Freddy Barragan

1600 Grand Ave, St. Paul, MN, 55105 · fabarraga@gmail.com · Website

EDUCATION

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

Selected Coursework: Bayesian Statistics, Mathematical Statistics, Causal Inference, Probability, Machine Learning

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

SKILLS

Technical: Highly Proficient in R; Proficient in STAN, Python, and Excel, Familiar with RShiny, Git, & Mathematica

Spoken Languages: English (Native), Spanish (Bilingual Proficiency)

WORK EXPERIENCE

Undergraduate Research Assistant, University of Minnesota, Minneapolis, MN **June 2020 - Ongoing**

- Mentors: Dr. Kelsey Grinde, Dr. Logan Spector, Dr. Lindsay Williams, and Dr. Lauren Mills.
- Awarded NIH Diversity Supplement Grant (PA-16-288) for Dr. Spector's R01 to independently study DNA methylation & causal mediation in pediatric ALL.
- Performed demographic and differential gene expression analysis in 5 major pediatric cancers using TARGET & PeCan datasets via linear regression, empirical Bayes, and random forest classification in 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 of big genomic data using Python, R, and LINUX.

Mann-Hill Research Fellow, Macalester College, St. Paul, MN **May 2021 - August 2021**

- Mentors: Dr. Kelsey Grinde, Dr. Logan Spector, Dr. Lindsay Williams, and Dr. Lauren Mills.
- Using admixture methods and ancestral inference to identify the basis of major survival disparities in pediatric B-ALL using TARGET & PeCan datasets with R, RFMix, BASH and Python.
- Developing approaches to study interactions between local and global ancestry in gene expression data.
- Awarded scholarship to attend the University of Washington Department of Biostatistics's Summer Institute in Statistical Genetics.

Preceptor, Macalester College, St. Paul, MN **August 2019 - Ongoing**

- Helped instructors teach courses on Applied Multivariable Calculus (MATH 135), Introduction to Statistical Modeling (STAT 155), and Statistical Machine Learning (STAT 253).
- Hosted twice-weekly office hours, graded, and worked intimately with students to develop their fluency in study design, statistical models, and machine learning in R.
- Currently helping 65 students use advanced regression, classification, PCA, and other unsupervised ML techniques in R and RMarkdown for semester-long projects.

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 processes and leading crucial studio renovations.

SUBMITTED MANUSCRIPTS

1. Moore, K., **Barragan, F.**, Williams, L., "Survival disparities for childhood cancers exist when defined by race/ethnicity and sex".

RESEARCH PRESENTATIONS

1. **Barragan, F.**, Mills, L., Raduski, A., Marcotte, E., Spector, L.,Grinde, K., Williams, L., "Gene Expression Differences by Race and Genetic Ancestry in in B-Cell Acute Lymphoblastic Leukemia". Contributed poster at American Society for Human Genetics Annual Meeting, 2021. *(Accepted)*
2. **Barragan, F.**, Mills, L., Raduski, A., Marcotte, E., Spector, L.,Grinde, K., Williams, L., "Statistical Methods for Pediatric Leukemia: Gene Expression & Ancestry in B-Cell Acute Lymphoblastic Leukemia". Contributed poster at Macalester Summer Research Showcase 2021, Saint Paul, MN.
3. **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.
4. **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*)

SERVICE & LEADERSHIP

CGH Concentration Steering Committee Member, Macalester College, St. Paul, MN **Fall 2020 - Ongoing**

- Acts as a senior student representative for 59 CGH concentrators and advocates for student needs to the academic board.
- Organized and hosted academic panels and webinars and community outreach events to connect potential students with other CGH concentrators and CGH faculty.
- Presented at community outreach events, lectures, and new student orientations to help guide CGH concentrators through the internship process.

WMCN 91.7 FM Station Staff, Macalester College, St. Paul, MN **January 2019- Ongoing**

- Lead event-programming and trained shows dedicated to international music, as a senior staff member of a FM radio station.
- Independently designed and implemented new training programs in September 2019 for beginning DJs.

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**)
- **American Society for Human Genetics** (**ASHG**)
- **Society for Advancement of Chicanos/Hispanics and Native Americans in Science** (**SACNAS**)