Novice: SAS, HTML, CSS

Software

- Advanced: L^AT_EX, Microsoft Suite
- Novice: Tableau

Certifications

- Executive Data Science Specialization (Coursera)
- Deep Learning Specialization (Coursera; *in progress*)

Updated: June 30, 2019