Steve Broll

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Research interests

High-dimensional data, tensor decomposition and regression, omics, time series modeling, spatiotemporal modeling

Education

2020 – Present	**Cornell University** – Ithaca, New York PhD in Statistics Committee: Martin T. Wells, Sumanta Basu, Myung Hee Lee
2020 – 2023	**Cornell University** – Ithaca, New York MS in Statistics
2016 – 2020	**Texas A&M University** – College Station, Texas BS in Statistics Minor in Mathematics

Awards and Fellowships

2024	AI and Precision Nutrition (AIPrN) NIH T32 Predoctoral Fellow
2024	Cornell Graduate School Conference Travel Grant
2023	Cornell Graduate School Conference Travel Grant
2020	Dr. Newton Service Award (Texas A&M University)
2018	Statistics Department Scholarship (Texas A&M University)
2018	First Prize, Texas A&M University Institute of Data Science Undergraduate Competition
2016	President's Endowed Scholarship (Texas A&M University)

Publications

2023	**PROLONG: Penalized Regression for Outcome guided Longitudinal Omics analysis with Network and Group constraints** **Steve Broll**, Sumanta Basu, Myung Hee Lee, Martin T Wells. *biorxiv*, revisions submitted to *Bioinformatics*.

2021	**Interpreting blood GLUcose data with R package iglu**
	Steven Broll, Jacek Urbanek, David Buchanan, Elizabeth Chun, John Muschelli, Naresh M Punjabi, Irina Gaynanova.
	PLOS One.

Research experience

2024 – Present	**T32 Predoc Fellow**
	Committee: Martin T. Wells, Sumanta Basu, Myung Hee Lee, Saurabh Mehta
	Continued work on extension to PROLONG, with applications to precision nutrition data. Additional work on tensor regression.
2021 – 2023	**Graduate Research Assistant**
	Committee: Martin T. Wells, Sumanta Basu, Myung Hee Lee
	Batch effect correction, high-dimensional network modeling and differential expression analysis for proteomic data. Batch effect correction and high-dimensional modeling for metabolomic data from various *Mtb* cohorts. Developed PROLONG model and worked on various extensions.

Teaching experience

Fall 2020	**Teaching assistant, BTRY 6010: Statistical Methods 1 (Cornell University)**

Talks and Posters

PROLONG: Penalized Regression for Outcome guided Longitudinal Omics analysis with Network and Group constraints

November 2024	Cornell University Center for Precision Nutrition and Health
August 2024	Joint Statistical Meetings
March 2024	International Biometric Society Eastern North American Region (ENAR) Meeting
September 2023	Cornell Celebration of Statistics and Data Science (Poster)
August 2023	Cornell University A-Exam
August 2023	Joint Statistical Meetings
March 2023	International Biometric Society Eastern North American Region (ENAR) Meeting

Mentorship and service

February 2021 – December 2022 **Cornell Directed Reading Program**
Met weekly with an undergraduate student each semester, selecting a book or set of papers of mutual interest, covering topics from spatiotemporal modeling, statistical learning, measure theoretic probability, nonparametric regression and GAMs.

September 2017 – May 2020 **Statistics Peer Mentor**
Developed and maintained relationships with and provide assistance and support for first-year students (focus on a smooth transition, acclimation, and a sense of belonging). Maintained regular contact with five to six assigned students, and served as a positive academic and social role model.

Technical skills

Programming languages
Proficient in: R, Shiny, Quarto
Familiar with: Python, C++, Stan

Software
LaTeX, Git

Selected Coursework

Distribution Theory, Theory of Inference, Theory of Linear Models, Multivariate Analysis, Flexible Regression using R, Statistical Computations, Computationally Intensive Stat Methods I and II, Spatial Data Analysis, Time Series and Spatiotemporal Data Science, Mathematical Statistics I and II, Generalized Linear Models, Advanced Statistical Consulting, Bayesian Statistics and Data Analysis, Principles of Analysis II, Probability I and II, Deep Learning Theory and Applications.