

# Angela Kaijia Jiang

4219 Fieldhouse Dr • College Park, MD 20740 • (267) 827-9702 • [akjiang@umd.edu](mailto:akjiang@umd.edu) • [GitHub](#)

## **EDUCATION**

08/2023 - Present      **Ph.D.**, Computational Biology, University of Maryland, College Park, MD

**GPA:** 4.00/4.00

**Relevant Coursework:** Algorithmic Evolutionary Biology, Computational Genomics, Bioinformatics and Genomics, Microbiomes in Disease and Health, Machine Learning

09/2019 - 05/2023      **B.A.**, Biological Sciences, Smith College, Northampton, MA

**GPA:** 3.99/4.00

*Magna Cum Laude*, Highest Honors in Biological Sciences

**Thesis:** *Characterizing lineage-specific gene families in testate lobose amoebae* (Advisor: Dr. Laura Katz)

**Relevant Coursework:** Evolution, Genomics, Bioinformatics, Biochemistry, Microbial Diversity, Organic Synthesis, Bioorganic Chemistry, Data Structures, Linear Algebra, Statistics and Probability, Discrete Math, Multivariable Calculus, Mathematical Modelling

## **RESEARCH EXPERIENCE**

**Graduate Research Assistant Under Dr. Brantley Hall and Dr. Xiaofang Jiang** (2023 Fall – Present)

*College of Computer, Mathematical, and Natural Sciences, University of Maryland*

*National Library of Medicine, National Institutes of Health*

- Characterize health-relevant functions and identify key enzymes of the gut microbiome using comparative genomics and computational methods
- Study evolutionary history of enzymes using phylogenetic methods
- Develop a pipeline analyzing enzyme evolution for use in designing mutagenesis experiments

**Undergraduate Project Leader Under Dr. Laura Katz** (2021 Spring – Present)

*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 (e.g. R, Python, Cd-hit, OrthoFinder)
- Characterized protist communities in tide pools using data visualization bioinformatic tools in R and creating phylogenetic trees
- Assessed the quality of 98 whole genome assemblies using 2 bioinformatic pipelines with HISAT2, Barnap and VSEARCH to assist in a project on finding giant virus symbionts in microbial eukaryotes

**NSF Bioinformatics BRITE REU Intern in Dr. Sarah Davies' Lab** (2022 Summer)

*Research Intern in Dr. Sarah Davies' Lab, Bioinformatics Department, Boston University*

- Competitively selected for NSF REU grant in Bioinformatics to pursue ocean population genomics research under Dr. Sarah Davies at Boston University
- Acquired skills in molecular lab work techniques in RNA extraction and purification, gel electrophoresis, and DNA extraction
- 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
- Cultured larvae of *Crepidula fornicata*, a marine mollusk, by performing regular water changes and feedings

- Trained in computational skills such as Python, UNIX and Linux, Git and Snakemake, machine learning, and SQL through the REU workshops

### **Summer Undergraduate Research Fellowship (SURF) (2021 Summer)**

*Research Fellow in Dr. Laura Katz's Laboratory, Biological Sciences Department, Smith College*

- Acquired molecular lab bench work skills such as whole transcriptome amplification (WTA), PCR and DNA extraction, and mastered pipetting techniques
- Collected moss and bog water samples from a local bog from 5 sites, and created 20 plates from those samples for microscopy via filtration
- Picked, processed, and froze Arcellinida cells for WTA using microscopy and pipetting
- Led Python and R workshops to train undergraduate lab mates on using bioinformatic tools such as Biopython

### CONFERENCES AND PRESENTATIONS

#### *Talks*

- **Jiang, A.**, Bove, C., Ries, J. B., McNally, E. M. Davies, S. W. "Bored in a Changing Climate: Effect of Ocean Acidification and Boring Sponge Infection on Eastern Oyster Gene Expression." Oral presentation at Boston University BRITE REU Symposium, Boston, MA (August 2022)

#### *Posters*

- **Jiang, A.**, Levy, S. C., Ravel, C., Jiang, X. F., Hall, B. "Parallel evolution of oxidized sugar metabolism in commensal and pathogenic microbes exemplifies bacterial adaptation to the inflamed gut." Accepted poster presentation at Intelligent Systems for Molecular Biology Conference, Montreal, Quebec, Canada (July 2024)
- **Jiang, A.**, Levy, S. C., Ravel, C. \*, Jiang, X. F., Hall, B. "Convergent Evolution of Oxidized Sugars Metabolism Enables Commensal Adaptation to the Gut." Accepted poster presentation at University of Maryland GRAD 2024 Conference, College Park, MD (April 2024)
- **Jiang, A.**, Sehein, T., Katz, L. A., Maurer-Alcalá, X. "Characterizing Lineage-Specific Genes in Testate Lobose Amoebae (Arcellinida)." Accepted poster presentation at Pioneer Valley Microbiology Symposium, Amherst, MA (March 2023)
- **Jiang, A.**, Bove, C., Ries, J. B., McNally, E. M. Davies, S. W. "Bored in a Changing Climate: Effect of Ocean Acidification and Boring Sponge Infection on Eastern Oyster Gene Expression." Accepted poster presentation at Annual Biomedical Research Conference for Minority Students (ABRCMS) Conference, Anaheim, CA (November 2022)

### TEACHING EXPERIENCE

#### **Teaching Assistant for BSCI161 - Principles of Evolution and Ecology Lab (2023 Fall – 2024 Spring)**

*Biological Sciences Department, University of Maryland, College Park*

- Lectured and facilitated 2 laboratory sections with a total of 81 students across 2 semesters
- Lectured students on course material and supervised laboratory activities
- Graded and provided feedback on weekly assignments

#### **Chemistry Tutor (2021 Fall – 2023 Spring)**

*Spinelli Center for Quantitative Learning, Smith College*

- Tutored Advanced General Chemistry, Organic Chemistry I, and Organic Chemistry II
- Hosted 2-hour long drop-in sessions four times per week for 10 weeks per semester to guide students through their questions about course material and explain chemistry concepts. On average, 20 students attended per session.
- Provided feedback on Organic Chemistry II lab reports and met with students one-on-one
- Met with instructors weekly to provide feedback on student performance and teaching methods

### **Quantitative-Mathematics Tutor** (2020 Fall – 2021 Fall)

*Spinelli Center for Quantitative Learning, Smith College*

- Hosted 2-hour long drop-in sessions twice per week for 10 weeks per semester to answer students' questions about Calculus I and II
- Met with students one-on-one to help them with homework and written assignment questions

### **Calculus II Grader** (2020 Fall – 2021 Spring)

*Mathematics Department, Smith College*

- Evaluated 20 MTH 112 (Calculus II) students' weekly written assignments over the course of 13 weeks
- Met with the instructor weekly to discuss student performance and received feedback on grading

### SKILLS

**Computational Skills:** Python, R, Java, C++, Shell scripting, Bash, HPC, Git, Mathematica, LaTeX, Machine Learning

**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)

### HONORS/AWARDS

- ISMB Travel Fellowship Recipient, 2024
- Dean's Fellowship, \$2,500, *University of Maryland*, 2023
- Margaret Wemple Brigham Prize, first prize in Honors thesis in Biological Sciences, *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

### SUBMITTED MANUSCRIPTS

- Sophia Levy, **Angela Jiang**, Maggie Grant, Gabriela Arp, Glory Ndjite Minabou, Xiaofang Jiang., Brantley Hall. "Parallel evolution of oxidized sugar metabolism in commensal and pathogenic microbes exemplifies bacterial adaptation to the inflamed gut." *Under peer review at Nature Communications*, draft available upon request

### MANUSCRIPTS IN PREPARATION

- **Angela Jiang**, Taylor Sehein., Rebecca Gawron, Laura A. Katz, Xyrus Maurer-Alcalá. "Characterizing lineage-specific genes in testate lobose amoebae." *In prep*, draft available upon request

### MENTORING EXPERIENCE

- Charlotte Ravel, *Undergraduate Researcher* (2023-Present)

### ACTIVITIES AND VOLUNTEERING

- **Java Development Project on Avian Wildlife** (2021 Summer – Present): Developed a Java-based avian wildlife mod for a popular computer game that amassed more than 190,000 downloads ([GitHub](#)).

- **Peer Mentor for Biological Sciences Department** (Smith College, 2022 Fall - 2023 Spring)
- **Maryland Day Committee for Ecology Booth, Co-Chair** (January 2024 - Present): Involved in organization of an outreach booth on local Maryland wildlife ecology for Maryland Day
- **Volunteer for Gut Microbiome Booth Maryland Day** (April 2024)
- **HiStep Volunteer** (National Institutes of Health, 2024 Summer): Designed and delivered hands-on bioinformatics research activities for 2 high school students from disadvantaged high schools in Maryland, in addition to acting as a career mentor