

Emily T. Winn-Nuñez

🌐 www.etwinn.github.io

✉ [emily_winn-nunez \[at\] brown \[dot\] edu](mailto:emily_winn-nunez[at]brown[dot]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 Ecosystems Team

Meta

Summer 2022

- Created, defined, and implemented new data metric in collaboration with multi-disciplinary team
- Published three internal reports on metric performance, conclusions from analysis, and recommendations for future strategy, including general statistics practices.

PUBLICATIONS

(# 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.

SKILLS

Coding Skills Bash, Git, Markdown, \LaTeX , Linux, MATLAB, Python, PyTorch, R

Computer Applications Adobe Illustrator; Microsoft Excel, Word, Powerpoint

Soft Skills collaboration, data visualization, presentations, teaching, writing

RESEARCH AND TEACHING EXPERIENCE

Applied Math Ph.D. Candidate, 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 end-to-end pipeline for generating new shapes to fit in with given shape data set. Built corresponding R package. Rigorously evaluated new method in Python and PyTorch analyses.

Statistical Inference I Course Co-Instructor*Division of Applied Mathematics***Brown University***Summer 2020*

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

Applied Math Teaching Assistant*Division of Applied Mathematics***Brown University***Sept. 2018 - May 2019*

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

Rotating Research Assistant*Division of Applied Mathematics***Brown University***May 2018 - May 2019*

- o Built algorithm for comparing network differences at the local, neighborhood, and global levels
- o Examined limit cycles in chip firing models
- o Studied graph motifs and k -winner-take-all networks in neural networks

INDEPENDENT PROJECTS

Database for GRE Requirements, Qualifying Exam Practices*2020 - 2022*

- o 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/>)
- o 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

Graduate President; Treasurer of AWM Student Chapter*Division of Applied Mathematics***Brown University***2019 - 2020*

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

Brown Undergrad-Grad Mentoring Program*Division of Applied Mathematics***Brown University***2017 - 2020*

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

Faculty Graduate Liaison*Division of Applied Mathematics***Brown University***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*Division of Applied Mathematics***Brown University***2018*

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