Freddy Barragan

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EDUCATION

Macalester College   B.A. Expected May 2022
Major: Applied Mathematics and Statistics   GPA: 3.86
Concentration: Community and Global Health

Selected Coursework: Mathematical Statistics, Causal Inference, Probability, Machine Learning, Linear Algebra, Introduction to Data Science, Introduction to International Public Health, Environmental Public Health

Academic Honors and Awards: Mann-Hill Fellowship, Margaret Hayes Scholarship, Macalester's Deans List, Catharine Lealtad Scholarship, DeWitt Wallace Grant, International Baccalaureate Diploma

SKILLS

Conceptual: Differential Gene Expression, Statistical Genetics, Survival Analysis, Causal IP Weighting, Unsupervised Machine Learning, Supervised Regression and Classification, Data Visualization, and Data Wrangling.
Technical: Highly Proficient in R; Proficient in LaTeX, Mathematica, and Excel; Familiar with Python, Git, & UNIX
Spoken Languages: English (Native), Spanish (Bilingual Proficiency), French (Basic Proficiency)

WORK EXPERIENCE

Mann-Hill Research Fellow, Macalester College, St. Paul, MN   **May 2021 - Ongoing**
- Mentors: Dr. Kelsey Grinde, Dr. Logan Spector, Dr. Lindsay Williams, and Dr. Lauren Mills.
- Leveraging local ancestry inferences and admixture methods into a novel form of differential gene expression analysis.
- Applying methods to identify the genetic basis of demographic survival disparities in pediatric cancer using TARGET & PeCan datasets with R.

Undergraduate Research Assistant, University of Minnesota, Minneapolis, MN   **June 2020 - Ongoing**
- Mentors: Dr. Logan Spector, Dr. Lindsay Williams, and Dr. Lauren Mills.
- Performed demographic and differential gene expression analysis in 5 major pediatric cancers using TARGET & PeCan datasets with R.
- Conducted survival analyses in 17 different pediatric cancers using SEER datasets in R. Confirmed evidence of survival differences by race & sex in 11 different cancers, with publication pending.
- Independently scraped public data repositories and created an in-group directory using Python & R.
- Prepared NIH Diversity Supplement Grant (PA-16-288) for Dr. Spector's R01 to study DNA methylation & causal mediation in pediatric ALL.

WMCN Summer Radio Station Manager, Macalester College, St. Paul, MN   **July 2019 - September 2019**
- Oversaw a FCC-syndicated radio station, as lead technical manager. Maintained FCC radio standards, performed radio transmitter readings, and maintained the station's U.S. Emergency Alert System.
- Supervised and hosted radio shows throughout the summer, helping DJs perform live-sessions and interviews, while establishing new admissions methods and leading crucial studio renovations.
- Independently designed and implemented new training programs for beginning DJ's that lead to a 40% increase in listener engagement.

Facilities Services Office Assistant, Macalester College, St. Paul, MN   **May 2019 - September 2019**

- Handled the processing of extremely sensitive financial information and valuable materials.

- Performed data entry and cleaning in commonly used security softwares (Keystone, Wizard - Perfomo, and Excel).

- Member of a student diversity and inclusion committee which interviewed candidates for a position as director of security

TEACHING EXPERIENCE

Statistical Machine Learning, Macalester College, St. Paul, MN   **March 2021 - Ongoing**
- Currently helping students learn to perform advanced regression, classification, and unsupervised ML techniques in RMarkdown. Hosting weekly office hours, grading assignments, and revising course-long statistical projects.

Introduction to Statistical Modeling, Macalester College, St. Paul, MN   **January 2020 - March 2021**
- Hosted twice-weekly office hours, graded, and worked intimately with students to develop their fluency in study design, statistical models, and statistical computing in R. Also, proofread and revised final projects in RMarkdown.

Applied Multivariable Calculus, Macalester College, St. Paul, MN   **August 2019 - December 2020**
- Helped instruct Macalester's introductory class to Applied Multivariable Calculus by designing and teaching lesson plans for various calculus concepts and modeling exercises in RStudio. Hosted office hours throughout the semester, actively working with students to review material and complete various assignments and projects.

TALKS & PRESENTATIONS

1. **Barragan, F.**, Mills, L., Spector, L., Williams, L., "Gene Expression & Clinical Differences in Pediatric Neuroblastoma by Sex". Video presentation at Electronic Undergraduate Statistics Research Conference. (*Award for Best Video Presentation*)
2. **Barragan, F.**, Moore, K., Williams, L., "Survival disparities for some childhood brain tumors exist when defined by race/ethnicity and sex". Contributed poster at Neuro-Oncology Symposium Conference 2021, Minneapolis, MN.

SERVICE & LEADERSHIP

CGH Concentration Steering Committee Member, Macalester College, St. Paul, MN   **Fall 2020 - Ongoing**
- Selected as a student representative for the Community & Global Health concentration to advocate for student needs and interests.

- Organized & hosted an academic lecture on the biologic & epidemiological basis of the COVID-19 pandemic.

- Presented at community outreach events, lectures, and new student orientations to help guide CGH concentrators through the internship process.

Founder and Chair, Macalester JVP, St. Paul, MN   **October 2018 - Fall 2020**
- Founder and chair for Macalester's branch of Jewish Voice for Peace, a nonprofit grassroots organization aimed to educate the U.S. public about the human rights violations committed by the Israeli Government.

- Organized an academic colloquium on Palestine with academic departments, in collaboration with well-respected academics and activists across the United States. Cancelled due to COVID-19.

MACCESS Coordinator, MPIRG, St. Paul, MN   **October 2018 - Fall 2020**
- Lead organizer in the coordination of an independent major admissions event for 50 first-generation, low-income, high school students of color from the Twin Cities' Public School District. 2020 Session cancelled due to COVID-19.

- Collaborated with faculty to provide an introductory Computational Linear Algebra lecture on facial recognition software for 24 attendees interested in Computer Science and Mathematics.

PROFESSIONAL MEMBERSHIPS

- American Statistical Association (ASA)
- Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)