Angela Kaijia Jiang

College Park, MD

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EDUCATION

Ph.D. Computational Biology, Bioinformatics, Genomics 2023 Fall - Present
University of Maryland, College Park—National Institutes of Health Graduate Partnership Program, Bethesda, MD
GPA: 4.00/4.00
Advisors: Dr. Brantley Hall, Dr. Xiaofang Jiang

B.A. Biological Sciences, Minor Chemistry 2019 Fall - 2023 Spring
Smith College, Northampton, MA
GPA: 3.99/4.00
Magna Cum Laude, Highest Honors
Thesis: *Characterizing lineage-specific gene families in testate lobose amoebae*
Advisor: Dr. Laura Katz

RESEARCH EXPERIENCE

NIH Predoctoral IRTA Fellow 2024 Spring – Present
Advisor: Dr. Xiaofang Jiang
National Library of Medicine, National Institutes of Health

- Study evolutionary history of reductase and dehydrogenase enzymes using phylogenetic methods
- Develop a computational tool to analyze enzyme evolution, and delineate enzymes for use in designing mutagenesis experiments

Graduate Research Assistant 2023 Fall – Present
Advisor: Dr. Brantley Hall
College of Computer, Mathematical, and Natural Sciences, University of Maryland

- Characterize health-relevant functions and identify key enzymes of the gut microbiome using comparative genomics and computational methods, resulting in 2 submitted manuscripts

Undergraduate Research Assistant 2021 Spring – 2023 Spring
Advisor: Dr. Laura Katz
Biological Sciences Department, Smith College

- Led a project on characterizing lineage-specific gene families in Arcellinida (a group of shelled amoebae) by developing a bioinformatics pipeline on transcriptomic data
- Characterized protist communities in tide pools using data visualization bioinformatic tools in R and creating phylogenetic trees

NSF Bioinformatics BRITE REU Fellow 2022 Summer
Advisor: Dr. Sarah Davies
Bioinformatics Department, Boston University

- Analyzed the effect of boring sponge infection on gene expression in eastern oysters through read-mapping and using the R package DESeq2 to look for differentially expressed genes
- Conducted weighted gene correlation network analysis using the R package WGCNA

Summer Undergraduate Research Fellow (SURF) 2021 Summer
Advisor: Dr. Laura Katz
Biological Sciences Department, Smith College

- Performed field, microscopy, and molecular bench work to extract transcriptomes from Arcellinida cells from bog samples
- Led Python and R workshops to train undergraduate lab mates on using bioinformatic modules such as Biopython

PUBLICATIONS

Under peer review

[1] Levy S, **Jiang A**, Grant M, Arp G, Ndjite GM, Jiang XF, Hall B. "Parallel evolution of oxidized sugar metabolism in commensal and pathogenic microbes exemplifies bacterial adaptation to the inflamed gut." (In revision at *Nature Communications*)

[2] Arp G, **Jiang A**, Dufault-Thompson K, Levy S, Zhong A, Wassan JT, Grant M, Hall B, Jiang XF. "Gut Bacteria Encode Reductases that Biotransform Steroid Hormones." (Submitted to *Nature*)

Preprints

[1] Arp G, **Jiang A**, Dufault-Thompson K, Levy S, Zhong A, Wassan JT, Grant M, Hall B, Jiang XF. "Gut Bacteria Encode Reductases that Biotransform Steroid Hormones." *bioRxiv*, https://doi.org/10.1101/2024.10.04.616736

In-prep (drafts available upon request)

[1] **Jiang A**, Sehein TR, Gawron R, Katz LA, Maurer-Alcalá X. "A transcriptomics approach to characterize lineage-specific genes in testate lobose amoebae." (In prep, target journal *Protist*)

CONFERENCES AND PRESENTATIONS

Talks

- **Jiang A**, Bove C, Ries JB, McNally EM, Davies SW. "Bored in a Changing Climate: Effect of Ocean Acidification and Boring Sponge Infection on Eastern Oyster Gene Expression." Boston University BRITE REU Symposium, Boston, MA (August 2022)

Posters

- **Jiang A**, Levy SC, Ravel C, Jiang, XF, Hall, B. "Parallel evolution of oxidized sugar metabolism in commensal and pathogenic microbes exemplifies bacterial adaptation to the inflamed gut." Intelligent Systems for Molecular Biology Conference, Montreal, Quebec, Canada (July 2024)

- **Jiang A**, Levy SC, Ravel C, Jiang, XF, Hall, B. "Convergent Evolution of Oxidized Sugars Metabolism Enables Commensal Adaptation to the Gut." University of Maryland GRAD 2024 Conference, College Park, MD (April 2024)
- **Jiang A**, Sehein T, Katz LA, Maurer-Alcalá X. "Characterizing Lineage-Specific Genes in Testate Lobose Amoebae (Arcellinida)." Pioneer Valley Microbiology Symposium, Amherst, MA (March 2023)
- **Jiang A**, Bove C, Ries JB, McNally EM, Davies SW. "Bored in a Changing Climate: Effect of Ocean Acidification and Boring Sponge Infection on Eastern Oyster Gene Expression." Annual Biomedical Research Conference for Minority Students (ABRCMS) Conference, Anaheim, CA (November 2022)

TEACHING EXPERIENCE

Teaching Assistant, BSCI161 (Principles of Evolution and Ecology Lab) 2023 Fall–2024 Spring
Biological Sciences Department, University of Maryland, College Park

General and Organic Chemistry Tutor 2021 Fall–2023 Spring
Spinelli Center for Quantitative Learning, Smith College

Chemistry Lab Report Writing Tutor 2022 Spring
Spinelli Center for Quantitative Learning, Smith College

Quantitative-Mathematics Tutor, MTH112 and MTH111 2020 Fall–2021 Fall
Spinelli Center for Quantitative Learning, Smith College

Calculus II Grader 2020 Fall–2021 Spring
Mathematics Department, Smith College

SKILLS

Computational Skills: Python, R, Java, C++, Shell scripting, Bash, Slurm, Git, Mathematica, LaTeX, Machine Learning, Google Cloud
Visual: Adobe Photoshop, Adobe Illustrator
Lab Skills: PCR, RNA and DNA extraction, whole transcriptome amplification, cell picking, pipetting, animal culture
Languages: English (native), Mandarin (professional proficiency), Spanish (elementary proficiency)
Relevant Coursework: Algorithmic Evolutionary Biology, Computational Genomics, Bioinformatics and Genomics, Machine Learning, Data Structures, Linear Algebra, Statistics and Probability, Multivariable Calculus, Mathematical Modelling, Evolution, Biochemistry, Microbial Diversity, Organic Synthesis, Bioorganic Chemistry, Microbiomes in Disease and Health

HONORS/AWARDS

ISMB Travel Fellowship Recipient (*University of Maryland, College Park*) 2024
Dean's Fellowship, $2,500 (*University of Maryland, College Park*) 2023
Margaret Wemple Brigham Prize, first prize in honors thesis (*Smith College*) 2023
Departmental Highest Honors (*Smith College*) 2023
Smith College Chapter of Phi Beta Kappa (*Smith College*) 2023
Sigma Xi Nomination (*Smith College*) 2023
Dean's List (*Smith College*) 2019-2023

PROFESSIONAL SOCIETY MEMBERSHIPS

- Phi Beta Kappa (2023-Present)

MENTORING EXPERIENCE

Charlotte Ravel, Undergraduate Researcher (2023-Present)

ACTIVITIES AND VOLUNTEERING

HiStep Volunteer, National Institutes of Health 2024

Designed and led hands-on bioinformatics research activities for 2 high school students from disadvantaged high schools in Maryland

Gut Microbiome Booth Maryland Day Volunteer, University of Maryland 2024

Volunteered at a gut microbiome booth on Maryland Day

Co-Chair for Maryland Day Ecology Booth, University of Maryland 2023-Present

Involved in organization of an outreach booth on local Maryland wildlife ecology for Maryland Day

Peer Mentor for Biological Sciences Department 2023

Paired up with a student and met regularly to discuss undergraduate course selection and graduate school

Java Development Project on Avian Wildlife 2021-Present

Developed a Java-based avian wildlife mod for a popular computer game that amassed more than 200,000 downloads (https://github.com/frikinzi/frikinzis_fauna)