Oscar Fawcett

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Chapel Hill, NC
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Personal Statement

I am a senior undergraduate student majoring in statistics looking to pursue a PhD in the same field. I am a current undergraduate researcher studying the statistical methods being applied to network connectomics. Previously, I did work analyzing the performance of various network clustering algorithms on synthetic and real-world data. I have over 2 years of experience of tutoring in mathematics and am proficient in Python, R, and MATLAB. My research interests are in regards to random networks. Specifically, I am curious about random network models that can be applied to observable data and the inferential statistics that can be performed on such models.

Education

University of North Carolina at Chapel Hill — Chapel Hill, NC
B.S. in Statistics and Analytics, Data Science Minor, 3.6 GPA — Aug. 2020 – Dec. 2022

Cape Fear Community College — Wilmington, NC
Associates in Science, 4.0 GPA — Aug. 2017 – Dec. 2019

Research Experience

Undergraduate Researcher — May 2022 - Present
Dayan Lab — UNC-Chapel Hill
- Supervised by doctors Eran Dayan and Nicolas Fraiman, I performed research on the statistical methods being applied to connectome fingerprinting
- 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
- Developed a pipeline to analyze 1200 connectomes from the Human Connectome Project freely available datasets using the aforementioned graph distance measures

Undergraduate Researcher — Aug. 2021 - Dec. 2021
Dept. of Statistics and Operations Research — UNC-Chapel Hill
- 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

Teaching Experience

Professional Math Tutor   Aug. 2018 - May 2021
Learning Lab   Cape Fear Community College
  - 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 better my effectiveness at assisting students with their academic needs
  - Coordinated course tutoring advertising campaign to 100+ students per semester via events and digital communications

Supplemental Instructor   Spring 2020, Spring 2021
Learning Lab   Cape Fear Community College
  - 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

Volunteer Math Tutor   Aug. 2019 - April 2020
Nixon Minority Male Leaders   Cape Fear Community College
  - 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 need be
  - Participated in student outreach events

Technical Skills

Statistics: linear models, multivariate models, principal component and factor analysis, 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
CFCC President's Award   December 2019
CFCC Academic Achievement Award   April 2019

Honor Societies
Tau Sigma Honors Society   April 2022
Phi Theta Kappa Honors Society   January 2018