

# ERIN H. BUGBEE

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## RESEARCH INTERESTS

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Human and machine learning, decision science, data science, computational cognitive science, artificial intelligence, reinforcement learning, predictive analytics, statistical inference, moral psychology, AI ethics

## EDUCATION

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### **Brown University**

*Sc.B., Statistics*

*A.B., Behavioral Decision Sciences, Specialization in Human and Machine Learning*

Honors Candidate, GPA: 3.95/4.0

**Providence, RI**

*Expected: May 2020*

## RESEARCH EXPERIENCE

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### **Honors Senior Thesis and Senior Capstone**

*Advisors: Matt Nassar, Ph.D. and Lorin Crawford, Ph.D.*

- *Reinforcement Learning in Brains, Minds, and Machines*

**Brown University**

*Fall 2019 – Spring 2020*

### **Sloman Lab**

*Advisor: Steven Sloman, Ph.D.*

- *Trust in the Workplace: Are Machines Interchangeable With People?*

**Brown University**

*Fall 2019 – Present*

### **Learning, Memory, and Decision Lab**

*Advisor: Matt Nassar, Ph.D.*

- Researching reinforcement learning in dynamic environments. Affiliated with Carney Institute for Brain Science.

**Brown University**

*Spring 2019 – Present*

### **Collaborative Research on Music Information Retrieval**

*Advisor: Katherine Kinnaird, Ph.D.*

- REU in Topological Data Analysis affiliated with Brown Data Science Initiative. Developed an efficient and accurate method for detecting cover songs.
- Applying techniques from machine learning and topological data analysis to music information retrieval tasks.

**ICERM**

*Summer 2017 – Present*

### **Crawford Lab, Department of Biostatistics**

*Advisor: Lorin Crawford, Ph.D.*

- Used Bayesian statistical modeling to detect genes involved in treatment resistance in prostate cancer. Collaboration with Duke University and the Duke Cancer Institute.

**Brown University**

*Fall 2017 – Fall 2018*

## PUBLICATIONS

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### *Conference Papers*

(Peer-Reviewed)

McGuirl, M.R., Kinnaird, K.M., Savard, C. and **Bugbee, E.H.**, “SE and SNL Diagrams: Flexible Data Structures for MIR,” Proceedings of 19<sup>th</sup> ISMIR Conference, Paris, France, 2018.

(Abstract-Reviewed)

Savard, C., **Bugbee, E.H.**, McGuirl, M.R., and Kinnaird, K.M., “SuPP and MaPP: Novel MIR Data Structures Inspired by Topological Data Analysis,” Extended abstracts for the Late-Breaking Demo Session of the 19th International Society for Music Information Retrieval Conference, Paris, France, 2018.

## HONORS AND AWARDS

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### **Class of '81 Undergraduate TAsip for Women in CS**

*Spring 2019*

- Awarded by the Brown Department of Computer Science.

### **Disney Data & Analytics Women Scholarship Recipient**

*August 2018*

- Scholarship to attend Disney Data & Analytics Conference in Orlando, FL.
- Presented music information retrieval machine learning research.

### **Outstanding Poster Award, Joint Mathematics Meetings**

*January 2018*

- For “Comparing Songs Using Matrix Pattern Preservation” in San Diego, CA.

## INDUSTRY EXPERIENCE

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### **Sales Analytics & Insights Intern**

Orlando, FL

*The Walt Disney Company*

*Summer 2019*

- Analytics for the Disney Cruise Line, predicting Disneyland Anaheim attendance by determining leading indicators for international markets using regression analysis, analyzing flight data for John Wayne Airport

### **Explore Microsoft Intern**

Redmond, WA

*Microsoft*

*Summer 2018*

- Program Manager and Software Engineer for Microsoft Support Engineering, Universal Store Team, Cloud + AI

## TEACHING EXPERIENCE

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### HEAD TEACHING ASSISTANT

**CSCI 0100: Data Fluency for All** *Fall 2019*

*Department of Computer Science, Professor: Amy Greenwald, Ph.D.*

- An introductory data science course emphasizing data literacy, statistics, machine learning, and data visualization through the R programming language.

### UNDERGRADUATE TEACHING ASSISTANT

**CSCI 1951a: Data Science** *Spring 2019*

*Department of Computer Science, Professor: Ellie Pavlick, Ph.D.*

- An upper-level computer science course teaching Python and SQL.

**CLPS 0220: Making Decisions** *Spring 2019*

*Department of Cognitive, Linguistic, and Psychological Sciences,  
Professor: Steven Sloman, Ph.D.*

- Introduction to decision-making through normative and descriptive principles.  
Covered optimal decision-making, choice and preference, heuristics.

**APMA 1655: Advanced Statistical Inference I** *Fall 2018*

*Department of Applied Mathematics, Professor: Caroline Klivans, Ph.D.*

**PHP 1501: Essentials of Data Analysis** *Fall 2018*

*Department of Biostatistics, Professor: Roee Gutman, Ph.D.*

- Introductory data analysis course using R with applications to biostatistics.

**CSCI 0100: Data Fluency for All** *Fall 2017*

*Department of Computer Science, Professor: Amy Greenwald, Ph.D.*

## RESEARCH PRESENTATIONS

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### TALKS

**Research Talk**, “*Comparing Songs Without Listening*”

**Brown Math Slam (Society for Industrial and Applied Mathematics/AWM)**

Brown University, November 8, 2018

**Paper Presentation**, “*SE and SNL Diagrams: Flexible Data Structures for MIR*”

**The International Society of Music Information Retrieval Conference (ISMIR)**

Paris, France, September 23-27, 2018

**Workshop**, “*Introduction to R Programming*”

**Brown Datathon**

Brown University, March 3, 2018

## POSTER PRESENTATIONS

### **Joint Mathematics Meetings**

*“Comparing Songs Using Matrix Pattern Preservation”*, San Diego, CA, January 12, 2018

### **NEMISIG (Northeast Music Informatics Special Interest Group)**

*“Comparing Songs Using Matrix Pattern Preservation”*, Brown University, January 27, 2018

### **Women in Data Science**

*“Comparing Songs Using Matrix Pattern Preservation”*, Worcester Polytechnic Institute, March 5, 2018

## LEADERSHIP AND SERVICE

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### **Brown Data Science Club**

*President*, 2019 – Present

- Lead students interested in data science. Organize the annual Brown Datathon and events throughout the year to create a campus community in data science.

*Marketing Team Leader*, 2018 – 2019

- Developed branding of Brown Data Science, including logo, website, t-shirts, and internal and external outreach.

*Outreach Team Member*, 2017 – 2019

*Club Member*, 2016 – 2017

### **Women in Machine Learning Workshop**

*Reviewer*, 2019

### **Ivy League Data Analytics Conference**

*Co-organizer*, 2019 – Present

- Collaborating with other Ivy League leaders to plan a joint conference.

### **Statistics Departmental Undergraduate Group (DUG)**

*DUG Leader*, Brown University, 2018 – Present

- Lead and plan events for the Statistics concentration.

### **Diversity & Inclusion Committee, Department of Biostatistics and Center for Statistical Sciences**

*Undergraduate Representative*, 2018 – Present

### **Brown University Admissions**

*Science Tour Guide*, 2017 – Present

### **Women in Science and Engineering**

*Mentor*, 2017 – 2019

- Mentor for women interested in data science, computer science, and statistics.

## CONFERENCES AND WORKSHOPS ATTENDED

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### **Disney Data & Analytics Conference (DDAC)**

*The Walt Disney Company, Orlando, FL, August 20-22, 2019*

### **Statistics and Data Science Conference (SDSCon)**

*MIT Media Lab, Cambridge, MA, April 5, 2019*

### **News vs. Truth Seminar with Former President of CNN Jon Klein and Steven Sloman**

*Brown University, Providence, RI, Spring 2019*

### **Collaborate@ICERM 2019: Topological Data Analysis and Music Information Retrieval**

*ICERM, Providence, RI, January 7-11, 2019*

### **Machine Intelligence Conference**

*MIT Media Lab, Cambridge, MA, November 3, 2018*

### **ISMIR 2018**

*International Society of Music Information Retrieval, Paris, France, September 23-27, 2018*

### **Disney Data & Analytics Conference (DDAC)**

*The Walt Disney Company, Orlando, FL, August 28-29, 2018*

### **Women in Data Science (WiDS)**

*Worcester Polytechnic Institute, Worcester, MA, March 5, 2018*

### **North East Music Information Special Interest Group (NEMISIG) 2018**

*Brown University and Spotify, Providence, RI, January 27, 2018*

### **Joint Mathematics Meetings 2018**

*The American Mathematical Society and the Mathematical Association of America, San Diego, CA, January 10-13, 2018*

## PROFESSIONAL AFFILIATIONS

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**American Statistical Association, 2018 – Present**

**Alpha Chi Omega, 2017 – Present**

*Chapter Relations and Standards Board Representative, Class of 2020 Risk Representative*

**The Brown Daily Herald, 2016 – Present**

*Copy-editor*

## COMPUTER SKILLS

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**Programming:** R, Python, MATLAB, SQL, Java, Stata, Javascript, HTML, CSS