

Education

- **University of North Carolina** Chapel Hill, NC
Ph.D. Biostatistics 2015 - 2020
 - Concentration in computational genomics, statistical genetics, and genetic epidemiology with an emphasis in health disparities
- **University of North Carolina** Chapel Hill, NC
B.S. Mathematical Decision Sciences, B.S. Biology 2011 - 2015
 - Mackenzie Family Foundation Innovation Scholarship (full scholarship, 4 years)

Research and Work Experience

- **Department of Pathology and Laboratory Medicine** Los Angeles, CA
Postdoctoral Fellow August 2020 - present
 - Developing methods for integration of genetic association studies and functional genomics
 - Studying the genetics of health outcomes and disparities in neuropsychiatric diseases and cancer
 - With Prof. Bogdan Pasaniuc and Prof. Michael Gandal
- **Carolina Breast Cancer Study** Chapel Hill, NC
Research Assistant August 2017 - present
 - Elucidating the relationship between germline genetic variation and breast cancer tumor biology to study racial disparities in breast cancer outcomes
 - Developing methods for the deconvolution of bulk tumor RNA
 - With Prof. Michael Love and Prof. Melissa Troester
- **ELGAN-ECHO Research Study** Chapel Hill, NC
Research Assistant July 2017 - present
 - Analyzing the genetic and epigenetic effects in autism, post-partum depression, and non-communicable developmental disorders in underserved and underrepresented populations
 - Collaboration with Prof. Hudson Santos
- **NC TraCS Institute** Chapel Hill, NC
Research Assistant August 2017 - July 2018
 - Reviewed incoming grants for biostatistical support and provided statistical consultation for approved projects
- **Roche Innovation Center** New York, NY
Graduate Research Intern May 2016 - August 2016
 - Identified immunogenetic signatures from omic profiles from clinical trials to estimate immune infiltration in breast cancer tumors in response to cancer drugs
 - Internship in the Data Science group of Translational Genomics at Roche, under the supervision of Drs. Francesca Milletti and Jurriaan Brouwer-Visser
- **CBKEN @ UNC** Chapel Hill, NC
Research Assistant October 2015 - December 2016
 - Modeled knowledge exchange networks in community-based health centers to assess best methods in knowledge dissemination and health practices in underinsured and low-income areas
 - Presented findings to the North Carolina Department of Health and Human Services, October 2016
 - With Prof. Timothy Carney

Awards, Grants & Honors

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| Center of Environmental Health and Susceptability Training Grant | 2019-present |
| Susan G. Komen Graduate Training Fellowship in Breast Cancer Disparities | 2018-2019 |
| UNC-CH Department of Biostatistics Tuition Award | 2017-2018 |
| Mackenzie Family Foundation Innovation Scholarship | 2011-2015 |
| NSF Research Experience for Undergraduates, UGA | 2014 |
| UNC-CH OUR Summer Undergraduate Research Fellowship (\$5,000) | 2013 |

Publications

Accepted manuscripts

1. **A. Bhattacharya***, A. Hamilton*, M. Troester, K. Hoadley, M. Love. *An approach for normalization and quality control for NanoString RNA expression data. Briefings in Bioinformatics*, 2020.
<https://www.biorxiv.org/content/10.1101/2020.04.08.032490v2>. Co-first author.
2. **A. Bhattacharya**, M. García-Closas, A. Olshan, C. Perou, M. Troester, M. Love. *A framework for transcriptome-wide association studies in breast cancer. Genome Biology*, 2020.
<https://genomebiology.biomedcentral.com/articles/10.1186/s13059-020-1942-6>.
3. H. Santos, **A. Bhattacharya**, E. Martin, K. Addo, M. Psioda, L. Smeester, R. Joseph, S. Hooper, J. Frazier, K. Kuban, T. O'Shea, R. Fry for the ELGAN Investigators. *Epigenome-Wide DNA Methylation in Placentas from Preterm Infants: Association with Maternal Socioeconomic Status. Epigenetics*, 2019.
<https://www.ncbi.nlm.nih.gov/pubmed/31062658>.
4. H. Santos, B. Nephew, **A. Bhattacharya**, E. Martin, R. Fry, K. Perrera, L. Smith, C. Murgatroyd, R. Alyamani, X. Tan. *Discrimination Exposure and DNA Methylation of Stress-Related Genes in Latina Mothers. Psychoneuroendocrinology*, 2018. <https://www.ncbi.nlm.nih.gov/pubmed/30144780>.

Submitted papers

1. **A. Bhattacharya**, M. Love. *MOSTWAS: Multi-Omic Strategies for Transcriptome-Wide Association Studies. Submitted*, 2020. Preprint on *bioRxiv*:
<https://www.biorxiv.org/content/10.1101/2020.04.17.047225v2>.
2. **A. Bhattacharya***, H. Santos*, R. Joseph, C. Plazas, L. Smeester, K. Kuban, T. O'Shea, and R. Fry for the ELGAN Investigators, et al. *Evidence for the Placenta-Brain Axis: Multi-Omic Kernel Aggregation Predicts Intellectual and Social Impairment in Children Born Extremely Preterm. Submitted*, 2020. Co-first authorship with H. Santos.
3. H. Santos, J. Bangma, **A. Bhattacharya**, J. Rager, S. Kepper, E. Kwiatkowski, M. Psioda, S. Hooper, R. Joseph, L. Douglass, J. Frazier, K. Kuban, T O'Shea, R. Fry for the ELGAN Investigators. *Sex Differences in Placental DNA Methylation Associated with Positive Child Health. Submitted*, 2019.
4. H. Santos, **A. Bhattacharya**, B. Nephew, C. Murgatroyd, X. Tan. *Oxytocin function and emotional regulation in Latina mothers. Submitted*, 2019.

Working papers

1. **A. Bhattacharya***, Melissa A. Troester, and Michael I. Love *DeCompress: cell-type deconvolution using RNA expression data on bulk tissue from targeted panels. In preparation*, 2020.

2. **A. Bhattacharya***, R. Joseph, C. Plazas, L. Smeester, K. Kuban, T. O'Shea, H. Santos, and R. Fry for the ELGAN Investigators, et al. *Placental transcriptome-wide analyses of many traits show common genetic mechanisms that support the Developmental Origins of Health and Disease hypothesis*. In preparation, 2020.

Presentations

- **A. Bhattacharya**, M.I. Love. *MOSTWAS: Multi-Omic Strategies for Transcriptome-Wide Association Studies*.
 - *Society for Epidemiologic Research, December 2020*. Selected for oral presentation in Genetics in Epidemiology session.
 - *International Conference on Intelligent Systems for Molecular Biology, July 2020*. Selected for virtual oral presentation (Varl-COSI).
 - *International Genetic Epidemiology Society Meeting, July 2020*. Selected for virtual poster presentation (due to COVID).
 - *RNA 2020, May 2020*. Selected for virtual poster presentation (due to COVID).
- **A. Bhattacharya**, M. García-Closas, A. Olshan, C. Perou, M. Troester, M. Love. *A framework for transcriptome-wide association studies in breast cancer*.
 - *NCPF Workshop on Applying Big Data to Address the Social Determinants of Health in Oncology, October 2019*. Poster presentation at the National Academies of Science.
 - *American Society of Human Genetics Meeting, October 2019*. Poster presentation.
 - *International Genetic Epidemiology Society Meeting, October 2019*. Talk and highlighted poster presentation. One of 3 best poster awards.
 - *AACR Conference on The Science of Cancer Health Disparities in Racial/Ethnic Minorities and the Medically Underserved, September 2019*. Talk and poster presentation.
- **A. Bhattacharya**, H. Santos (presenting). *Placental Multi-Omics Prediction of Autism Spectrum Disorder at Age 10*. *Annual Meeting of the U.S. Developmental Origins of Health and Disease Society, September 2019*. Oral Presentation.
- **A. Bhattacharya**, M. Troester, M. Love. *Examining racial disparities in recurrence in the Carolina Breast Cancer Study: a transcriptome-wide association approach*. Plenary talk for Susan G. Komen. *American Association of Cancer Research, November 2018*

Teaching Experience

BIOS 735, *Introduction to Data Science* Spring 2019
 BIOS 550, *Basic Elements of Probability and Statistical Inference* Spring 2018
 BIOS 673, *Probability and Statistics* Spring 2017

Computing Skills

- **Advanced:** R (preferred), SAS, \LaTeX
- **Intermediate:** Python, C++, Matlab