NIKHITA DAMARAJU

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EDUCATION

UNIVERSITY OF WASHINGTON Seattle, WA
Doctor of Philosophy (PhD), *Public Health Genetics* September, 2022 - present
Courses: Ethical, legal, social implications of Genomics; Principles of Health Metrics, Strategies of Health Promotion, Genetics and Law, Health Economics, Pharmacoeconomics

COLUMBIA UNIVERSITY MAILMAN SCHOOL OF PUBLIC HEALTH New York, NY
Master of Science (MS), Biostatistics – Statistical Genetics September, 2020 - May, 2022
Relevant courses: Data Science, Machine Learning, Biostatistical Methods-I & II, Statistical Genetic Modelling, Population Genetics, Statistical Inference, Probability, Causal Inference, Probabilistic Graphical Models for Health Data, Epidemiology, Advance Statistical Genomics methods

INDIAN INSTITUTE OF TECHNOLOGY MADRAS Chennai, TN, India
Bachelor and Master of Science (B.S.-M.S.), Biological Sciences August, 2015 – May, 2020
- Minor in Computational Biology

Relevant Courses: Bioinformatics, Biostatistics, Computational Biology, Systems Biology, Quantitative and Population Genetics, Genomics and Proteomics, Immunology, Cancer Biology, Biotechnology in Healthcare

SKILLS AND INTERESTS

Computer Languages	R (rstats, shiny), Python (pandas, scikit-learn), SAS, C, C++, MATLAB
Interests	Statistical Genetics, Biostatistics, Biomedical Data Science, Heath Informatics

HONORS, AWARDS AND GRANTS

- Building Bridges Grant with Dr. Danny Miller, Dr. Brian Shirts, UW Department of Lab Medicine & Pathology (2023)
- Scholarship recipient, 26th Summer Institute in Statistical Genetics, University of Washington (2021)
- Data Science Institute Scholarship, Columbia University (2020)
- Runners up and best software tool out of 15 teams, AI Genomics Hackathon, SVAI, San Francisco (2019)
- Khorana fellowship grant, Government of India, Indo-U.S. Science and Technology Forum (2018)
- Government of India DST INSPIRE fellow for five consecutive years given for best academic record, Indian Institute of Technology, Chennai (2015-2020)

PROFESSIONAL EXPERIENCE

UNIVERSITY OF WASHINGTON Seattle, WA
Graduate Research Assistant, Department of Laboratory Medicine January, 2023 - present
Advisor: Dr. Brian Shirts, Dr. Danny Miller
- Analyzing the performance of various variant calling algorithms on long read sequencing data.
- Determining the accuracy of phasing algorithms using data from different trios.

UNIVERSITY OF WASHINGTON Seattle, WA
Graduate Research Assistant, School of Pharmacy March – September, 2023
Advisor: Dr. Andy Stergachis
- Performed statistical analysis for the cohort event monitoring of patients treated with a Tenofovir/Lamivudine/Dolutegravir (TLD) regimen in Mozambique.
- Characterized the types, rates, and risk factors for adverse events in the TLD Regimen using regression modelling.

ICAHN SCHOOL OF MOUNT SINAI New York, NY
Department of Genetics and Genomic Sciences February – August, 2022
Advisor: Dr. Paul O'Reilly

- Developed a novel shrinkage methods for improving prediction of a polygenic risk score model on UK Biobank data
- Summarized key algorithmic considerations and biological insights in the form of a manuscript to be submitted

COLUMBIA UNIVERSITY, GENENTECH INC. New York, NY
Data Science Institute Scholar 2020-2021, Herbert Irving Center For Cancer Research October, 2020 – May, 2022
Advisor: Dr. Alison Taylor

- Created a UNIX and R-based analysis pipeline on AWS consisting of copy number variant prediction algorithms on whole exome sequencing datasets to analyze differences between healthy and tumor samples.
- Quantified mutations (point and indels) stratified by chromosomal regions and genes across samples
- Worked on a collaborative study with Genentech Inc. to understand correlations between immunotherapy status and copy number variations in multiple tumor types

INFLAMMATIX INC. Burlingame, CA
Computational biology summer intern May – September, 2021
Advisor: Dr. Yehudit Hasin, Dr. Yudong He

- Implemented a multi-cohort analysis framework on 20 publicly available datasets consisting of a heterogenous set of >2000 samples.
- Derived a gene expression signature to distinguish between healthy controls and Systemic Lupus Erythematosus (SLE), validated in an independent set with high accuracy.

INDIAN INSTITUTE OF TECHNOLOGY MADRAS Chennai, TN, India
Dual Degree Thesis, Robert Bosch Center for Data Science and AI July 2019 – May 2020
Thesis advisor: Dr. Himanshu Sinha

- Assessed multiple gestational age (GA) estimation models on preterm birth prediction for a cohort of North-Indian women.
- Designed a regression-based model for GA estimation in first trimester with highest preterm labelling accuracy [1].
- Implemented machine learning approaches using ultrasound metrics to predict GA accurately in second and third trimesters. [2]
- Worked in close collaboration with a team of clinicians at the Translational Health Sciences Institute, Delhi as a part of Bill and Melinda Gates foundation grant, Grand Challenges of India grant and BIRAC grant.
- Presented research at multiple Data Science and AI academic conferences.

STANFORD UNIVERSITY Stanford, CA
Summer Research Intern, Department of Biochemistry May – August 2019
Advisor: Dr. Julia Salzman

- Developed a generalized linear model using R to predict alternative splicing events consisting of 50 features using primate transcriptomic data combined with genomic information of key regulatory elements.
- Identified multiple SINE and LINE repeat aggregations conserved across six primate families.

STANFORD UNIVERSITY Stanford, CA
Khorana summer fellowship intern, Department of Biochemistry May – August 2018
Advisor: Dr. Julia Salzman

- Designed a bioinformatic analysis pipeline for analyzing circRNAs in Epstein Barr virus infected human B-cell transcriptomic datasets downloaded from SRA to identify differences in lytic and latent infection stages of the virus.
- Selected as one of the 40 Khorana fellowship grant recipients among 1000 applicants to conduct research at the Salzman Lab, Department of Biochemistry.

TEACHING AND LEADERSHIP

UNIVERSITY OF WASHINGTON Seattle, WA
Teaching Assistant, School of Public Health September, 2022 – June, 2023

- PHG303: Direct-to-Consumer Genetic Testing: Uses and Issues: Responsible for holding discussion sections based on case studies along with weekly office hours and grading.

- PHRMRA 545: Statistical Topics for Biomedical Regulatory Affairs Professionals: Responsible for grading homework, holding office hours, attending lecture and providing additional help with statistical methods.

- BIOST 511: Medical Biometry: Responsible for grading homework, holding discussion sections to enable students to practice course concepts and weekly office hours. I am also developed content for weekly discussion sections.

- PHG 200: Implications of Public Health Genomics for Society: Responsible for holding discussion sections comprising of debates based on articles related to course content along with weekly office hours.

COLUMBIA UNIVERSITY New York, NY

Teaching Assistant, Department of Biostatistics August – December, 2021

- P8105: Data Science: Responsible for grading homework assignments and mentoring student groups for the final project. I also hold weekly office hour sessions that involve debugging and explaining tidyverse/dplyr functions to students.

- P8104: Probability: Responsible for conceptualizing questions for weekly assignments, holding office hours to clarify theoretical concepts, grading homework and examinations.

INDIAN INSTITUTE OF TECHNOLOGY MADRAS Chennai, TN, India

Teaching Assistant July, 2019 – May, 2020

- Quantitative and Population Genetics: formulated questions for quizzes and end semester examinations along with grading of 2 online research seminars for over 20 students

- Synthetic Biology: responsible for assessing 3 sets of research seminars for over 25 students

Founder and Chair, Biotech Research Club September, 2017 – June, 2019

- Started a student organization dedicated at developing an interest in Synthetic biology among the students of IIT Madras where I was responsible for planning and conducting relevant talks by graduate students, experimental workshops to compliment theoretical understanding and journal clubs on dedicated topics.
- Curated over 10 articles for a science magazine called `Synkranti` as the chief editor

CONFERENCES AND POSTERS

- 2023 Stanford Genetics Conference on Structural Variants and DNA Repeats, short talk
- 2021 Initiative for Biological Systems Engineering 8th Workshop, talk
- 2020 7th RBCDSAI Workshop on Recent Progress in Data Science and AI, talk
- 2020 India EMBO symposium on Synthetic Biology, presentation and volunteer
- 2019 Initiative for Biological Systems Engineering 5th workshop, award for best poster and presentation
- 2019 Tata consultancy services research presentation competition, award for best poster and presentation
- 2016-2018 International Genetically Engineered Machine Competition, Boston
    - Gold medal, Foundational Advance track (2018)
    - Silver medal, Software track (2017) for published tool ChassiDex [5]
    - Silver medal, Measurement track (2016)

PEER-REVIEWED PUBLICATIONS

[1] Vijayram R*, **Damaraju N***, Xavier A*, et al. Comparison of first trimester dating methods for gestational age estimation and their implication on preterm birth classification in a North Indian cohort. *BMC Pregnancy and Childbirth*. 2021; 21(1):343. doi:10.1186/s12884-021-03807-4 *(*co- first authors)*

MANUSCRIPTS UNDER REVIEW

[2] Gadekar V*, **Damaraju N***, et al. Development and external validation of Indian population-specific Garbhini-GA2 model for estimating gestational age in second and third trimesters ; 2023 (under review, Lancet Regional Health Southeast Asia) *(*co- first authors)*

[3] **Damaraju N,** Miller D, Miller A, Long-read DNA and RNA sequencing to streamline clinical genetic testing and reduce barriers to comprehensive genetic testing; 2023 (under review, Journal of Applied Laboratory Medicine)

PREPRINTS

[5] Kailash BP*, Karthik D*, Shinde M*, **Damaraju N***, et al. *ChassiDex: A Microbial Database Useful for Synthetic Biology Applications*.; 2019:703033. doi:10.1101/703033 *(*co- first authors)*

[6] **Damaraju N***, Xavier A*, et al. Development of Second and Third-Trimester Population-Specific Machine Learning Pregnancy Dating Model (Garbhini-GA2) Derived from the GARBH-Ini Cohort in North India.; 2021: 2021.10.02.21264450. doi:10.1101/2021.10.02.21264450 (*co- first authors)

OTHER WRITING

[7] **Nikhita Damaraju**, "Bench-to-Bedside: A Dream or Reality?", Apr 13, 2022, Columbia Univerisity Mailman School of Public Health Student Voices Blog

[8] Ashley Xavier, Himanshu Sinha, **Nikhita Damaraju**, "Developing India-specific pregnancy dating model from Garbhini cohort", AI for Social Good, Feb 9, 2021, Robert Bosch Centre for Data Science and AI (RBCDSAI)