

NANDITA R. GARUD

Department of Ecology and Evolutionary Biology
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Curriculum Vitae January 2020

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

- 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. Harpak A, **Garud NR**, Rosenberg NA, Petrov DA, Combs M, Pennings PS, Munshi-South J. "Genetic adaptation in New York City rats." *BioRxiv* (2020).
2. **Garud NR**, Messer P, Petrov D. "Detection of hard and soft sweeps in admixed populations." *PLoS Genetics* (2020). Invited Submission pending publication.
3. **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.
4. **Garud NR** and Pollard KS. "Population genetics in the microbiome." *Trends in Genetics* (2019).
5. 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." *BioRxiv* (2019).
6. Harris, AM, **Garud NR**, DeGiorgio M. "Detection and classification of hard and soft sweeps from unphased genotypes by multilocus genotype identity." *Genetics* (2018).
7. 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).

8. 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).
9. **Garud NR** and Petrov DA. “Elevated linkage disequilibrium and signatures of soft sweeps are common in *Drosophila melanogaster*.” *Genetics* (2016).
10. 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
11. **Garud NR** and Rosenberg NA. “Enhancing the mathematical properties of haplotype homozygosity statistics for the detection of soft selective sweeps.” *Theoretical Population Biology* (2015).
12. **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).
13. 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).
14. 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

Winter 2020	EEB 172/202: 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:

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	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:

- 2020 **Editor for mSystems**
2019-current **Grant reviewer, National Science Foundation**
2019 Mentor for Bruins in Genomics 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:** *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, and Nucleic Acid Research, Nature Genetics.*

STUDENT MENTORING

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

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)

INVITED PRESENTATIONS SEMINARS

1. June 2020 International Conference of Quantitative Genetics
2. June 2020 Departmental Seminar, Vienna Graduate School of Population Genetics
3. April 2020 Departmental Seminar, Harvey Mudd College
4. Jan. 2020 Microbiome Population Genetics, Chan Zuckerberg Institute
5. Jan. 2020 Emerging Opportunities for Mathematics in the Microbiome, Institute for Pure and Applied Mathematics at UCLA
6. Dec. 2019 Deciphering Microbiomes at the National Science Foundation, DC
7. Sept. 2019 Keynote speaker for the Institute for Quantitative and Computational Biosciences
8. Sept. 2019 Department of Human Genetics at UCLA Seminar
9. Sept. 2019 University of Southern California Departmental Seminar
10. Sept. 2019 UCLA Anesthesiology Grand Rounds
11. Aug. 2019 University of Minnesota Microbial and Plant Genomics Institute Symposium
12. July 2019 UCLA Computational Genomics Summer Institute
13. June 2019 American Society for Microbiology: *Plenary Session*
14. Jan. 2019 UCLA Behavior, Evolution, and Culture speaker series
15. March 2018 University of Pennsylvania Biology Departmental Seminar
16. Feb. 2018 New York Genome Center Departmental Seminar
17. Feb. 2018 Temple University iGEM Departmental Seminar
18. Jan. 2018 UCLA Ecology and Evolutionary Biology Departmental Seminar
19. 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
2011

Stanford Department of Biology travel grant to the SMBE conference in Ireland
National Science Foundation travel award to the SMBE conference in Kyoto, Japan