



Jimmy (Juntao) Zhong

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● ABOUT ME

I am a PhD student in Computational and Systems Biology, focusing on motor control and the multiscale organization of neural dynamics. Experienced in behavioral analysis, genomic data analysis, and *in vivo* electrophysiology. Strong background in statistics, programming, and custom circuit board design for experimental systems.

● EDUCATION AND TRAINING

01/09/2023 – CURRENT St. Louis, United States

PHD IN COMPUTATIONAL AND SYSTEMS BIOLOGY (EXPECTED 2028) Washington University in St. Louis

Currently a third-year PhD student in Dr. Keith Hengen's lab.

Field of study Neuroscience | **Level in EQF** EQF level 8

02/09/2019 – 03/03/2023 Northfield, Minnesota, United States

BACHELOR OF ARTS Carleton College

Field of study Biology , Computer Science | **Level in EQF** EQF level 6

● WORK EXPERIENCE

TEACHING ASSISTANT – WASHINGTON UNIVERSITY IN ST. LOUIS – 15/01/2025 – Current – ST. LOUIS, UNITED STATES

Served as Teaching Assistant in 3 graduate or undergraduate courses:

BIO 5488: **Genomics** (Spring 2025)

- Graded homework and exams.

- Led weekly laboratory sessions.

BIO 3411: **Principles of the Nervous System** (Fall 2025)

- Graded homework and exams.

- Led weekly journal discussion sessions.

BIO 4934: **Neuroscience Futures II** (Current)

- Lead seminar-style discussions focused on critical analysis of primary research literature.

RESEARCH ASSISTANT – VIRTUAL PLANTARY LAB, CARLETON COLLEGE – 15/11/2020 – 10/06/2023 – NORTHFIELD, UNITED STATES

- 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 metabolic genes spread and evolve across the tree of life. Statistically estimated horizontal gene transfer events by comparing the species tree with gene trees of different phosphorus sequestering genes.

TEACHING ASSISTANT – CARLETON COLLEGE – 10/01/2022 – 15/11/2022 – NORTHFIELD, UNITED STATES

- Graded homework and exams for Prof. Rika Anderson's BIO 338 course during the Spring 2022 and Fall 2022 semesters.

- Guided students in using command-line bioinformatics tools on Linux servers to analyze and interpret genomic datasets.

RESEARCH ASSISTANT – KOSTIC LAB, HARVARD MEDICAL SCHOOL – 14/06/2022 – 01/09/2022 – BOSTON, UNITED STATES

- Analyzed human gut microbial genomes and intestinal metabolomic profiles to identify features associated with obesity and diabetes.
- Integrated demographic data and clinical biomarkers with gut microbiome composition to assess risk factors for childhood diabetes.

SOFTWARE DEVELOPER – HEWLETT PACKARD ENTERPRISE – 14/06/2021 – 10/06/2022 – BLOOMINGTON, UNITED STATES

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

● **SKILLS**

Python (computer programming) | C++ | "R" Programming

● **LANGUAGE SKILLS**

Mother tongue(s): **CHINESE**

● **HOBBIES AND INTERESTS**

Accordion

Accordionist in the Global Music Ensemble during undergraduate studies; continues to play for personal enjoyment.

Freestyle wrestling

Competed in high school varsity team and undergraduate club level (152lbs / 69 kg).

● **PUBLICATIONS**

2025

[**50,000 trials per mouse: a scalable, automated platform for longitudinal motor behavior and neural dynamics**](#)

(Poster in SfN) Presented an automated home-cage ladder paradigm for studying motor learning in freely behaving mice. This paradigm allows for millisecond-resolution motion tracking with synchronized electrophysiological recordings.

Authors: J. Zhong, R. Chopra, K. B. Hengen | **Journal Name:** Society for Neuroscience (SfN)

2025

[**Every neuron counts: "Presymptomatic" disease is defined by restricted behavioral and neural dynamics in a mouse model of SOD1-ALS**](#)

- (Poster at SfN) Recorded motor behavior in freely behaving mice with genetically-induced ALS, using an automated ladder home-cage paradigm with chronic recordings in the motor cortex.

- Demonstrated that "presymptomatic" ALS shows reduced flexibility in motor behavior and deviations from optimal (critical) neural dynamics prior to overt motor impairment.

Authors: R. Chopra, J. Zhong, T. M. Miller, K. B. Hengen | **Journal Name:** Society for Neuroscience (SfN)

2024

[**Timing the evolution of phosphorus-cycling enzymes through geological time using phylogenomics**](#)

Used modern microbial genomes to infer the emergence of nutrient-related genes (e.g. phosphate transporting genes, phosphite-oxidising genes) in Earth's early history, and what this implies about nutrient availability in ancient oceans.

Authors: Boden, J.S., Zhong, J., Anderson, R.E. et al. | **Journal Name:** Nature Communication | **Publisher:** Springer Nature

2024

[**Increasing transposase abundance with ocean depth correlates with a particle-associated lifestyle**](#)

Analyzed global marine metagenomic datasets to investigate why mobile genetic elements are more abundant in deep-ocean microbe. Propose the theory that deep-sea particles are hubs for gene exchange among marine microbes.

Authors: Zhong J., et al. Anderson RE. | **Journal Name:** mSystems | **Publisher:** American Society for Microbiology