Nikhita Damaraju

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Education

2022 – 2026 (expected)	University of Washington, Seattle, WA PhD. in Public Health Genetics Areas of focus: Statistical Genetics, Long-read sequencing, Health Economics Thesis committee: Dr. Danny Miller (chair), Dr. Brian Shirts, Dr. David Veenstra, Dr. Paul Valdmanis
2020 - 2022	Columbia University, New York, NY M.S. in Biostatistics – Statistical Genetics
2015 - 2020	Indian Institute of Technology Madras, Chennai, TN B.S. – M.S (Dual Degree Program) in Biological Sciences Thesis: "Estimation of Gestational Age in the Second and Third Trimesters in a North Indian Cohort" Advisor: Dr. Himanshu Sinha

Honors, fellowships and grants

2025 Graduate School Conference Presentation Award, University of Washington, Seattle, WA
- travel and registration award to present at the American Society of Human Genetics Annual Meeting

2023-24 Building Bridges Grant with Dr. Danny Miller and Dr. Brian Shirts, Department of Lab Medicine & Pathology, UW
- awarded to build a partnership between two groups to combine expertise in LRS, statistical genetics, and clinical genetic testing to bridge disparate areas of genomic medicine.

2021 Scholarship, 26th Summer Institute in Statistical Genetics, University of Washington, Seattle. WA
- travel and registration award to attend a statistical genetics summer training program.

2020-21 Data Science Institute Scholar, Columbia University, NY
- scholarship program to engage in applied Data Science research projects

2018 Khorana fellowship, Government of India, Indo-U.S. Science and Technology Forum
- internship program for Indian students to work on a research project in the US

2016-18 International Genetically Engineered Machine Competition, Boston, MA
- received gold medal in foundational advance track (2018), silver medal in software track (2017) and silver medal in measurement track (2016).

2015-20 INSPIRE fellowship (five time awardee), Government of India Department of Science and Technology
- fellowship for top 1% students based on academic performance pursuing basic and natural sciences in India

Research experience

2023- Research Assistant, Department of Laboratory Medicine and Pathology, University of Washington, WA
- Develop statistical metrics to evaluate the sensitivity and clinical utility of haplotype phasing software for long-read sequencing data.

2023 Biostatistician, School of Pharmacy, University of Washington, WA
- Performed statistical analysis to facilitate two cohort event monitoring programs in Mozambique consisting of HIV positive patients treated with a Tenofovir/Lamivudine/Dolutegravir (TLD) regimen and ART patients treated with Isoniazid and Rifapentine (3HP).

2022 Research Assistant, Department of Genetics and Genomic Sciences, Icahn School of Mount Sinai, NY
- Implemented a novel shrinkage method for improving prediction of a polygenic risk score model on UK Biobank data

2021 Computational Biology Intern, Inflammatix Inc., CA
- Derived a gene expression signature for the development of a diagnostic device for individuals with Systemic Lupus Erythematosus.

2020-21 Research Assistant (Data Science Institute Scholar), Herbert Irving Institute Center for Cancer Research, NY
- Worked on a collaborative study with Genentech Inc. to understand correlations between immunotherapy status and copy number variations across multiple tumors using whole exome sequencing data.

2018-20 Research Assistant, Centre For Integrative Biology And Systems Medicine, Robert Bosch Center for Data Science and AI, Indian Institute of Technology Madras, India
- Implemented machine learning approaches using ultrasound metrics to predict GA accurately independently in first, second and third trimesters for a cohort of North Indian women at a high risk of preterm birth.

2019 Intern, Department of Biochemistry, Stanford University, CA
- Developed a generalized linear model framework to identify conserved associations between repeat elements and incidence of alternative splicing events across primate families.

2018 Intern (Khorana fellowship), Department of Biochemistry, Stanford University, CA
- Designed a bioinformatic analysis pipeline for identifying circRNA expression differences in lytic and latent infection stages of Epstein Barr virus infected human B-cells.

Publications

Peer-reviewed

1. Wojcik, M*, Clark RD,…..**Damaraju N**,……Miller DE. "Long-read sequencing is required for precision diagnosis of incontinentia pigmenti." HGG advances vol. 6,3 (2025): 100468. doi:10.1016/j.xhgg.2025.100468
2. Paschal, CR*, Zalusky MPG,…. **Damaraju N**,……Miller DE. "Concordance of Whole-Genome Long-Read Sequencing with Standard Clinical Testing for Prader-Willi and Angelman Syndromes." The Journal of molecular diagnostics : JMD vol. 27,3 (2025): 166-176. doi:10.1016/j.jmoldx.2024.12.003
3. Gustafson JA*, Gibson SB*, **Damaraju N*,** Zalusky MPG, Hoekzema K, Twesigomwe D,….., Miller DE. High-coverage nanopore sequencing of samples from the 1000 Genomes Project to build a comprehensive catalog of human genetic variation. Genome Res 2024. doi:10.1101/gr.279273.124
4. Wood K*, **Damaraju N*,** Krevanko CF*, Aberra A*, Cirone P, Duncan B, Faustman EM, Exposomics in Practice: Multidisciplinary Perspectives on Environmental Health and Risk Assessment. Integr Environ Assess Manag. 2024. doi: 10.1002/ieam.4926
5. **Damaraju N**, Miller AL, Miller DE. Long-Read DNA and RNA Sequencing to Streamline Clinical Genetic Testing and Reduce Barriers to Comprehensive Genetic Testing. J Appl Lab Med. 2024;9(1):138-150. doi:10.1093/jalm/jfad107
6. Gadekar VP*, **Damaraju N***,….., Sinha H. Development and external validation of Indian population-specific Garbhini-GA2 model for estimating gestational age in second and third trimesters. The Lancet Regional Health - Southeast Asia. 2024;0(0). doi:10.1016/j.lansea.2024.100362
7. Vijayram R*, **Damaraju N***, Xavier A*,….., Sinha H. 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

Abstracts

8. Mussá M, Seni ED, Kikule K, Nereah K, Teketel E, **Damaraju N**, Stergachis A. Active safety monitoring of Isoniazid and Rifapentine (3HP) among ART patients in Mozambique. ISoP Africa Chapter Meeting, July 2024.

9. Jhuraney A, Paolucci S, Gibson S, **Damaraju N**, Hayek J, Dingmann B, Miller DE, Buchan, J. Multi-Modal Testing, Including Long-Read Sequencing, to Elucidate an Unsolved Case of Dyskeratosis Congenita. ACMG, March 2024.

Preprints

10. Kailash BP*, Karthik D*, Shinde M*, **Damaraju N***, ...Jayaraman G, Mahapatra N. ChassiDex: A Microbial Database Useful for Synthetic Biology Applications.; 2019:703033. doi:10.1101/703033

Other writing

11. **Nikhita Damaraju**, "Bench-to-Bedside: A Dream or Reality?", Apr 13, 2022, Columbia University Mailman School of Public Health Student Voices Blog

12. 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)

Oral Presentations

1. **Damaraju N**. et al. (2024, September) "Evaluating the quality of long-read phasing methods in clinically relevant genes". Presented at Nanopore Community Meeting, Boston, MA

2. **Damaraju N.** (2024, September) "Product Demo showcase: End-to-end human variant identification using Oxford Nanopore sequencing at the Miller Lab". Presented at Nanopore Community Meeting, Boston, MA

3. **Damaraju N**. (2024, June) "R-tificial Intelligence: A guide to using R for ML". Presented at Cascadia R conference, Seattle, WA

4. **Damaraju N**. et al. (2023, December) "Long-read sequencing of 1000 Genomes samples to build a comprehensive catalog of human genetic variation". Presented at CSHL Genome Informatics Meeting, Cold Spring Harbor, NY

5. **Damaraju N**. et al. (2023, September) "Long-read sequencing of 1000 Genomes samples to build a comprehensive catalog of human structural variation". Presented at Stanford Genetics Conference on Structural Variants and DNA Repeats, Stanford, CA

6. **Damaraju N**. (2023, September) "Long-read sequencing for haplotype identification and identity-by-descent analysis" Institute for Public Health Genetics retreat, University of Washington, Seattle, WA

7. **Damaraju N**. et al. (2021, January) "Estimation of gestational age in the second and third trimesters for participants in the Garbhini cohort". Presented at 8th Initiative for Biological Systems Engineering Workshop, Indian Institute of Technology Madras, Chennai, TN

8. **Damaraju N**. et al. (2020, July) "India-specific model for fetal age estimation in second trimester from Garbhini cohort". Presented at 7th RBCDSAI Workshop on Recent Progress in Data Science and AI, Indian Institute of Technology Madras, Chennai, TN

9. **Damaraju N**. and Vijayram R. (2019, April) "Developing the India-specific model for estimating gestational age in the first trimester in Garbhini cohort". Presented at 5th Initiative for Biological Systems Engineering Workshop, Indian Institute of Technology Madras, Chennai, TN

10. **Damaraju N.** and Devan K. (2017, November) "A digital information catalogue of host organisms for synthetic biology, with supportive software tools". Presented at the International Genetically Engineered Machine Giant Jamboree, Boston, MA

Posters

1. **Damaraju N**. et al. (2025, October) "Evaluating long-read phasing for identity-by-descent detection in familial cohorts". American Society of Human Genetics, Boston, MA *(to be presented)*

2. **Damaraju N**. et al. (2024, November) "Evaluating long-read phasing in clinically relevant genes using data from the 1000 Genomes ONT Sequencing Consortium". American Society of Human Genetics, Denver, CO

3. **Damaraju N**. (2024, September) "Evaluating the quality of long-read variant calling and phasing in clinically relevant OMIM genes" Institute for Public Health Genetics retreat, University of Washington, Seattle, WA

Teaching

2025	Computational Genomics (Short course & Workshop), Cold Spring Harbor Laboratory, *Teaching Assistant*
2024	Computational Genomics (Short course & Workshop), Cold Spring Harbor Laboratory, *Teaching Assistant*
2023	Computational Genomics (Short course & Workshop), Cold Spring Harbor Laboratory, *Teaching Assistant*
2023	PHG 303: Direct-to-Consumer Genetic Testing: Uses and Issues, University of Washington, *Teaching Assistant*
2023	PHRMRA 545: Statistical Topics for Biomedical Reg. Affairs, University of Washington, *Teaching Assistant*
2022	BIOST 511: Medical Biometry, University of Washington, Department of Biostatistics, *Teaching Assistant*
2022	PHG 200: Implications of Public Health Genomics for Society, University of Washington, *Teaching Assistant*
2021	P8105: Data Science, Columbia University, Department of Biostatistics, *Teaching Assistant*
2021	P8104: Probability, Columbia University, Department of Biostatistics, *Teaching Assistant*
2020	Quantitative and Population Genetics, Indian Institute of Technology Madras, *Teaching Assistant*
2019	Synthetic Biology, Indian Institute of Technology Madras, *Teaching Assistant*

Professional Service

2025	Platform session moderator for "The utility of AI in clinical genomics workflows" session at the American Society of Human Genetics Annual Meeting
2025	Abstract reviewer, American Society of Human Genetics - Responsible for scoring 93 abstracts on 'Omics Technologies I: Biological and clinical applications'

Leadership

2018	Lead organizer, R-Ladies Chennai, India - Designed workshops as a part of the Chennai chapter of R-Ladies Global aimed at increasing the representation of women among R users.
2017-18	Team lead, International Genetically Engineered Machine Competition - Led a team of 27 students representing Indian Institute of Technology Madras at an annual showcase event held in Boston, MA consisting of 500 teams from around the world. - Started a science communication initiative called "The Language Project" explaining fundamentals of synthetic biology in 26 different languages in more than 70 videos on Youtube.
2017-19	Founder and Head, Biotech Research Club, Indian Institute of Technology Madras - Started an organization dedicated at developing an interest in Biology consisting of graduate research presentations, laboratory workshops, student-led journal clubs and a science magazine.