

Emily T. Winn-Nuñez

🌐 www.etwinn.github.io

✉ [emily_winn-nunez \[at\] brown \[dot\] edu](mailto:emily_winn-nunez@brown.edu)

🔗 [etwinn](#)

EDUCATION

Brown University

PhD in Applied Mathematics

MS in Applied Mathematics

College of the Holy Cross

AB in Mathematics with High Honors, Magna Cum Laude

St. Edmund Hall, University of Oxford

Visiting Students Programme

Providence, RI

Expected May 2024

May 2019

Worcester, MA

May 2017

Oxford, England, UK

2015-2016

WORK EXPERIENCE

PhD Data Science Intern

Worked on Facebook Home Ecosystems Team

Created and implemented new algorithm and defined new metric. Recommended strategy changes based on metric's analysis of millions of global Facebook users and overall company goals.

Meta

Summer 2022

PUBLICATIONS

(# denotes corresponding author)

- # **E.T. Winn-Nuñez**, M. Griffin, # L. Crawford. A Simple Approach for Local and Global Variance Importance in Nonlinear Regression Models. *Under Revision at Computational Data Science and Statistics*. March 2023. doi: <https://doi.org/10.48550/arXiv.2302.02024>. Preprint on arXiv.
- **E.T. Winn**, M. Vazquez, P. Loliencar, K. Taipale, X. Wang, # G. Heo (2021). A survey of statistical learning techniques as applied to inexpensive pediatric Obstructive Sleep Apnea data. In: Demir, I., Lou, Y., Wang, X., Welker, K. (eds) *Advances in Data Science*. Association for Women in Mathematics Series, vol 26. Springer, Cham. https://doi.org/10.1007/978-3-030-79891-8_12
- K. Lin, J. Rutter, A. Xie, **E.T. Winn**, B. Pardieu, R. Del Bello, R. Itzykson, Y-R Ahn, Z. Dai, R. Sobhan, G. Anderson, K. Singleton, A. Decker, P. Winter, J. Locasale, L. Crawford, # A. Puissant, # K. Wood. Using antagonistic pleiotropy to design a chemotherapy induced evolutionary trap. *Nature Genetics*, v. 52, 408-417, Apr. 2020.

CODING LANGUAGES

SQL, \LaTeX , MATLAB, Python, PyTorch, R, some C++

RESEARCH AND TEACHING EXPERIENCE

NSF Graduate Research Fellow

Division of Applied Mathematics

Brown University

June 2019 - Present

- Upgraded algorithm for ranking variable importance to account for additive effects in addition to marginal effects; improved algorithm's computational efficiency; applied to genetic data
- Developed method for sampling shapes from a distribution and generating new shapes to fit in with given shape data set

Course Co-Instructor

Division of Applied Mathematics

Brown University

Summer 2020

- Curated first online iteration of Statistical Inference I with colleague Patrick Liscio
- Designed homework assignments, reading quizzes, lecture videos, extra practice problems, and exams
- Managed two undergraduate teaching assistants

Teaching Assistant

Brown University

Division of Applied Mathematics

Sept. 2018 - May 2019

- Created answer keys, graded homework assignments, and conducted office hours for undergraduate students taking Information Theory and Operations Research Methods
- Supervised undergraduate teaching assistants and helped with their grading and preparation for office hours

Research Assistant

Brown University

Division of Applied Mathematics

May 2018 - May 2019

- Built algorithm for comparing network differences at the local, neighborhood, and global levels under Dr. Lorin Crawford and applied to cancer tissue data
- Examined limit cycles in chip firing models under Dr. Caroline Klivans
- Studied graph motifs and k -winner-take-all networks in neural networks under Dr. Elie Bienenstock

PROJECTS

Database for GRE Requirements, Qualifying Exam Practices

2020 - 2022

- Gathered data about GRE requirements for admission to more than 200 mathematics PhD programs in the US and Canada into one publicly available spreadsheet (available at <https://etwinn.github.io/gre-database/>)
- Curated public database about qualifying exam practices in more than 100 mathematics PhD programs via an online survey (available at <https://etwinn.github.io/gre-database/>)

LEADERSHIP AND SERVICE

Brown Undergrad-Grad Mentoring Program

Brown University

Division of Applied Mathematics

2017 - 2020

Mentored three undergraduate students, providing advice on courses, research, and summer opportunities

Graduate President; Treasurer of AWM Student Chapter

Brown University

Division of Applied Mathematics

2019 - 2020

Facilitated weekly meetings, monthly events, and support for undergraduate and graduate women in math

Faculty Graduate Liaison

Brown University

Division of Applied Mathematics

2018 - 2019

Collected all proposed budgets for department graduate student organizations and activities to be presented to the faculty each semester; advocated on behalf of graduate students and suggest departmental reforms to department leaders

Lead Retreat Coordinator

Brown University

Division of Applied Mathematics

2018

Planned logistics and activities for graduate student fall retreat, including travel, accommodation, food, and research