Jennifer Rattray, Ph.D.

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National Science Foundation Graduate Research Fellow in Microbial Ecology. Minor in Public Policy. Strong history in oral (14 conferences/presentations) and written (3 publications) communication skills as well as leadership, team development, and the organization/communication of expert knowledge.

EDUCATION

Georgia Institute of Technology
August 3rd, 2022
Ph.D. in Ecology, Evolution, and Behavior (Biological Sciences)
Minor in Public Policy

Georgia Institute of Technology
December 2015
B.S. Biology
Certificate in Integrative Biology

SCIENCE COMMUNICATION

Biomusings.org; editor, 2020 - present

- Content & copy editor for science communication initiative, biomusings.org, to create opportunities for cross-disciplinary communication primarily between philosophers, mathematicians, and biologists

SciComm, Art installation; Science.Art.Wonder.@ Atlanta Science Festival; 2020

- Worked with local artist Prerana Kamat to develop an art installation using light films to visualize lung infections

SciComm, data science visualization; Clough Art Crawl, Georgia Institute of Technology, 2019

- Designed digital art visualizing global temperature anomalies of 1880-2019 from NASA-GISS public data

SciComm, Art installation; Science.Art.Wonder. @ Atlanta Science Festival; 2018

- Worked with local artist Elizabeth Porcel to develop a 3D fabric mixed-media installation of biofilm formation in bacteria to highlight alternative treatment strategies, featured piece at the Atlanta Science Festival

SCIENCE EDUCATION

CIRTL Associate (Center for the Integration of Research, Teaching, and Learning)

- Completed 90 hours of post-secondary instruction at Georgia Tech in course design, evidence-based teaching and evaluation, inclusive classroom practices and design, and the integration of technology in the classroom.

Invited Guest Lecturer

- December 2021, Georgia Tech BIOL8802 “Medical Microbiology”, Atlanta, GA
- September 2018, Georgia State CS4850 “Intro to Machine Learning”, Atlanta, GA

Teaching Assistant

- Georgia Tech BIOL3380: “Introductory Microbiology Lecture”, Fall 2016
- Georgia Tech BIOL3381: “Introductory Microbiology Lab”, Fall 2015
- Georgia Tech BIOL1520: “Introduction to Organismal Biology Lab”, Spring 2015

RESEARCH EXPERIENCE

National Science Foundation Graduate Research Fellow, 2016 - present

- Competitive research fellowship for ~$138,000, selection based on intellectual merit and broader impacts.
- Thesis topic: multilevel analysis of ecological drivers of pathogenicity in opportunistic pathogen, *P. aeruginosa*
- Specific projects: heterogeneity in virulence regulation, predicting antibiotic resistance from image + genomic data using Machine Learning, mathematical basis of spatial scales in cooperative populations

U.S. Air Force Research Laboratory Hap Arnold Scholar, June-August 2021

- Summer scholar at Eglin Air Force Base working with Senior Research Biological Scientist Dr. Jennifer Talley
- Topic: bio-inspired flexible target classification and pursuit

Lab Technician at Mahidol University, Bangkok, Thailand, May-August 2015

- Summer technician with Dr. Sukathida Ubol
- Topic: early-stage development of a vaccine for Dengue Fever via molecular cloning of NS1

Undergraduate Researcher at Georgia Institute of Technology, 2013-2015

- Undergraduate researcher in the fields of molecular biology, biochemistry, ecology, evolution, and psychology
- Topics: impact of spatial niches on rate of evolution (Dr. Lin Jiang), genetic basis of apoptosis in early multicellular life (Dr. Will Ratcliff), model assembly of the ancient ribosome (Dr. Loren Williams), accuracy of metacognitive global judgments of younger and older adults (Dr. Chris Hertzog)

PUBLICATIONS : https://orcid.org/0000-0003-3478-2242

Rattray, Thomas, Wang, Molotkova, Gurney, Varga, Brown (2022). *Bacterial quorum sensing allows graded and bimodal cellular responses to variations in population density.* MBio. https://doi.org/10.1128/mbio.00745-22

Wang, **Rattray**, Thomas, Gurney, Brown. (2019). *In silico bacteria evolve robust cooperation via complex quorum-sensing strategies.* Scientific Reports. doi.org/10.1038/s41598-020-65076-z

Jennifer Rattray, Ph.D. Candidate, Biological Sciences jrattray3@gatech.edu

Tan, **Rattray**, Yang, Jiang. (2017). *Spatial niches promote biodiversity during adaptive radiation.* Proceedings of the Royal Society B. doi.org/10.1098/rspb.2017.0841

SCIENTIFIC PRESENTATIONS & CONFERENCES

- Conference Talk: June 2022, Cell-Cell Communication in Bacteria, Cambridge, United Kingdom
- Conference Poster: April 2022, International Conference on Pseudomonas 2022, Atlanta, GA
- Departmental Talk: September 2020, Center for Microbial Dynamics Seminar Series, Atlanta, GA
- Conference Talk: July 2019, Gordan Research Seminar for Microbial Population Biology, Andover, NH
- Conference Talk: May 2019, Evolution of Complex Life, Atlanta, GA
- Conference Poster: November 2018, 104th Annual ASM Southeastern Branch Meeting, Atlanta, GA
- Conference Poster: June 2018, ASM Microbe 2018, Atlanta, GA
- Conference Poster: May 2018, Biofilms8, Aarhus, Denmark
- Conference Poster: February 2018, Career, Research, and Innovation Development Conference @ GT, Atlanta, GA
- Conference Talk: November 2017, Columbus State University Graduate Conference, Columbus, GA
- Conference Poster: July 2017, Gordon Conference for Microbial Population Biology, Andover, NH
- Conference Poster: March 2017, ASM Mechanisms of Interbacterial Cooperation/Competition, Washington, DC
- Departmental Talk: November 2016, Evolutionary Microbiology Seminar Series, Atlanta, GA
- Conference Poster: June 2016, Evolution 2016, Austin, TX

SCHOLARSHIP/AWARDS

Barbara Bailey Swann Scholarship, May 2020
- $2,500 scholarship from P.E.O. to recognize academic excellence & leadership by women in doctoral programs

Leadership Education and Development, Georgia Tech; Student Leadership Facilitator, AY2019-2020
- $3,000 award to serve as a project facilitator to student groups on campus to bring projects from conception to completion focusing on project charter development, team building, communication plans, and deliverables.

Federation of European Microbiological Societies, Early Career Scientist Attendance Grant, 2018
- Travel grant awarded to fund travel to present at an international conference in Aarhus, Denmark

Leadership Education and Development, Georgia Tech; Student Leadership Fellow, AY2018-2019
- $3,000 award to work 1-on-1 with 8 Masters and Bachelors students to develop leadership skills focusing on active listening, practicality and flexibility in problem solving, effective delegation, giving and receiving feedback, proactive conflict resolution, and goal development.

President's Undergraduate Research Award, Georgia Institute of Technology, Fall 2015
- $3,000 salary award for outstanding undergraduate research

President's Undergraduate Research Award, Georgia Institute of Technology, Spring 2015
- $3,000 salary award for outstanding undergraduate research

TECHNICAL SKILL OVERVIEW

Data Analysis: R, Python, JavaScript, Microsoft Excel
Project Management: Microsoft Outlook, Microsoft OneNote, GitHub, OverLeaf
Training Certifications: BSL-2 certified, RCR, Hazardous Chemicals, Bloodborne Pathogen training
Wet Lab Biology: live-cell imaging, molecular cloning, microfluidics, home-brew continuous-culture vessels
Graphic Design: Adobe Photoshop, Adobe Illustrator, Affinity Designer

PROFFESIONAL SERVICE & LEADERSHIP

President's Undergraduate Research Award @ Georgia Tech**,** reviewer, 2017 - present
- Each Spring/Fall, review 5 cross-disciplinary research proposal applications for originality, clarity, and potential

Microbial Dynamics Seminar Series @ Georgia Tech, organizer, 2019 – 2020
- Returned as organizer (previously Evolutionary Microbiology Seminar Series) and reorganized the structure to include shorter 30-minute talks and an informal 30-minute social, which has increased attendance by 25%

Evolutionary Microbiology Seminar Series @ Georgia Tech, organizer, 2016 – 2017
- Created a new seminar series as a platform to increase interaction among GT labs working broadly in the areas of population, community and evolutionary microbiology.

American Society for Microbiology @ Georgia Tech; President (2015) & PR Chair (2013-2014)
- As president: expanded the exclusively pre-med and biology executive board to include biomedical, civil, and environmental engineers, organized a professional development AMA for academia, government, and industry