

# NANDITA R. GARUD

Department of Ecology and Evolutionary Biology  
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## Curriculum Vitae July 2021

### EDUCATION

- 2015**      **Ph.D. in Genetics**  
Stanford University, Stanford, CA  
Focus on adaptation in natural populations
- 2012**      **MS in Statistics**  
Stanford University, Stanford, CA
- 2008**      **BS in Biometry & Statistics and Biological Sciences, (Magna Cum Laude)**  
Cornell University, Ithaca, NY

### EMPLOYMENT

- 2019- current      **Assistant Professor**  
University of California, Los Angeles, CA  
Department of Ecology and Evolutionary Biology  
Department of Human Genetics  
Member, Interdepartmental Program in Bioinformatics  
Member, Genetics & Genomics Home Area
- 2015-2019      **Bioinformatics Fellow**  
Postdoctoral Position  
The Gladstone Institutes at the University of California, San Francisco, CA  
Advisor: Katherine Pollard
- 2015 summer      **Data Scientist Intern**  
Intuit Inc., Mountain View, CA

### PREVIOUS RESEARCH

- 2010-2015      **Ph.D. Candidate**  
Department of Genetics, Stanford University, Stanford, CA  
Advisor: Dmitri Petrov

- 2008-2009      **Fulbright Scholar**  
The Bioinformatics Centre, University of Copenhagen, Denmark  
Advisor: Jakob Pedersen
- 2006-2008      **Undergraduate Honors Researcher**  
Department of Molecular Biology and Genetics, Cornell University, Ithaca, NY  
Advisor: Andrew Clark
- 2006            **Cold Spring Harbor Summer Undergraduate Research Intern**  
Cold Spring Harbor, NY  
Advisor: Doreen Ware

## AWARDS AND HONORS

- 2021            Scialog! Microbiome Neurobiology and Disease grant recipient  
2021            University of California Hellman Fellow  
2021            Paul Allen Distinguished Investigator Award  
2020            Faculty Research Grant, University of California, Los Angeles  
2019            Among top 5 talks presented at the UCLA Computational Genomics Summer Institute  
2014-2015      Stanford Center for Evolution and Human Genomics Fellow  
2013            Walter Fitch Finalist, Society for Molecular Biology and Evolution, Chicago.  
2010-2013      National Science Foundation Graduate Research Fellow  
2008-2009      Fulbright Scholar, Denmark  
2009-2010      Stanford Genome Training Program Grant  
2007-2008      Cornell Hughes Scholar  
2007-2008      CALS Charitable Trust Grant and Morley Grant for Undergraduate Research  
2004-2008      Dean's List, Cornell University  
2004-2008      Byrd Undergraduate Scholarship  
2004-2008      New York Lottery Undergraduate Scholarship

## PUBLICATIONS

1. Shoemaker W, Chen D, **Garud NR**. "Comparative population genetics in the human gut microbiome." *GBE* (2021).
2. Briscoe L, Balliu B, Sankararaman S, Halperin E, **Garud NR**. "Correcting for background noise improves phenotype prediction from human gut microbiome data." *BioRxiv* (2021).
3. **Garud NR**, Messer P, Petrov D. "Detection of hard and soft sweeps from *Drosophila melanogaster* population genomic data." *PLoS Genetics* (2021).
4. Roodgar M\*, Good BH\*, **Garud NR**, Martis S, Avula S, Zhou W, Lancaster S, Hayan Lee, Babveyh A, Nesamoney S, Pollard KS, Snyder MP. "Longitudinal linked read sequencing reveals ecological and evolutionary responses of a human gut microbiome during antibiotic treatment." *Genome Research* (2021).
5. Harpak A, **Garud NR**, Rosenberg NA, Petrov DA, Combs M, Pennings PS, Munshi-South J. "Genetic adaptation in New York City rats." *GBE* (2020).
6. **Garud NR\***, Good BH\*, Hallatschek O, Pollard KS. "Evolutionary dynamics of bacteria in the gut microbiome within and across hosts." *PLoS Biology* (2019). \*equal contributors.

7. **Garud NR** and Pollard KS. "Population genetics in the microbiome." *Trends in Genetics* (2019).
8. Harris, AM, **Garud NR**, DeGiorgio M. "Detection and classification of hard and soft sweeps from unphased genotypes by multilocus genotype identity." *Genetics* (2018).
9. Battlay, P, Leblanc P, Green L, **Garud NR**, Schmidt J, Fournier-Level A, Robin C, "Structural variants and selective sweep foci contribute to insecticide resistance in the *Drosophila melanogaster* genetic reference panel." *G3* (2018).
10. Nayfach S, Rodriguez-Mueller B, **Garud NR**, Pollard KS. "An integrated metagenomics pipeline for strain profiling reveals novel patterns of bacterial transmission and biogeography." *Genome Research* (2016).
11. **Garud NR** and Petrov DA. "Elevated linkage disequilibrium and signatures of soft sweeps are common in *Drosophila melanogaster*." *Genetics* (2016).
12. Wilson BA\*, **Garud NR\***, Feder AF\*, Assaf ZJ\*, and Pennings PS. "The population genetics of drug resistance evolution in natural populations of viral, bacterial and eukaryotic pathogens." *Molecular Ecology* (2015). \*equal contributors
13. **Garud NR** and Rosenberg NA. "Enhancing the mathematical properties of haplotype homozygosity statistics for the detection of soft selective sweeps." *Theoretical Population Biology* (2015).
14. **Garud NR**, Messer P, Buzbas E, and Petrov D. "Soft selective sweeps are the primary mode of adaptation in *Drosophila*." *PLoS Genetics* 11: e1005004 (2015).
15. McCoy RC, **Garud NR**, Kelley JL, Boggs CL, and Petrov DA. "Genomic inference accurately predicts the timing and severity of a recent bottleneck in a non-model insect population." *Molecular Ecology* (2013).
16. Molina J, Sikora M, **Garud NR**, Flowers J, Rubinstein S, Reynolds A, Huang P et al. "Molecular evidence for a single evolutionary origin of domesticated rice." *Proceedings of the National Academy of Sciences* 108, no. 20 (2011): 8351-8356.

## TEACHING

Spring 2021	EEB 149: Evolutionary Genomics
Winter 2021	EEB 172/c202: Advanced Statistics
Fall 2020	EEB 297: Population Genomics Simulations with SLiM
Spring 2020	C234: Ethics and Accountability in Biomedical Research
Spring 2020	CM222: Algorithms in Bioinformatics
Winter 2020	EEB 172/c202: Advanced Statistics
Fall 2019	EEB 297: Recombination in Bacteria Graduate Seminar
Feb. 2020	Guest lecturer for EEB 250: Tools for First Year Graduate students
Nov 2019	Guest lecturer for EEB course on 'How to Obtain a Job'
Oct. 2019	Guest lecturer for CS 184: Bioinformatics and Systems Biology Undergrad seminar.
May 2019	Guest lecturer for Population Genetics undergraduate course at UCLA
Jan. 2019	Guest lecturer for Introduction to Microbiology undergraduate course at UCLA
Fall 2016	Guest lecturer for Computing in Biology, San Francisco State University

2012-2014      Splash! (Stanford Educational Studies Program) course on introductory population genetics to high school students.  
 Fall 2013        Teaching assistant for Bio-explorations course at Stanford for freshmen undergrads  
 Spring 2012     Teaching assistant for the PhD level Genomics course at Stanford

**UNIVERSITY AND DEPARTMENTAL SERVICE:**

2021              Reviewer for UCLA’s Cota Robles fellowship applications  
 2021              Ad Hoc faculty search committee member  
 2020-2021        Mentor Professor Faculty Search committee member  
 2020-2021        EEB Curriculum Committee  
 2020              Graduate student award committee member: Department of Ecology and Evolutionary Biology at UCLA  
 2019              PhD admissions committee member: Department of Ecology and Evolutionary Biology at UCLA  
 2019-Present    PhD admissions committee member: Bioinformatics graduate program at UCLA  
 2019              PhD admissions committee member: Department of Human Genetics at UCLA  
 2019-Present    Computational and Systems Biology committee member at UCLA

**OTHER PROFESSIONAL ACTIVITIES:**

2021              Moderator for the 27<sup>th</sup> annual Boston Bacterial Meeting  
 2021              Organizer of the “Evolutionary Genetics in Natural Microbial Populations” symposium at the Society for Molecular Biology and Evolution annual meeting.  
 2021-2023        Scialog! Fellow  
 2020-current     **Editor for mSystems**  
 2020              Ad hoc grant reviewer for the Army Research Office  
 2020              Grant panelist for the National Science Foundation  
 2020              University of Southern California guest visitor for Women in Science group  
 2019              Ad hoc grant reviewer for the National Science Foundation  
 2019-current     Mentor for Bruins in Genomics at UCLA undergraduate research students  
 2019              Encountering the Unseen: collaboration with break dancers to depict my paper on the evolutionary dynamics of bacteria in the microbiome at UCLA  
 2017              Organizer of Society for Molecular Biology and Evolution symposium on ‘Probing microbiome dynamics’  
 2016              Organizer of the UCSF OUT in Science panel discussion  
 2014              Poster presentation judge at the Society for Molecular Biology and Evolution  
 2014              Seminar Organizer for the Stanford Center for Evolution and Human Genomics  
 2012              Created a \$30,000 per year fund with the Stanford School of Medicine for travel grants for conferences for all Bioscience PhD students.  
 2011              Organizer of the Biomedical Computation at Stanford (BCATS) Conference  
 2011              Consultant for the Stanford Statistical Consulting group  
 2013-current     **Invited reviewer for:** *Science, PLoS Genetics, PLoS Biology, Genetics, Molecular Biology and Evolution, Molecular Ecology, Genome Biology and Evolution, Journal of Molecular Evolution, Current Biology, PLoS One, F1000, GigaScience, Nature Hereditary, Nucleic Acid Research, Nature Genetics, Communicative and Integrative Biology, and Environmental International.*

**STUDENT MENTORING**

2021-current Brock Karas (BS student, Ecology and Evolutionary Biology)  
 Anna McDonald (Bruins in Genomics summer student)  
 Sarah Bald (Bruins in Genomics summer student)  
 Jon Mah (PhD student, Bioinformatics)  
 Alejandro Espinoza (PhD rotation student, Genetics and Genomics. Cota Robles fellow).  
 Ashwin Deena (BS student, CASB)  
 Sarah Bald (BS student, Bruins in Genomics summer student)  
 Anna McDonald (BS student, Bruins in Genomics summer student)

2020-current William Shoemaker (NSF Postdoctoral Fellow)  
 Mariana Harris (PhD student, Math Bio program)  
 Rahul Natrajan (BS student, Computer Science)  
 Anshuman Mahalley (BS student, Computer Science)  
 Nada AbouHaiba (BS student)  
 Samantha Chung (BS student)  
 Henry Krasner (BS student)  
 Ashwin Deena (BS student)  
 Melody Zhang (BS student)  
 Maggie Yu (BS student)

2020 Albert Xue (PhD rotation student, Bioinformatics)  
 Nicole Zeltser (PhD rotation student, Genetics)  
 Helen Huang (PhD rotation student, Bioinformatics)  
 Shavonna Jackson (BS student, Bruins in Genomics)  
 Etan Dieppa (BS student, Bruins in Genomics)  
 Kevin Delao (BS student, Bruins in Genomics)  
 Maya Singh (BS student, Bruins in Genomics)

2019-current Leah Briscoe (PhD student, Bioinformatics; Joint with Eran Halperin )  
 Ricky Wolff (MS student, Ecology and Evolutionary Biology)  
 Daisy Chen (BS student, Computer Science)

2019 Sara Thornburgh (BS student, Ecology and Evolutionary Biology)  
 Sara Makanani (MS student, Ecology and Evolutionary Biology)

2017-2019 Annamarie Bustion (PhD student, UCSF, under Katherine Pollard's supervision)

2017-2019 Katherine Zhang (HS student).Project won semi finalist position at the National Siemens Westinghouse Competition.

2016 Haleigh Miller (Summer Undergraduate, Foothill College).

## GRADUATE COMMITTEES

### PhD Committee member for:

Liat Shenov, 2019-Present (Computer Science)  
 Chris Kyriazis, 2020-Present (Ecology and Evolutionary Biology)  
 Natalie Lozano, 2020-Present (Ecology and Evolutionary Biology)  
 Jesse Garcia, 2020-Present (Ecology and Evolutionary Biology)  
 Riley Mummah 2020-Present (Ecology and Evolutionary Biology)  
 Tina Del Carpio 2020-Present (Ecology and Evolutionary Biology)  
 Serena Huang 2020-Present (Genetics and Genomics)  
 Eva Horna Lowell (Ecology and Evolutionary Biology)

### PhD Guidance Committee member for:

Eva Horna Lowell (Ecology and Evolutionary Biology)  
 Albert Chung (Ecology and Evolutionary Biology)

Daniel Littman (Bioinformatics)

**MS Committee member for:**

Davis Mai (Ecology and Evolutionary Biology)  
April Zhou (Ecology and Evolutionary Biology)  
Shaili Mathur (Computational and Systems Biology)

**INVITED PRESENTATIONS SEMINARS**

1. June 2021 American Society for Microbiology talk
2. May 2021 University of British Columbia Department Seminar
3. May 2021 UC Berkeley CTEG seminar
4. April 2021 UC Irvine Department Seminar
5. April 2021 McGill Department Seminar
6. Mar. 2021 Paul Allen Institute
7. Feb. 2021 Gulbenkian Institute in Portugal, Seminar
8. Jan. 2021 UCSF Microbiome Center Symposium
9. Nov. 2020 University of Vienna Departmental Seminar
10. Oct. 2020 UC Davis EEB Departmental Seminar
11. Oct. 2020 Penn State University Departmental Seminar
12. Aug. 2020 Emory University Microbiome Seminar
13. June 2020 World Microbiome Day Seminar, Vanderbilt University
14. Jan. 2020 Microbiome Population Genetics, Chan Zuckerberg Institute
15. Jan. 2020 Emerging Opportunities for Mathematics in the Microbiome, Institute for Pure and Applied Mathematics at UCLA
16. Dec. 2019 Deciphering Microbiomes at the National Science Foundation, DC
17. Sept. 2019 Keynote speaker for the Institute for Quantitative and Computational Biosciences
18. Sept. 2019 Department of Human Genetics at UCLA Seminar
19. Sept. 2019 University of Southern California Departmental Seminar
20. Sept. 2019 UCLA Anesthesiology Grand Rounds
21. Aug. 2019 University of Minnesota Microbial and Plant Genomics Institute Symposium
22. July 2019 UCLA Computational Genomics Summer Institute
23. June 2019 American Society for Microbiology: *Plenary Session*
24. Jan. 2019 UCLA Behavior, Evolution, and Culture speaker series
25. March 2018 University of Pennsylvania Biology Departmental Seminar
26. Feb. 2018 New York Genome Center Departmental Seminar
27. Feb. 2018 Temple University iGEM Departmental Seminar
28. Jan. 2018 UCLA Ecology and Evolutionary Biology Departmental Seminar
29. Dec. 2013 Penn State University, Department of Biology

**SELECT CONFERENCE PRESENTATIONS AND OTHER SEMINARS:**

1. Oct. 2019 Southern CALifornia Evolutionary Genetics & Genomics (SCALE) meeting, University of California, Irvine
2. Oct. 2018 Microbial Ecology and Evolution meeting in Lisbon, Portugal
3. Sept. 2018 Lake Arrowhead Microbial Genetics
4. Jan. 2018 New York Area Population Genetics meeting
5. Nov. 2017 Bay Area Population Genetics meeting
6. April 2017 California Academy of Sciences

7. July 2015 Society for Molecular Biology and Evolution
8. Nov. 2014 Stanford Genetics Department
9. June 2014 Society for Molecular Biology and Evolution
10. Jan. 2014 Biomedical Computation at Stanford
11. July 2013 Walter Fitch Symposium, Society for Molecular Biology and Evolution
12. April 2013 Drosophila Research Conference
13. April 2013 Stanford Genome Training Program retreat
14. Jan. 2013 Bay Area Population Genetics meeting

### **Conference travel awards**

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| 2018 | Eco-Evo travel award to the Gulbenkian, Portugal                                       |
| 2018 | Genetics Society of America DeLill Nasser Award  |
| 2017 | Gladstone Institutes Career Advancement Award  |
| 2015 | SMBE in Vienna Young Investigator Travel Award   |
| 2014 | Stanford BioX travel grant to the SMBE conference in Puerto Rico                       |
| 2013 | SMBE travel grant to the SMBE conference in Chicago                                    |
| 2013 | Stanford BioX travel grant to the Drosophila conference in Washington DC               |
| 2013 | Stanford School of Medicine travel grant to the Drosophila conference in Washington DC |
| 2012 | Stanford Department of Biology travel grant to the SMBE conference in Ireland          |
| 2011 | National Science Foundation travel award to the SMBE conference in Kyoto, Japan        |