Riya Rampalli

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EDUCATION

Columbia University, *E3B*, Ecology, Evolution, and Conservation Biology M.A. (Expected: May 2026)
Columbia University, *E3B*, Post-baccalaureate Certificate program (2022-2024)
Mills College, Environmental Science B.S. (2018-2022)

RELEVANT COURSES

General Biology I & II, Animal Behavior, Programming & Data Science Skills, Principles & Applications of Modern DNA Sequencing Technology, Fundamentals of Ecology, Population Ecology, Terrestrial Systems Modeling, Theoretical Ecology, Intro Stats for Ecology & Evolutionary Biology, Organic Chemistry I & II

RESEARCH EXPERIENCE

COLUMBIA UNIVERSITY - Department of Ecology, Evolution, and Environmental Biology (E3B)
The Eaton Lab, August 2024 - present
PI: Deren Eaton

- Using genetic, genomic, and computational approaches to understand the genetic architecture associated with incompatibilities in hybrids produced by crossing dioecious Amaranth plants, *Amaranthus tuberculatus* and *A. palmeri.*
- Constructing genome-wide recombination maps using long-read PacBio Hifi Sequencing of pollen pools and identifying incompatibility loci using transmission ratio distortion (TRD) mapping.
- Computational analyses using Python packaging, CLI arguments, and bash. Scripts and output will be pushed and committed to a project-specific GitHub repo.

COLUMBIA UNIVERSITY - Mortimer B. Mind Brain Behavior Institute
The Bendesky Lab, October 2022 - May 2024
PI: Andrés Bendesky; Mentor: Wyatt Toure, PhD Candidate

- Used genetic, genomic, and molecular approaches to understand the mechanisms and genes underlying the variation in two species of deer mice (*Peromyscus polionotus* and *P. maniculatus*) and their hybrid progeny. Assisted with mating monitoring, embryo collection, DNA/mRNA extractions, tissue collection, and the cross-sectioning of tissues. Early results show an increased dosage of X-linked genes were responsible for the smaller body sizes seen in hybrids.

LAWRENCE BERKELEY NATIONAL LABORATORY
Mammalian Functional Genomics Laboratory, October 2021- May 2022
PI: Len Pennachio, Axel Visel, Jennifer Akiyama

- Assisted with comparative genomics and systems-based chromatin studies (ChIP-seq), genome engineering methods (CRISPR/Cas9), and transgenic reporter assays, which allowed identification and characterization of distant-acting transcriptional enhancers at a genomic scale. Managed wet lab upkeep by autoclaving dishes, restocking buffer solutions, etc. Annotated genotypes to determine differences in the genetic makeup of mice embryos and establish whether they were transgenic.

MILLS COLLEGE - Department of Biology
Behavioral Ecology Lab, August 2021- May 2022
PI: Dr. Jennifer Smith

- Studied physiological "stress" responses in California Ground Squirrels across disturbed and undisturbed habitats. Extracted and quantified fecal glucocorticoid metabolites, using ELISAs, in the Mills College research labs. Analyses showed ground squirrel response varies spatially to environmental stressors and influences their dietary intake.

SMITHSONIAN ENVIRONMENTAL RESEARCH CENTER (SERC)
Research Experience for Undergraduates, San Francisco State University, Summer 2020
PI: Dr. Gail Ashton

- Performed point counts with GIMP and R on 15 x 15cm PVC settlement panels exposed to ~1m of water for 3 months in the coastal South Pacific. Ran statistical tests (e.g., Shannon's Diversity Index, ANOVA, Tukey posthoc) to understand shifts in species composition and accumulation. Results suggested that predation intensity on marine invertebrates varies along a latitudinal gradient.

POSTERS

- Botanical Society of America: Botany 2025 - Botany with Barriers. **Rampalli R.,** Masi, A., Timerman, D., Eaton, D. "Estimating Recombination Rates in Dioecious *Amaranthus* Using Long Read Gamete Sequencing"

- Society for the Study of Evolution: Evolution 2025. **Rampalli, R.**, Toure M.W., Bendesky, A. "Molecular Correlates of an X-linked Hybrid Incompatibility in *Peromyscus*"
- Genetic Society of America: The Allied Genetics Conference (TAGC'24). Toure M. W., **Rampalli R.**, Bendesky A. "Genetic and Molecular Bases of Hybrid Dysgenesis in Deer Mice"

AWARDS

- *Botanical Society of America: Bill Dahl Graduate Student Research Award*, Columbia University (Spring 2025) ~$1500
- *E3B Student Research Grant*, Columbia University (Spring 2025) ~$2000
- *Graduate Students of Arts & Sciences Matching Grant*, Columbia University (Spring 2025) ~$300
- *Undergraduate Research Opportunities Program* (UROP) Grant, Mills College (2021) ~$250.00
- *Janet L. Holmgren Presidential Scholar*, Mills College (2018-2022) ~$40,000

WORK EXPERIENCE

NEW YORK ACADEMY OF SCIENCES

Global STEM Alliance, Afterschool STEM Mentoring Program, Mentor Community Leader, Fall 2023 - Spring 2024
Coordinator: Danielle Mink-Bellizzi

- Facilitated onboarding, engagement, and communication for scientist-educator teams. Responsibilities included: (1) onboarding cohorts, (2) providing best practices for classroom engagement, (3) encouraging mentor engagement on the ASMP Slack channels, (4) supporting assigned scientist-educator teams, (5) checking in weekly with ASMP program teams, (6) identifying and supporting the development of "Mentor Spotlights", and (7) supporting in organizing teams when substitutes are needed.

FLINT BEACH OHANA, LLC

Summer 2021

- Worked on forest land in non-Federal ownership (i.e., privately owned land) on the San Juan Islands. Assisted with trail management, by clearing fallen debris and uprooting/removing invasive plant species. Cared for pasture-raised Romney Sheep, and free-range chickens. Helped vaccinate 30+ sheep for Clostridial C & D and Tetanus.

NEXTGEN POLICY

Policy Intern, Summer 2021
Manager: Ken Spence (Senior Policy Advisor)

- Advocated for criminal justice legislation by drafting legislative letters of support and opposition to California's speakers' offices (Senate/Assembly) and committees. Attended Board of State and Community Corrections meetings focused on prisoner treatment, COVID-19 protocols, and legislation. Meetings were led by a handful of California's criminal justice-oriented organizations, such as the Anti-Recidivism Coalition (ARC) and the Children's Defense Fund of California.

NEXTGEN AMERICA

Policy Intern, Summer 2019
Manager: Dave Weiskopf (Senior Policy Advisor)

- Prepared a report on the Central Valley Salinity and Nitrate Alternatives (CV-SALTS) coalition.

MENTORSHIP

E3BUDDIES MENTORING PROGRAM

E3B GRASS & Outreach Committee, August 2024 - present

- E3B-specific graduate student group dedicated to providing mentorship for undergraduate students pursuing studies in Environmental Biology or Evolutionary Biology of the Human Species. I am coordinating graduate-undergraduate pairings, hosting monthly mentorship lunches, and organizing bimonthly professional development workshops.

WOMEN IN SCIENCE AT COLUMBIA

Columbia University, August 2024 - present

- Graduate student organization dedicated to the advancement of women and underrepresented groups in science, technology, engineering, and math (STEM) fields. Members are individuals who are pursuing or hold advanced degrees in the STEM fields. I am coordinating graduate-undergraduate pairings across Columbia and Barnard, and additionally, volunteering for Girls' Science Day, a semesterly outreach event featuring hands-on experiments for middle school students.

NEW YORK ACADEMY OF SCIENCES (NYAS)

Global STEM Alliance: Afterschool STEM Mentoring Program, Spring 2023- Spring 2024

Coordinator: Danielle Mink-Bellizzi

- Mentored 5th and 6th graders at KIPP STAR – Elementary, on the NYAS Spring 2023 Curriculum: Hiding in Plain Light. The curriculum was divided into five topic areas: (1) components of light, (2) light and your brain, (3) light interactions, (4) circuits and solar energy, and (5) fractals.

HELLMAN SUMMER SCIENCE AND MATH PROGRAM

Hellman Fellow, Summer 2018

- Completed a rigorous two-and-a-half-week residential program in science and math, that included approximately 40 hours of class time interspersed with leadership development and team-building activities. During the Fall semester, Hellman fellows partnered with high schools within the greater Bay Area. I was paired with Lighthouse Community Charter Public School (K-12), where I TA'd a high school biology course. As a TA, I addressed questions on homework and led students through labs designed to get them thinking about the body.

SKILLS

LABORATORY TECHNIQUES

- DNA/mRNA extraction, PCR, Gel Electrophoresis, Micropipetting, Weaning, Ear Notching/Ear Punching, Bacterial Culturing, Magnetic bead DNA purification, (small) Rodent handling

INSTRUMENTATION

- Qubit fluorometer, AES, Centrifuge, Eppendorf Repeater, Multi Vortexer, Freeze-Drier, Microscope(s), Autoclave

TECHNOLOGY

- GitHub, CLI/bash, Raspberry Pi, Microsoft Office, Excel, R, GNU Image Manipulation (GIMP), Adobe Creative Cloud (i.e., Photoshop, Illustrator)