

Oscar Fawcett

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Chapel Hill, NC
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Research Interests

My research interests are with regards to the analysis of high dimensional datasets, particularly those with a network representation. I am also broadly interested in statistics education and statistics philosophy.

Education

University of North Carolina at Chapel Hill
B.S. in Statistics and Analytics, Data Science Minor, 3.6 GPA

Chapel Hill, NC
Aug. 2020 – Dec. 2022

Cape Fear Community College
Associates in Science, 4.0 GPA

Wilmington, NC
Aug. 2017 – Dec. 2019

Research Experience

Undergraduate Researcher

May 2022 - Present
UNC-Chapel Hill

Dayan Lab

- Supervised by doctors Eran Dayan and Nicolas Fraiman, I performed research on the statistical methods used to compare functional connectivity networks
- Reviewed 35+ academic papers on the subject of connectome fingerprinting and compiled them into a comprehensive literature document
- Programmed MATLAB code to calculate various distance measures between graphs to apply to the connectome fingerprinting problem
- Processed over 200 fMRI images from the Human Connectome Project's freely available datasets into network representations
- Developed a pipeline to analyze the performance of each graph distance measure on the processed networks

Undergraduate Researcher

Aug. 2021 - Dec. 2021
UNC-Chapel Hill

Dept. of Statistics and Operations Research

- Supervised by Dr. Nicolas Fraiman, I performed research and analysis on graph clustering
- Wrote code in Python to implement new and established clustering algorithms
- Generated random graphs using the stochastic block model to simulate different clustering scenarios
- Ran statistical analysis on the performance of various clustering algorithms using real world datasets, as well as the simulated graphs from the stochastic block model

Presentations

Title: *Identifying Individuals from Brain Connectivity Networks Using Graph Measures of Similarity*

Oct. 2022
Greensboro, NC

Presented at the 2022 NanoImpacts Undergraduate Research Symposium

First Place Award Winner

Teaching Experience

Professional Math Tutor

Learning Lab

- Guided 20+ students weekly through learning objectives in various math courses from algebra and statistics to derivative and integral calculus
- Prioritized student outcomes by modifying instruction methods to match individual needs
- Carried out periodic professional development exercises to improve my effectiveness at assisting students with their academic needs
- Coordinated course tutoring advertising campaign to 100+ students per semester via events and digital communications

Aug. 2018 - May 2021
Cape Fear Community College

Supplemental Instructor

Learning Lab

- Conducted instructional sessions throughout the semester by leading additional lectures and offering student support in conjunction with ongoing statistics, calculus, and pre-calculus course content
- Managed student sign in documentation as well as lecture notes to keep pace with assigned classes
- Aided student adjustment to the online learning environment through 1:1 guidance and providing direction to available resources

Spring 2020, Spring 2021
Cape Fear Community College

Volunteer Math Tutor

Nixon Minority Male Leaders

- Assisted students from underrepresented backgrounds in academia by providing individual tutoring sessions for various mathematics courses
- Helped create a welcoming environment for students to learn and ask for assistance when needed
- Participated in student outreach events

Aug. 2019 - April 2020
Cape Fear Community College

Technical Skills

Statistics: linear models, multivariate models, principal component analysis, linear programming, ANOVA, network analysis and algorithms, various machine learning models and techniques such as neural networks, support vector machines, random forests, cross validation, and feature selection.

Software: Python, R, MATLAB, AMPL, Maple, LaTeX, Qualtrics

Honors and Awards

Awards

First place, NanoImpacts Undergraduate Research Symposium

CFCC President's Award

CFCC Academic Achievement Award

Oct. 2022

Dec. 2019

April 2019

Honor Societies

Tau Sigma Honors Society

Phi Theta Kappa Honors Society

April 2022

Jan. 2018