Jimmy (Juntao) Zhong

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Education

Bachelor of Arts Sept. 2019 – expected June 2023

Carleton College, Northfield, MN

Major: **Biology** (GPA: 3.85)
Major: **Computer Science** (GPA: 3.88)
Minor: **Mathematics** (GPA: 4.0)

Manuscripts

Zhong J., Zimmerman S., Pham LD., Wasak D., Robert LH., Sinha M., Kostic AD. Gut microbiomes of American Indian children with obesity show transition from non-industrialized to industrialized lifestyle. (*in review*)

Zhong J., Hernández TR., Kyrysyuk O., Tully BJ., Anderson RE. High transposase abundance in the deep ocean is linked to a particle-associated lifestyle. *bioRxiv. in revision*

Presentations

- (Oral) "High transposase abundance in the deep ocean is linked to a particle-associated lifestyle" *AbSciCon22*. May 2022, Atlanta, GA
- (Poster) "Gut microbiomes of American Indian children with obesity show transition from non-industrialized to industrialized lifestyle" *Undergraduate Research and Internship Symposium*. October 2022, Northfield, MN

Research experiences

Research Assistant

Virtual Planetary lab, Carleton College, MN Nov. 2020 – present

- Studied gene abundance, selective pressure, and lysogenic viruses in marine metagenomes to determine the cause of increased transposase abundance in the microbial genomes from the deep ocean
- Studied how phosphorus metabolism genes spread and mutated across the tree of life. Estimated the timing and frequencies of horizontal gene transfer events by comparing the species tree with various gene trees of different phosphorus sequestering genes

Summer Research Assistant

Kostic Lab, Harvard Medical School & Joslin Diabetes Center, MA Jun. 2022 – Aug. 2022

- Analyzed species and metabolic pathway abundances in human gut microbiomes to identify features correlated with obesity and diabetes
- Integrated microbial data with serum biomarker and metabolomic data using statistical methods including mixed-effect model and zero-inflated negative binomial model

Summer Research Assistant

Carleton Primate Lab, Northfield, MN June 2020 – Sept. 2020

- Investigated the declining cognition of aging cotton-top tamarins (*Saguinus oedipus*) by conducting food-reward experiments and interactive games
- Pre-experiment handling of tamarins (e.g., food-preparation, hand feeding, COVID-standard cage sanitization)

Summer Research Assistant

Murry's Lab, University of Washington, WA Jul. 2018 – Sept. 2018

- Built an R Shiny server that queries gene expression data from the lab database and graphs it on a web-interface

- Extracted RNA from differentiating heart cells for RT-qPCR, in order to study the changing gene expression from pluripotent stem cells to cardiomyocytes

Work Experience

Software Engineering Intern Jun. 2021 – May. 2022
Hewlett Packard Enterprise (HPE), Bloomington, MN

- Updated patches for the HPE supercomputer operating system (C, ePython)
- Wrote 20+ validation tests before and after system installation (Python, Shell Script)

Curricular and Research Data Assistant
Academic Technology, Carleton College, MN Sept. 2019 – Jun. 2021

- Worked as research computing consultant and provided solutions to accelerate analysis and digitalize data recording to 10+ research groups and 30+ student projects
- Wrote Python and R scripts to help with large-scale data processing
- Produced ~40 pages of R manuals and video guides for Humanity classes at Carleton College

Teaching Experience

Lab Assistant and Grader Winter Term 2022, Fall Term 2022
Bio 338, Genomics and Bioinformatics, Carleton College, MN

- Helped students run bioinformatics tools on Linux server terminal to analyze ocean metagenomes.
- Graded homework for Professor Rika Anderson's Bio338, Genomics and Bioinformatics.

Tutor for Quantitative Resource Center Dec. 2019 – Jun. 2021
Gould Library, Carleton College, MN

- Tutored students on most quantitative subjects (e.g., intro biology, chemistry, calculus).
- Provide programming support (R, Python, Excel, and Tableau) on the data analysis component of political science, history, and economic courses at school.

Honors and Awards

- Kolenkow-Reitz Fellowship, Carleton College ($5500) 2022
- Towsley Conference Travel Award ($500) 2022
- Dean's List, Carleton College 2020-2021

Skills

Python | R | Shell Script | C | Postgresql | HTML/CSS | JavaScript | Java
Cantonese (native); Mandarin (native); English (fluent, high school and college education in the U.S.)