Brooke Nichole Wolford

PhD, Bioinformatics | MA, Statistics | BS, Quantitative Biology

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EDUCATION

01/08/2021 **Doctor of Philosophy in Bioinformatics**, University of Michigan, Ann Arbor, MI, USA
Program in Biomedical Sciences, Department of Computational Medicine & Bioinformatics
Cumulative GPA: 3.86
Dissertation: Genetic Discovery and Precision Medicine in Cardiovascular Diseases Using Electronic Health Record-linked Biobanks
Dissertation committee: Co-Chair Cristen J. Willer, Co-Chair Michael Boehnke, Stephen C.J. Parker, Hyun Min Kang, Seunggeun Lee

01/08/2021 **Master of Arts in Statistics**, University of Michigan, Ann Arbor, MI, USA

12/05/2013 **Bachelor of Science in Quantitative Biology**, University of North Carolina, Chapel Hill, NC, USA
Thesis title: "Evolutionary Development of Gain-of-Function Stripes in Z. indianus." I graduated with Highest Honors and Highest Distinction and was selected for the US' most prestigious honors society, Phi Beta Kappa, in part due to my GPA 3.89 of 4.

06/06/2009 **High School Diploma**, North Carolina School of Science and Mathematics, Durham, NC, USA
I successfully applied to attend this residential high school, ranked in 2022 as the #2 public high school in the US by Niche.com

RESEARCH EXPERIENCE

01/10/2021-Present *Postdoctoral fellow*
Norwegian University of Science and Technology (NTNU), Department of Public Health and Nursing, Trondheim, Norway
Evaluating precision medicine approaches for complex diseases as an INTERVENE Fellow funded by European Union's Horizon 2020 grant agreement 101016775 led by Professor Samuli Ripatti and Dr. Andrea Ganna of the Finnish Institute for Molecular Medicine (FIMM).
Supervisor: **Kristian Hveem, MD, PhD,** K.G. Jebsen Center for Genetic Epidemiology

01/09/2015-30/09/2021 *Graduate Research Fellow*
University of Michigan, Department of Computational Medicine and Bioinformatics, Ann Arbor, MI
Statistical methods development to improve genetic discovery and precision medicine approaches with the use of family history information in population biobanks.
Supervisors: **Cristen J. Willer, PhD,** University of Michigan Medical School, Departments of Internal Medicine, Human Genetics, & Computational Medicine & Bioinformatics and **Michael Boehnke, PhD,** University of Michigan School of Public Health, Department of Biostatistics & Center for Statistical Genetics

15/08/2013-30/07/2015 *Post-baccalaureate Intramural Training Award Program Trainee*
National Institutes of Health, National Human Genome Research Institute, Bethesda, MD
Performed integrative analyses to understand genetic, epigenetic, and regulatory variation in Type 2 Diabetes as part of the FUSION project. Computationally studied allelic bias in high-throughput sequencing data using a combination of bash, Perl, and R on a high-performance compute cluster.
Supervisor: **Francis S. Collins, MD, PhD,** Medical Genomics and Metabolic Genetics Branch

01/06/2008-01/05/2013 *Undergraduate Research Assistant (August 2009 - May 2013)*
Volunteer Research Assistant (June 2008, Spring 2009, June 2009)
University of North Carolina at Chapel Hill, Biology Department, Chapel Hill, NC
Studied the molecular and genetic basis of adaptive evolution in Drosophila and related species with behavioral assays, phenotypic studies, and molecular analysis. Collaborated with Dr. Jones to perform an RNAi assay on olfactory and gustatory behavior in D. melanogaster through research experience at North Carolina School of Science and Mathematics and as a summer volunteer.
Corbin D. Jones, **PhD**, UNC-CH Biology Department

SELECTED PUBLICATIONS

1. Zhuang Y, **Wolford BN**, Nam K, Bi W, Zhou W, Willer CJ, Mukherjee B, Lee S. Incorporating family disease history and controlling case-control imbalance for population-based genetic association studies. Bioinformatics. PMID: 35876838. (25/07/2022)
2. Duda M*, Sovacool, KL*, [14 authors], Lapp Z*, **Wolford BN*.** Teaching Python for Data Science: Collaborative development of a modular and interactive curriculum. Journal of Open Source Education, 4(46), 138. PMID: 35187422. (17/12/2021)

3. Fan Y*, **Wolford BN*,** Lu H*, [20 authors], Willer CJ, Chen YE. Type 2 diabetes sex-specific effects associated with E167K coding variant in *TM6SF2*. iScience. PMID: 34746691. (19/11/2021)
4. Roychowdhury T, Lu H, [9 authors], **Wolford BN**, [36 authors], Garcia-Barrio MT, Willer CJ. Regulatory variants in TCF7L2 are associated with thoracic aortic aneurysm. AJHG. PMID: 24265237. (14/07/2021)
5. COVID-19 Host Genetics Initiative (banner authorship). Mapping the human genetic architecture of COVID-19 by worldwide meta-analysis. Nature. PMID: 34237774. (08/07/2021)
6. Moksnes M, [5 authors], **Wolford BN**, [17 authors], Willer CJ, Brumpton BM, Omland T. Using human genetics to understand the role of cardiac troponin I in the general population. Human Molecular Genetics. PMID: 33961016. (01/11/2021)
7. Natarajan P, [9 authors], **Wolford BN**, [40 authors], Peloso G. Chromosome Xq23 is associated with lower atherogenic lipid concentrations and favorable cardiometabolic indices. Nature Communications 12(1):2182. PMID: 33846329. (12/04/2021)
8. Beil A, Hornsby WE, Uhlman WR, Aatre R, Arscott P, **Wolford BN**, Eagle K, Yang B, McNamara J, Willer CJ, Roberts JS. Disclosure of clinically actionable genetic variants to thoracic aortic dissection biobank participants. BMC Medical Genomics. PMID: 33648514 (01/03/2021)
9. Klarin D, [3 authors], **Wolford BN**, [48 authors], Tsao PS on behalf of the VA Million Veteran Program. Genetic Architecture of Abdominal Aortic Aneurysm in the Million Veteran Program. Circulation. PMID: 32981348. (28/09/2020)
10. Surakka I, [7 authors], **Wolford BN**, [10 authors], Hveem K, Willer CJ. Loss-of-function mutation in the MEPE gene decreases lifetime bone mineral density and increases fracture risk. Nature Communications 11, 4093. PMID: 33097703. (23/10/2020)
11. Zhou W, Nielsen JB, Fritsche LG, Dey R, Gabrielsen ME, **Wolford BN**, [10 authors], Abecasis GR, Willer CJ, Lee S. Efficiently controlling for case-control imbalance and sample relatedness in large-scale genetic association studies. Nature Genetics 50(9):1335–41. PMID: 30104761. (08/13/2018)
12. Norton E*, Hornsby WE*, Wu X, **Wolford BN**, Graham S, Willer CJ, Yang B. Aortic Progression and Reintervention in Patients with Pathogenic Variants Following a Thoracic Aortic Dissection. Journal of Thoracic and Cardiovascular Surgery. PMID: 32199657. (20/02/2020)
13. Børte S, [8 authors], **Wolford BN**, [6 authors], Willer CJ, Winsvold B. Mitochondrial genome-wide association study of migraine—the HUNT Study. Cephalgia 40(6):625-634. PMID: 32056457. (14/02/20202)
14. **Wolford BN***, Hornsby WE*, [19 authors], Milewicz DM, Willer CJ, Yang B. Clinical implications of identifying pathogenic variants in individuals with thoracic aortic dissection. Circulation Genomic and Precision Medicine 12(6): 273-280. PMID: 31211624. (18/06/2019)
15. Nielsen JB, [17 authors], **Wolford BN**, [27 authors], Abecasis GR, Hveem K, Willer CJ. Biobank-driven genomic discovery yields new insight into atrial fibrillation biology. Nature Genetics 50:1234–39. PMID: 30061737. (30/07/2018)
16. Zhou W, Nielsen JB, Fritsche LG, Dey R, Gabrielsen ME, **Wolford BN**, [10 authors], Abecasis GR, Willer CJ, Lee S. Efficiently controlling for case-control imbalance and sample relatedness in large-scale genetic association studies. Nature Genetics 50(9):1335–41. PMID: 30104761. (13/08/2018)
17. **Wolford BN**, Willer CJ, and Surakka I. Electronic health records: the next wave of complex disease genetics. Human Molecular Genetics, 27:R14-R21. PMID: 29547983. (01/05/2018)
18. Taylor DL, Knowles DA, Scott LJ, Ramirez AH, Casale FP, **Wolford BN**, [16 authors], Boehnke M, Birney E, Collins FS. Interactions between genetic variation and cellular environment in skeletal muscle gene expression. PLoS ONE 13(4): e0195788. PMID: 29659628. (16/04/2018)
19. Kycia I, **Wolford BN**, [16 authors], Collins FS, Parker SCJ, Stitzel ML. A common type 2 diabetes risk variant potentiates activity of an evolutionarily conserved islet stretch enhancer and increases C2CD4A and C2CD4B expression. American Journal of Human Genetics 102(4):620-635. PMID: 29625024. (05/04/2018)
20. Nielsen JB, [8 authors], **Wolford BN**, [32 authors], Abecasis GR, Hveem K, Willer CJ. Genome-wide study of atrial fibrillation identifies seven risk loci and highlights biological pathways and regulatory elements involved in development. American Journal of Human Genetics, 102(1):103-115. PMID: 29290336. (04/01/2018)
21. Roman TS, Cannon ME, Vadlamudi S, Buchokovich ML, **Wolford BN**, [13 authors], Collins FS, Parker SCJ, Stitzel ML, Mohlke K. A type 2 diabetes-associated functional regulatory variant in a pancreatic islet enhancer at the ADCY5 locus. Diabetes 66(9):2521-2530. PMID: 28684635. (06/07/2017)
22. Varshney, A, [7 authors], **Wolford BN**, [12 authors], Collins FS, Parker SCJ, Stitzel ML. Genetic regulatory signatures underlying islet gene expression and type 2 diabetes. Proceedings of the National Academy of Sciences 114(9):2301-2306. PMID: 28193859. (13/02/2017)

23. Scott LJ, Erdos MR, Huyghe JR, Welch RP, Beck AT, **Wolford BN**, [23 authors], Boehnke M, Collins FS, Parker SCJ. The genetic regulatory signature of type 2 diabetes in human skeletal muscle. Nature Communications 7, 11764. PMID: 27353450. (29/06/2016)

PUBLICATIONS SUBMITTED, UNDER REVIEW, OR IN PRESS

24. Roychowdhury T, [23 authors], **Wolford BN**, [69 authors], Willer CJ, Damrauer SM. Multi-ancestry GWAS deciphers genetic architecture of abdominal aortic aneurysm and highlights PCSK9 as a therapeutic target. *Submitted. Cell*. medRxiv.
25. **Wolford BN*,** Yakun Zhao*, [21 authors], Shavit J, Willer CJ. Multi-ancestry GWAS for venous thromboembolism identifies novel loci followed by experimental validation in zebrafish. *Cell Genomics. Submitted*. medRxiv.
26. 13 authors alphabetical. Molecular Mechanisms of Vascular Health: Insights from Vascular Aging and Calcification. *ATVB. Submitted.*
27. Thibord F, [16 authors], **Wolford BN**, [71 authors], Smith NL. Cross-Ancestry Investigation of Venous Thromboembolism Genomic Predictors. *Circulation*. *Submitted*. medRxiv.
28. Surakka I, Wu HK, Hornsby W, **Wolford BN**, [18 authors], Willer CJ. Multi-ancestry meta-analysis identifies 2 novel loci associated with ischemic stroke and reveals heterogeneity of effects between sexes and ancestries. Cell Genomics. *In press*. medrXiv.
29. Wu HK, Douville NJ, Konerman MC, Mathis, MR, Hummel SL, **Wolford BN**, [12 authors], Willer CJ. Polygenic risk score from a multi-ancestry GWAS uncovers susceptibility of heart failure. *Cell Genomics*. *Submitted*. medRxiv.
30. Wang, Y., [20 authors], **Wolford BN**, [6 authors], Martin AR, Hirbo J. Global biobank analyses provide lessons for computing polygenic risk scores across diverse cohorts. *Cell Genomics. Submitted*. medRxiv.
31. Brumpton BM, [6 authors], **Wolford BN**, [21 authors], Hveem K, Willer CJ. The HUNT Study: a population-based cohort for genetic research. Cell Genomics. *Accepted*. medRxiv: https://doi.org/10.1101/2021.12.23.21268305
32. Zhou W, [11 authors], **Wolford BN,** [117 authors], Willer CJ, Daly M, Neale BM. Global Biobank Meta-analysis Initiative: powering genetic discovery across human diseases. *Cell Genomics. In press.* medRxiv.
33. Douville NJ, Wu KH, **Wolford BN**, Hornsby WE, Surakka I, Mentz G, Kheterpal S, Shah N, Mathis M, Engoren MC, Douville CB, Willer CJ. Genome Wide Association and Polygenic Score Prediction for Postoperative Nausea and Vomiting. *Anesthesiology*. *Submitted.*
34. **Wolford BN**, [14 authors], Willer CJ. Utility of family history in disease prediction in the era of polygenic scores. *AJHG. Under revision.* bioRxiv.
35. Aragam K*, Jiang T*, Goel A*, Kanoi S*, **Wolford BN*,** [60 authors], Willer CJ, Eloukas P, Kathiresan S, Butterworth A, on behalf of the CARDIoGRAMplusC4D Consortium. Discovery and systematic characterization of risk variants for coronary artery disease in over a million participants. *Nature Genetics. In press.* bioRxiv.

PRESENTATIONS

Variability in lifetime risk of 20 complex diseases across European countries and polygenic score strata in over 1 million individuals

1. American Society of Human Genetics 70th Annual Meeting | **platform presentation** | LA, CA | October 2022

Effect of sex and age on disease prediction with polygenic scores in INTERVENE

2. 55th European Human Genetics Conference | **platform presentation** | Vienna, Austria | June 2022

Multi-ancestry GWAS for venous thromboembolism identifies novel loci followed by experimental validation

3. American Society of Human Genetics 71st Annual Meeting | **platform presentation** | Virtual | October 2021

Comprehensive benchmarking of integrated polygenic and conventional risk factor models for cardiovascular traits in the Nord-Trøndelag Health Study

4. American Society of Human Genetics 70th Annual Meeting | **platform presentation** | Virtual | October 2020

Utility of family history informed genetic risk scores for prediction of common complex diseases

5. American Society of Human Genetics 69th Annual Meeting | poster presentation | Houston, TX | October 2019
6. Leena Peltonen School of Human Genomics | **oral presentation** | Les Diablerets, Switzerland | August 2019

Clinical implications of identifying pathogenic variants in individuals with thoracic aortic dissection

7. American Society of Human Genetics 68th Annual Meeting | poster presentation | San Diego, CA | October 2018
8. 6th Human Genetics in NYC | poster presentation | New York, NY | October 2018

Using genotyped relatives of ungenotyped type 2 diabetes cases as proxy-cases in a cohort based GWAS

9. James V. Neel Lectureship Symposium | poster presentation | Ann Arbor, MI | May 2018
10. Gilbert S. Omenn Lectureship Symposium | poster presentation | Ann Arbor, MI | March 2018
11. American Society of Human Genetics 67th Annual Meeting | **platform presentation** | Orlando, FL | October 2017
12. Biomedical Statistical Modeling | poster presentation | Ann Arbor, MI | June 2017
13. CSHL Conference on The Biology of Genomes | poster presentation | Cold Spring Harbor, NY | May 2017
14. James V. Neel Lectureship Symposium | poster presentation | Ann Arbor, MI | May 2017

15. NHGRI Research Training & Career Development Annual Meeting | poster presentation | St. Louis, MO | April 2017
Type 2 diabetes genome wide association study by proxy in the Nord-Trøndelag Health Study
16. Dept of Bioinformatics and Computational Biology Retreat | poster presentation | Ann Arbor, MI | October 2016
17. Genome Sciences Training Program New Student Orientation | **oral presentation** | Ann Arbor, MI | September 2016
Allelic transcriptome signatures identify disease-relevant regulatory architecture in diabetes relevant cell-types
18. James V. Neel Lectureship Symposium | poster presentation | Ann Arbor, MI | May 2016
Allelic transcriptomic and epigenomic signatures in diabetes relevant cell-types
19. Collins Laboratory Quadrennial Review and Site Visit | poster presentation | Bethesda, MD | September 2015
Integrated 3-D epigenomic and transcriptomic analysis of the EndoC-BH1 human pancreatic islet beta cell model
20. CSHL Conference on The Biology of Genomes | poster presentation | Cold Spring Harbor, NY | May 2015
21. NIH Post-baccalaureate Poster Day | poster presentation | Bethesda, MD | April 2015
Allele Specific Expression Quantitative Trait Loci in Muscle RNA-seq
22. NIH Bioinformatics Special Interest Group Lightning Talk | **oral presentation** | Bethesda, MD | March 2014
Allelic transcription and enhancer signatures in diabetes relevant cells
23. NHGRI Scientific Symposium | poster presentation | Bethesda, MD | December 2014
24. NIH Post-baccalaureate Poster Day | poster presentation | Bethesda, MD | May 2014
25. NIH Bioinformatics Special Interest Group Poster Session | poster presentation | Bethesda, MD | May 2014
Allele Specific Expression Quantitative Trait Loci in Diabetes Relevant Cells
26. NIH Post-baccalaureate Seminar Series | **oral presentation** | Bethesda, MD | October 2014
Evolutionary development of gain-of-function stripes in Zaprionus indianus
27. Celebration of Undergraduate Research | **oral presentation** | Chapel Hill, NC | April 2013
28. John K. Koeppe Biology Undergraduate Research Symposium | **oral presentation** | Chapel Hill, NC | March 2013

INVITED SPEAKING ENGAGEMENTS

10/05/2022	Institute of Molecular Medicine in Finland (FIMM) Human Genetics Analysis Seminar
Dec. 2021 & July 2022	Girls Who Code at UM DCMB Journey Lecture
13/12/2021	ClinGen Complex Disease Working Group *Utility of family history in disease prediction in the era of polygenic scores*
13/11/2021	American Heart Association Scientific Sessions 2021 *Novel Strategies to Promote Healthy Vascular Aging Session. Polygenic Risk Scores for Coronary Artery Disease: Are we Ready for Personalized Medicine?*
27/02/2021	California Undergraduate Bioinformatics Conference Graduate Student Panelist
15/02/2021	Perspective 2020 Podcast Guest, *"Interpreting a Data Driven World"*
04/10/2020	inteGIRLS Detroit Women In STEM Panelist
12/03/2020	Michigan Theater Independent Thinker Film Series Panelist, *"Code: Debugging the Gender Gap"*
13/09/2018	Norwegian University of Science & Technology, Department of Public Health & Nursing Invited Seminar, "*Using EHR-linked biobanks to study the genetics of cardiometabolic diseases*"

HONORS & AWARDS

26/09/2022	K.G. Jebsen Academy of Young Medical Researchers **Best Dissemination Award**
16/08/2022	Charles J. Epstein Trainee Awards for Excellence in Human Genetics Research Postdoctoral **Finalist** for the 72nd meeting of the American Society of Human Genetics
16/08/2021	Charles J. Epstein Trainee Awards for Excellence in Human Genetics Research Postdoctoral **Semifinalist** for the 71st meeting of the American Society of Human Genetics
01/01/2020	Rackham Predoctoral Fellowship Bioinformatics Graduate Program **Departmental Nominee**
23/09/2019	Univ. of Michigan Program in Biomedical Sciences 20th Anniversary **Graduate Student Award for Excellence in Research, Teaching, Service, and Promotion of Diversity, Equity, and Inclusion**
20/12/2018	Department of Computational Medicine & Bioinformatics Annual **Student Service Award**
01/07/2018	Univ. of Michigan OGPS Excellence in Service Award Bioinformatics Graduate Program **Nominee**
01/09/2015	Univ. of Michigan Benard L. Maas **Fellowship Award**
01/04/2015	National Science Foundation Graduate Research Fellowship Program **Honorable Mention**
01/12/2014	NHGRI Symposium **Best Traditional Scientific Poster Award**
01/05/2014	NIH Post-baccalaureate Poster Day **Outstanding Poster Award**
21/11/2012	Phi Beta Kappa National Honor Society

GRANTS & FUNDING

01/07/2019	Univ. of Michigan Endowment for Basic Sciences Excellence in Basic Science Award ($5,000)
2017-2019	Rackham Conference Travel Grant ($800 x 3)
01/04/2018	Rackham Professional Development Grant ($400)

01/04/2018 Univ. of Washington Summer Inst. in Statistical Genetics Registration & Travel Scholarship ($1,400)
01/04/2016 NSF Graduate Research Fellowship Program Fellow (3 years of support, $138,000, DGE 1256260)
01/03/2018 Genome Sciences Training Program Fellow (1 year of support, NIH/NHGRI 5T32HG000040-22)
01/10/2017 Benard L. Maas Professional Development Award ($500)
01/07/2014 NIH Intramural Sequencing Center Pilot Project ($10,000)
01/05/2013 Tom and Elizabeth Long Research Award ($500)
01/06/2012 UNC Office of Undergraduate Research Summer Undergraduate Research Fellowship ($3,000)
01/03/2009 Steffee Endowment for Student Research and Creativity ($200)

TEACHING EXPERIENCE

18/09/2022 Palestine-Norway Partnership to Enhance Population Genomics Education, Research, and Outreach to the Professional-Community (PaNomics) Summer School Lecturer
2019-2022 Genetic Epidemiology (SMED 8020, Norwegian Univ. of Science & Technology) Lecturer
17/06/2021 University of Colorado Boulder International Statistical Genetics Workshop Tutor
April 2018-2021 Genomics in Epidemiology (EPID 516, University of Michigan) Guest Lecturer
23/04/2020 Reproducible Data Analysis with R Workshop Instructor's Assistant
01/06/2019-31/07/2020 Big Data Summer Institute (Summer Institute in Biostatistics program) Graduate Student Instructor
01/09/2017-30/05/2020 Girls Who Code at UM DCMB Club Facilitator
15/07/2019-19/07/2019 Girls Who Code at UM DCMB's Data Science Summer Experience in Detroit Facilitator
July 2018 & 2019 Summer Bridge Scholars Program, Genetics and Genomics Campus Connection Instructor
21/03/2019 Graduate Society of Black Scientists and Engineers Intro to Python Workshop Instructor
01/03/2019 Python Software Carpentry Workshop Instructor's Assistant
01/09/2018-20/12/2018 Tutor for Molecular Genetics (HUMGEN 541, University of Michigan)

SERVICE TO THE SCIENTIFIC COMMUNITY, INSTITUTION, AND PROFESSIONAL SOCIEITES

01/01/23-Present ASHG Program Committee (3 year term)
01/01/2022-Present K.G. Jebsen Center for Genetic Epidemiology Seminar Series Organizer
01/11/2021-Present NTNU Statistical Genetics Journal Club Coordinator
16/11/2021-19/04/2022 Peer reviewer for PLoS Genetics
01/07/2021-04/08/2021 Peer reviewer for Diabetologia
18/10/2019 ASHG Platform Session Moderator
Feb. & Oct. 2019 UM Undergraduate Research Opportunity Program (UROP) Panelist
March 2017 & 2018 ASHG DNA Day Essay Judge
01/01/2017-31/12/2018 ASHG Trainee Newsletter 'The Nascent Transcript' Contributor
01/03/2014-01/07/2015 Member of Genome Trainee Advisory Committee (GTAC) for NHGRI/NIH

COMMUNICATION AND OUTREACH ACTIVITIES

28/09/22-30/09/22 NTNU Researchers' Night and HUNT Research Day (National "Forskningsdagene" Research Days)
01/07/2020-31/12/2021 COVID-19 Host Genetics Initiative Science Communication Team Co-lead
April 2018 & 2021 Michigan DNA Day Ambassador
April 2019 & 2021 Skype A Scientist Speaker
09/05/2020 Bucyrus, Ohio Public Library Ask A Scientist Virtual Guest
01/11/2016-30/05/2020 Girls Who Code at UM DCMB Co-founder & Executive Committee Co-chair
23/11/2016-16/03/2019 Females Excelling More in Math, Engineering & the Sciences Semester Capstone Activity Leader
19/12/2018 South Asheboro Middle School's Biotech Careers Guest Scientist
01/04/2016-20/12/2018 MiSciWriters Contributor
01/03/2016-30/05/2018 Activities Facilitator & Scouts Assistant at Ann Arbor Hands on Museum
10/03/2018-11/03/2018 Forsythe Middle School Young Scientists' Expo Judge and Demonstration Event Leader
15/05/2018 New Hope Elementary School's 2nd grade Guest Scientist and Genetics Lesson Instructor
12/05/2018 Association of Multicultural Scientists Science Career Day Coding & Robotics Instructor
10/04/2018 St. Thomas the Apostle Catholic School Science Olympiad Team Field Trip Instructor
June 2017 & July 2018 Michigan Heath Science Pre-College Exposure Academy Graduate Student Instructor

03/03/2017 Liberty Elementary School's 5th grade Guest Scientist and Genetics Lesson Instructor
01/04/2017-30/06/2017 St. Thomas the Apostle Catholic School Science Olympiad ("Gene-ius" event) Assistant Instructor
19/08/2015 Girl Scout Troop 40004's STEM badge Guest Speaker
01/07/2015-31/07/2015 Research Group Host for NIH High School Scientific Training and Enrichment Program (HiSTEP)
01/08/2014-31/07/2015 Contributor for NHGRI Communication & Science Policy Group's Genome Advance of the Month

24/04/2014 Volunteer for NHGRI 'Fun With DNA' during NIH Take Your Child To Work Day
01/04/2014-31/07/2014 Volunteer for Smithsonian National Museum of Natural History Genome Zone

SUPERVISION AND MENTORING EXPERIENCE

2019-2020 Will Zehr Overton, University of Michigan Graduate Student Research Assistant
2021-2022 Marta Riise Moksnes, Norwegian University of Science and Technology PhD candidate
2019-2021 Karsten Øvretveit, Norwegian University of Science and Technology PhD candidate
2019-2020 Bioinformatics Graduate Program Peer Mentor
01/10/2020-31/10/2020 NSF GRFP Peer Mentor at University of Michigan
01/09/2012-01/05/2013 Summer Undergraduate Research Fellowship Peer Advisor for UNC Office of Undergrad. Research

COMPETENCIES

Programming experience in Perl, Python, R, Bash, C/C++, Snakemake; Processing of RNA-seq, ChIP-seq, ATAC-seq, exome sequencing, genotyping, electronic health record, and survey data; **Statistical competencies** in advanced probability theory, non-parametric statistical inference, generalized linear models, survival analysis, linear mixed models, optimization algorithms**; Extensive use of high performance compute cluster** and parallel programming to create and execute analysis pipelines; **Leadership skills** including project management, supervising students, consensus building, and facilitating collaborative meetings; **Commitment to open science practices** including open source sharing of my code on GitHub; **Molecular biology protocols** for DNA extraction, PCR, RT-PCR, restriction digest, Illumina library preparation, bacteriophage display; **Laboratory experience** with fruit fly husbandry and behavioral assays, EMS mutagenesis, Scanning Electron Microscopy.

CONTINUING EDUCATION

August 2021 Lifeology University SciComm Program: Empathetic Communicator Certificate
August 2019 Leena Peltonen School of Human Genomics
Health 2030 Genome Center, Switzerland
July 2018 23rd Summer Institutes in Statistical Genetics
Modules: Adv. Quantitative Genetics, Statistical & Quantitative Genetics of Disease
University of Washington Department of Biostatistics
Sept.-Dec. 2014 Genetic Counseling Professional Topics Seminar
Foundation for Advanced Education in the Sciences (3 credits)
Sept. 2014-May 2015 NIH Academy Certificate Program
National Institutes of Health (Certificate of Completion)
Spring 2014 Current Topics in Genome Analysis
National Human Genome Research Institute Division of Intramural Research
March 2014 Writing and Publishing a Scientific Paper
National Institutes of Health Office of Intramural Training and Education (Certificate of Training)
October 2013 Computing for Data Analysis
Coursera partnership with JHU Bloomberg School of Public Health (Statement of Accomplishment)

LEADERSHIP & COMMUNITY INVOLVEMENT

Sept. 2021-Present parkrun Volunteer & Run Director Archdale, NC & Trondheim, Norway
May 2016-July 2018 UNC General Alumni Association's Ann Arbor Carolina Club Chair Ann Arbor, MI
May 2016-Nov. 2019 Wesley Foundation at the University of Michigan Ann Arbor, MI
Community Coordinator (May – Sept. 2016)
Loud Lecture Committee Member (April 2016 – November 2019)
June 2014-July 2015 Montgomery Hospice Respite and Companionship Visitor Rockville, MD
Summer 2010 – 2013 Quaker Lake Camp Climax, NC
Health and Safety Director (2010, 2011, 2013)
Seeds Environmental Education Program Coordinator (2012, 2013)
June 2011-May 2013 Orange & Chatham County Judicial System Guardian ad Litem Chapel Hill, NC