

EDUCATION

MS Biostatistics

Anticipated May 2025

Vanderbilt University, Nashville, TN

Thesis: Evaluation of Machine Learning Approaches for Assessing Heterogeneity of Treatment Effect in Clinical Trials

Advisor: Bryan Blette, PhD

BA Biology

2017

Minor: Geography; Concentration: Community & Global Health

Macalester College, St. Paul, MN

Studied Community Public Health at Khon Kaen University in Thailand

2016

RESEARCH AND WORK EXPERIENCE

Graduate Research Assistant

Vanderbilt University Medical Center, Department of Biostatistics, Nashville, TN

August 2024 – present

Mentor: Rameela Raman, PhD

- Conduct data and geospatial analyses of juvenile care reporting and social determinants of outcomes for stakeholders in the TN Department for Children's Services and the Vanderbilt Center of Excellence for Children in State Custody.
- Communicate technical statistical ideas to non-statisticians; understand and respond to client needs.

CLOVERS Project

Vanderbilt University Medical Center, Department of Biostatistics, Nashville, TN

2023 – 2024

Mentor: Jonathan Schildcrout, PhD

- Analyzed retrospective trial data nested within a two-phase enrichment study design from the CLOVERS clinical trial which enrolled patients with sepsis to compare fluid resuscitation strategies. This secondary analysis pertained to biomarkers of endothelial glycocalyx degradation and resulted in a publication (under review).
- Collaborated with investigators at Massachusetts General Hospital, Beth Israel Deaconess Medical Center, and Harvard Medical School.

Lab Manager / Research Technician II

Fred Hutchinson Cancer Center - Vaccine and Infectious Disease Division, Seattle, WA

2019 – 2022

PI: Leslie Goo, MPH, PhD

- Established the infrastructure for single B cell transcriptomics for antibody discovery in collaboration with postdoc.
- Optimized pipeline for high-throughput antibody (IgG) production, purification, and characterization following selection via a Bayesian phylogenetic Markov Model.
- Onboarded and trained rotation students (5) and undergraduate student (1); contributed to their research projects.
- Invited to write a commentary on a relevant manuscript describing the use of single cell transcriptomics to profile the B cell repertoire following dengue virus infection.

Research Technician, HIV Vaccine Trials Network (HVTN)*Fred Hutchinson Cancer Center - Vaccine and Infectious Disease Division, Seattle, WA*

2017 – 2019

PI: Julie McElrath, MD, PhD

- Independently analyzed and interpreted data; composed study plans and final study reports to share findings for HIV, malaria, and Ebola vaccine clinical trials.
- Consistently performed to high standards in a GCLP regulated high-throughput team environment.
- Completed study on Activation Induced Marker assay development for the detection of antigen-specific T cell responses. Responsible for procedure development, literature consultation, study plan preparation and analysis. Presented this project as a poster at the UW CFAR conference.

Student Fellow/Worker, Minnesota Department of Health*Public Health Labs - Virology Unit, St. Paul, MN*

Mentor: Anna Strain, PhD

Student Worker Paraprofessional Senior

2016 – 2017

- Validated new reagents for the detection of arbovirus infection in serum samples using IgM antibody capture enzyme-linked immunosorbent assay (MAC-ELISA). Also participated in West Nile Virus surveillance in mosquito specimens.

Taylor Public Health Fellow

2016

- Optimized a seminested reverse transcription PCR for the detection of enterovirus in clinical samples for the Severe Acute Respiratory Illness (SARI) public health surveillance initiative. Presented this project to the Infectious Disease Labs staff.

Mayo Summer Undergraduate Research Fellow*Mayo Graduate School, Rochester, MN*

2015

Mentor: Khashayarsha (Khash) Khazaie, PhD, DSc

- Researched how regulatory T cells interact with innate lymphoid cells and Th-17 cells to maintain gut homeostasis, and the role of IL-10 in this cross talk. Presented this project to the Mayo Graduate School Immunology department.

PEER-REVIEWED PUBLICATIONS

- Belmont, L., Contreras, M., Cartwright-Acar, C.H., Marceau, C.D., Agrawal, A., **Levoir, L.M.**, Lubow, J. and Goo, L., 2024. Functional genomics screens reveal a role for TBC1D24 and SV2B in antibody-dependent enhancement of dengue virus infection. *Journal of Virology*. 0:e01582-24.
- Contreras, M., Stuart, J.B., **Levoir, L.M.**, Belmont, L. and Goo, L., 2024. Defining the impact of flavivirus envelope protein glycosylation site mutations on sensitivity to broadly neutralizing antibodies. *mBio*, 15(2), pp.e03048-23.
- Lubow, J., **Levoir, L.M.**, Ralph, D.K., Belmont, L., Contreras, M., Cartwright-Acar, C.H., Kikawa, C., Kannan, S., Davidson, E., Duran, V. and Rebellon-Sanchez, D.E., 2023. Single B cell transcriptomics identifies multiple isotypes of broadly neutralizing antibodies against flaviviruses. *PLOS Pathogens*, 19(10), p.e1011722.
- Kikawa, C., Cartwright-Acar, C.H., Stuart, J.B., Contreras, M., **Levoir, L.M.**, Evans, M.J., Bloom, J.D. and Goo, L., 2023. The effect of single mutations in Zika virus envelope on escape from broadly neutralizing antibodies. *Journal of Virology*, 97(11), pp.e01414-23.
- **Levoir, L.** and Goo, L., 2020. A (class-) switch in the antibody response may distinguish primary from secondary dengue virus infection. *EBioMedicine*, 56.

SUBMITTED MANUSCRIPTS

- Oshima, K, Gravio, C.D., Yan, B., McMurty, S. A., Burke, R., **Levoir, L.M.**, Kravitz, M. S., Stephenson, D., Issaian, A., Hansen, K.C., D'Alessandro, A., Douglas, I.S., Self, W.H., Lindsell, C.J., Schildcrout, J.S., Schmidt, E.P., and Shapiro, N.I. 2024. Association of Endothelial Glycocalyx Degradation with Fluid Resuscitation and Sepsis Mortality. Submitted to: *Critical Care Medicine*.

PRESENTATIONS

- Poster:** Activation Induced Marker Assay for the Detection of Vaccine Specific CD4+ T Cells
L. Levoir, K. Schwedhelm, S. De Rosa, K. Cohen, M.J. McElrath 2018
Center for AIDS Research (CFAR) STD and AIDS Research Symposium, Seattle, WA
- Oral Presentation:** Developing an Enterovirus Characterization Assay
L. Levoir 2016
Minnesota Department of Health Public Health Labs, St. Paul, MN
- Poster & Oral Presentation:** IL-10 Regulation of Gut Innate Immunity
L. Levoir, A. Saadalla, K. Khazaie 2015
Mayo Clinic Summer Undergraduate Research Fellowship, Rochester, MN

HONORS AND AWARDS

- Commodore Award in Biostatistics, Vanderbilt University** 2024
Awarded to one student per year for enriching the department and/or graduate program through ingenuity, dedication, and altruism.
- Student Travel Award, ASA Women in Statistics and Data Science Conference** 2024
- Russell G. Hamilton Scholar, Vanderbilt University** 2022
One of two recipients of the University Graduate Fellowship, an additional funding award of \$2,500/ year.
- Public Health Scholar Bowl, St. Louis University** 2017
2nd place team in the Case Study competition with a \$1000 cash prize.
- Public Health Scholar Bowl, St. Louis University** 2015
1st place in Public Health Trivia team with a \$1000 cash prize and recognition for Macalester's academic program in Community and Global Health.
- Taylor Public Health Fellowship, Macalester College Biology Department** 2016
One of five students to receive this competitive grant which supported summer research in public health (completed at Minnesota Department of Health). \$2600 for term.
- Alliss Scholarship, Macalester College** 2013-2017
- Wallace Distinguished Scholarship, Macalester College** 2013-2017
Merit award for high-achieving students. \$15,000/ year for 4 years.
- Wallin Scholar, Wallin Education Partners** 2013-2017
Financial award and individual advising program for first generation and/or BIPOC college students from the Minneapolis/St. Paul metro area. \$4,000/ year for 4 years

LEADERSHIP

- Vice President, Biostatistics Graduate Student Association (BGSA)** 2024 – present

- Initiated a new seminar series, Fireside Chats, where students learn about the “unwritten curriculum” of graduate school and professional development. Students get the chance to connect with potential research mentors and committee members.
- Organize bi-weekly Journal Club presentations for third and fourth year students to practice communicating to a receptive audience of their peers.
- Work closely with BGSA President and Secretary to advocate for students and host events to foster their development.

Board Member & Outreach Chair, BGSA

2023 – 2024

- Proposed a new database to foster student access to mentorship, which was adopted by the department communications team.

President, Habitat for Humanity Macalester College Chapter

2014 – 2017

- Organized and led week-long service trips for 16 students to WV (2015) and GA (2017).
- Procured funding and led planning for annual events with guest speakers (Youth Homelessness; Race and Housing Inequality; Housing and Urban Planning in the Twin Cities).

Captain, Women’s Club Hockey

2015 – 2017

- Fostered a positive team environment for team members of various backgrounds in the sport of hockey.
- Arranged practice and game scheduling.

Orientation Leader/Senior Student Member, Macward Bound

2016

- Led 6 incoming undergraduates as a senior student mentor on a 4-day camping trip to Boundary Waters Canoe Area in Northern Minnesota.

TEACHING

Teaching Assistant: MSCI 5009 - Biostatistics I

Fall 2023

Supervising Professors: Qingxia (Cindy) Chen, PhD; Dandan Liu, PhD
Vanderbilt University, Nashville, TN

- Held office hours and graded work for MDs in the Master of Science in Clinical Investigation (MSCI) program’s course in foundational statistical concepts and R programming. Enrollment: 7 MD-level students

Teaching Assistant: BIOL 255 - Cell Biology and Genetics Laboratory Methods

Spring & Fall 2015

Supervising Professor: Steve Sundby, MS
Macalester College, St. Paul, MN

- Led lab discussion and grading for the Biology department’s introductory cell biology and genetics course. Enrollment: 16 intro-level students

PROFESSIONAL SERVICE AND MEMBERSHIPS

Educational Outreach Committee Co-Chair, Hutch United

2019 – 2022

- Coordinated scientific education and outreach activities for local high school and community college students, with a specific focus on underrepresented and underserved students.
- Collaborated among institutional stakeholders to host events including career seminars and networking lunches.
- Showcased the lab of Dr. Leslie Goo during a 45 minute “Hutch at Home” virtual tour for high school students.

Professional Memberships:

- Eastern North American Region - International Biometric Society (ENAR-IBS) 2022 – present
- Vanderbilt Biostatistics Graduate Student Association (BGSA) 2022 – present
- American Statistical Association (ASA) 2020 – present

RELEVANT SKILLS

Programming and Technical

R (advanced), GIS and geocoding (advanced), GitHub (intermediate), LaTeX (intermediate), Stata (intermediate)

Other

Statistical Modeling, Data Visualization, Collaboration, Student/Career Mentorship, Stakeholder Engagement

RELEVANT COURSEWORK

Graduate coursework

Mathematical Statistics series: Fundamentals of Probability & Contemporary Statistical Inference, Introduction to Statistical Computing, Modern Regression Analysis, Regression Modeling Strategies, Introduction to Study Design, Clinical Trials and Experimental Design, Applied Survival Analysis, Principles of Modern Biostatistics, Advanced Regression Analysis I (Linear and General Linear Models), Statistical Collaboration in Health Sciences I & II, Ethical Principles and Practices for Biostatisticians

Coursework pursued while working full-time in Seattle

Linear Algebra, Differential Equations, Multivariate Calculus, Probability

Undergraduate coursework

Statistical Computing, Intro to GIS, Health GIS, International Public Health, Introduction to Statistical Modeling, Contagion: The Human Ecology of Infectious Disease, Epidemiology, Drugs and Society, Immunology, City Life: Segregation, Integration, Gentrification

OTHER EMPLOYMENT

Wallin Education Partners

- Program Development Intern 2016
 - * Brainstormed new avenues for student engagement, including alumni networking event for scholarship recipients and a scholar peer mentorship project.
 - * Created attractive and informative reports; analyzed scholar data, including end of term comments for grant reporting.

Macalester College

- Geography Department - GIS Lab Assistant 2016 – 2017
 - * Used ArcGIS knowledge to assist students on software use and troubleshooting, as well as provided guidance for student cartographic design.
 - * Clearly communicated technical subject matter to other students and faculty.
 - * Improved skills in data management, joins and queries, geocoding, map design as well as geoprocessing: spatial statistics, network analysis & spatial analysis extensions.
- Institute for Global Citizenship - Projects Assistant 2014 – 2016
 - * Worked independently and as part of a team to plan and organize campus events including the annual International Roundtable, study abroad information sessions, and various lunches.

- * Learned the logistics behind campus event advertisement and promotion.
- Health and Wellness Center - Fitness Instructor 2015 – 2016
 - * Taught two weekly semester-long classes accessible to beginners and experienced students to de-stress, build community, and improve physical fitness.
- Health and Wellness Center - Lifeguard 2013 – 2014