ARJUN BIDDANDA

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RESEARCH INTERESTS

Population Genomics, Reproductive Genetics, Ancient DNA

PROFESSIONAL EXPERIENCE

Feb. 2023 - Postdoctoral Fellow · Department of Biology · Johns Hopkins University
Advisor: Rajiv C. McCoy

Nov. 2021 - Feb. 2023 Computational Scientist · Genomics & Data Science · 54gene

Jan. 2021 - Nov. 2021 Postdoctoral Research Associate · Department of Statistics · University of Oxford
Advisor: Pier Francesco Palamara

EDUCATION

2015 - 2020 PhD · Human Genetics · University of Chicago
Dissertation Title: *Investigating the spatio-temporal structure of human genetic diversity*
Advisor: John Novembre

2011 - 2015 BS.Eng · Computer Science (*Cum Laude*) · Cornell University
Advisor: Alon Keinan

PREPRINTS

* - *indicates equal contribution*

Arjun Biddanda* , Esha Bandyopadhyay*, Constanza de la Fuente Castro*, David Witonsky, ..., Chinnappa Dilip Kodira, Anjaparavanda P. Naren, Mithun Sikdar, Niraj Rai, and Maanasa Raghavan. Integrating genetic and oral histories of Southwest Indian populations. *bioRxiv*, 2022.

PEER-REVIEWED PUBLICATIONS

Esha Joshi, **Arjun Biddanda**, Jumi Popoola, Aminu Yakubu, Oluyemisi Osakewe, Delali Attipoe, 54gene Team, NCD-GHS Consortium, Estelle Dogbo, Babatunde Salako, Oyekanmi Nash, Omolola Salako, Olubukunola Oyedele, Golibe Eze-Echesi, Segun Fatumo, Abasi Ene-Obong, and Colm O'Dushlaine. Whole-genome sequencing across 449 samples spanning 47 ethnolinguistic groups provides insights into genetic diversity in Nigeria. *Cell Genomics*, 2023.

Brian C Zhang, **Arjun Biddanda**, Árni Freyr Gunnarson, Fergus Cooper, and Pier Francesco Palamara. Biobank-scale inference of ancestral recombination graphs enables genealogy-based mixed model association of complex traits. *Nature Genetics*, 2023.

Charles Washington III, Matthew Dapas, **Arjun Biddanda**, Kevin M Magnaye, ..., Christopher G McKennan, and Carole Ober. African-specific alleles modify risk for asthma at the 17q12-q21 locus in African Americans. *Genome Medicine*, 2022.

Arjun Biddanda, Matthias Steinrücken, and John Novembre. Properties of Two-Locus Genealogies and Linkage Disequilibrium in Temporal Samples. *Genetics*, 2022.

Arjun Biddanda, Daniel P. Rice, and John Novembre. Geographic patterns of human allele frequency variation: a variant-centric perspective. *eLife*, 2020.

Charleston W K Chiang, Joseph H Marcus, Carlo Sidore, **Arjun Biddanda**, Hussein Al-Asadi, Magdalena Zoledziewska, Maristella Pitzalis, Fabio Busonero, Andrea Maschio,

Giorgio Pistis, Maristella Steri, Andrea Angius, Kirk E Lohmueller, Goncalo R Abecasis, David Schlessinger, Francesco Cucca, and John Novembre. Genomic history of the Sardinian population. *Nature Genetics*, 2018.

Peter de Barros Damgaard, Rui Martiniano, Jack Kamm, J Víctor Moreno-Mayar, ..., **Arjun Biddanda**, ..., Martin Sikora, Alan K Outram, Richard Durbin, and Eske Willerslev. The first horse herders and the impact of early Bronze Age steppe expansions into Asia. *Science*, 2018.

Yedael Y Waldman*, **Arjun Biddanda*** , Natalie R Davidson, Paul Billing-Ross, Maya Dubrovsky, Christopher L Campbell, Carole Oddoux, Eitan Friedman, Gil Atzmon, Eran Halperin, Harry Ostrer, and Alon Keinan. The genetics of Bene Israel from India reveals both substantial Jewish and Indian ancestry. *PLoS One*, 11(3):e0152056, 2016.

Yedael Y Waldman, **Arjun Biddanda**, Maya Dubrovsky, Christopher L Campbell, Carole Oddoux, Eitan Friedman, Gil Atzmon, Eran Halperin, Harry Ostrer, and Alon Keinan. The genetic history of Cochin Jews from India. *Human Genetics*, pages 1–17, 2016.

Feng Gao*, Diana Chang*, **Arjun Biddanda*** , Li Ma, Yingjie Guo, Zilu Zhou, and Alon Keinan. XWAS: a software toolset for genetic data analysis and association studies of the X chromosome. *Journal of Heredity*, 106(5):666–671, 2015.

PRESENTATIONS

Arjun Biddanda, Sara A. Cariosia, Ivan Vogel, Eva R. Hoffmann, and Rajiv C. McCoy. *Genetic architecture and fitness costs of meiotic recombination across 69,223 in vitro fertilized embryos.* American Society of Human Genetics (*Platform Talk*), 2023.

Arjun Biddanda, Yulin Zhang, Priya Moorjani, and Colm O'Dushlaine. *Recovering signatures of ghost admixture using ancestral recombination graphs.* American Society of Human Genetics (*Poster*), 2022.

Arjun Biddanda, Matthias Steinrücken, and John Novembre. *Properties of two-locus genealogies and linkage disequilibrium in temporally stratified samples.* Probabilistic Models in Genomics (*Poster*), 2021.

Arjun Biddanda, Daniel P Rice, and John Novembre. *Geographic patterns of human allele frequency variation: a variant-centric perspective.* UC Berkeley Population Genomics Reading Group (Invited Talk), 2021.

Arjun Biddanda, Matthias Steinrücken, and John Novembre. *Linkage Disequilibrium in Ancient DNA: Theory and Applications.* American Society of Human Genetics (*Poster*), 2019.

Arjun Biddanda, Matthias Steinrücken, and John Novembre. *Linkage Disequilibrium in Ancient DNA: Theory and Applications.* Midwest PopGen (*Talk*), 2019.

Arjun Biddanda and John Novembre. *Inference and visualization of the geographic distribution for variant sets.* American Society of Human Genetics (*Poster*), 2018.

HONORS / AWARDS

2020	Presidential Membership *Genetics Society of America*
2019	Reviewer's Choice Abstract *American Society of Human Genetics*
2017	Honorable Mention *NSF Graduate Research Fellowship*
2015-2018	NIH Genetics and Regulation Training Grant *University of Chicago*

TEACHING EXPERIENCE

Winter 2019	Guest Lecturer, *University of Chicago* Computing Skills for Biologists
Winter 2018	Teaching Assistant, *University of Chicago* HG 486: Fundamentals of Computational Biology
Summer 2017	Course Assistant, *University of Chicago*

	Marine Biological Laboratory - Quantitative Approaches to Biology Bootcamp
Spring 2017	Teaching Assistant, *University of Chicago* HG 469: Human Variation and Disease
2016 - 2018	Tutor, *University of Chicago* Introduction to Statistics for Geneticists
2016 - present	Instructor, *Software Carpentry*
2013 - 2015	Teaching Assistant, *Cornell University* CS 3110 : Functional Programming and Data Structures

Academic Service

2023	Teaching Certificate *Johns Hopkins University Teaching Institute*
2022	ASHG Session Chair / Organizer *Demographic history, natural selection, and disease risk in diverse global biobanks*
2021 -	Genetics Peer-Review Training Program
Summer 2020	Co-Organizer *Genetics and Society Reading Group (Departmental Group)*
2019-2020	Novembre - He - Stephens (NHS) Meeting Coordinator *University of Chicago*
2019 -	*Ad Hoc* Peer Review *Genetics, eLife, Molecular Biology and Evolution, Genes, Scientific Reports, Frontiers in Genetics*

Mentorship

Summer 2023	Emma M. Smith (*NSF REU Trainee*) *Project: Genomic basis of dosage imbalance in human embryonic aneuploidy*
2022 -	Axel Zagal-Norman (*UNAM Undergraduate Internship*) *Project: Visualization of Linkage Disequilibrium across multiple populations*
2020 - 2021	Achyutha Menon (*U. Chicago Undergraduate*) *Project: Storage and visualization of multi-population Linkage Disequilibrium* Sponsored by a College Summer Research Fellowship

Computational Skills

Python, Bash, R, C++, Java, OCaml

Git, LaTeX, Microsoft Office

*nix, AWS, `plink`, `bcftools`, `snakemake`

Society Memberships

2018 -	American Society of Human Genetics (ASHG)
2021 -	Genetics Society of America (GSA)
2021 -	Society for Molecular Biology and Evolution (SMBE)