



RONGHAO ZHANG

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EDUCATION

Case Western Reserve University

August 2019 – May 2023 (Expected)

Undergraduate Student

Cleveland, OH

- Dual degree in Systems Biology (B.S.) and Computer Science (B.A.)
- Minor in Chemistry, Artificial Intelligence
- Current GPA: 4.0/4.0
- Height-lighted Coursework: Neurobiology, Statistical Learning, Artificial Intelligence, Mathematical modeling in Biological Systems, Statistics for Signal Processing, Computational Neuroscience (*Spring 2023*).

PUBLICATIONS

1. Brostek, A., Hong, N. J., Zhang, R., Forester, B. R., Barmore, L. E., Kaydo, L., Kluge, N., Smith, C., Garvin, J. L., and Gonzalez-Vicente, A. (2022) **Independent Effects of Sex and Stress on Fructose-Induced Salt-Sensitive Hypertension**. *Physiological Reports*, 10, e15489. <https://doi.org/10.14814/phy2.15489>.

RESEARCH INTEREST

NeuroEngineering / Computational Neuroscience

- To understand the computational foundation of perception and motor systems: interaction with the world
- To enhance the performance of BMI or neuroprosthetics: better approaches for rehabilitation and research
- To learn the signal propagation and representation in neural networks: information processing in our brain
- To develop neuromodulation and stimulation techniques: coding neuronal behavior and treating neurological diseases

RESEARCH EXPERIENCE

Bensmaia Lab, Department of Organismal Biology & Anatomy

May 2022 – August 2022

Full Time Undergraduate Research Assistant

University of Chicago, Chicago, IL

- Investigated the contribution of skin biomechanics to tactile perception and its neural basis.
- Used MATLAB and touchSim package to simulate mechanical indentation profiles of finger tips and spike trains of afferent population.
- Developed and optimized algorithms to eliminate signal offsets and normalize pressing pressure.

Garvin Lab, Department of Biophysics and Physiology

November 2019 – Now

Part Time Undergraduate Research Assistant

Case Western Reserve University, Cleveland, OH

- Currently constructing a pipeline for aligning and analyzing Next-Generation Sequencing data using Unix Command Lines and R programming.
- Employed rodent models to understand the effect of dietary fructose on the development of salt-sensitive hypertension.
- Practiced Kidney Perfusion Surgeries on rodent models for experimental purposes.
- Familiarized with biological experiments and equipment for quantitative studies, including western blot, and fluorometer.

OTHER ACADEMIC EXPERIENCE

Willis Lab, Department of Biology

December 2021 – January 2022

Animal Caring Assistant

Case Western Reserve University

- Maintained the moth (*Manduca sexta*) colony during winter vacation.
- Prepared daily nutrition and removed waste to meet the need of individuals at different developing stages.

Operating Rooms, Department of Neurological Surgery

December 2019

Student Observer

University Hospitals Cleveland Medical Center

- Shadowed surgeries performed by medical professionals from the Department of Neurological Surgery for over 40 hours.

WORK EXPERIENCE

Undergraduate Teaching Assistance

August 2022 - Current

Jobs & Work Load

- Held Office Hours; Graded Homework Assignments; Assisted Classroom Activities; Held Laboratory Sessions.
- Worked 5 - 12 hours per week for each course beneath.

Course List

- **BIOL373** *Introduction to Neurobiology* (Fall 2022); **BIOL300** *Dynamics of Biological Systems: A Quantitative Introduction to Biology* (Spring 2022); **ENGR131** *Elementary Computer Programming - MATLAB* (Fall 2021); **BIOL214** *Genes, Evolution and Ecology* (Fall 2021)

VOLUNTEER EXPERIENCE

Center of Emergency Medicine

January 2020 – March 2020

Adult Emergency Volunteer

University Hospitals Cleveland Medical Center

- Cleaned, disinfected, and prepared rooms for incoming patients.

Division of Cardiovascular Medicine

June 2020 – September 2020

Comfort Rounder Volunteer

University Hospitals Cleveland Medical Center

- Provided best care by developing rapport with patients during the pandemic.

Seidman Cancer Center

Sep 2020 – December 2020

Infusion Courier Volunteer

University Hospitals Cleveland Medical Center

- Organized the transportation of Humoral specimens to the designated Laboratory.

MedWish International

Sep 2019 – November 2019

Student Volunteer

Cleveland, OH

- Assisted to fix and pack medical devices for delivery to developing countries.

CERTIFICATES

Dean's High Honor | Case Western Reserve University

Latest Award: June 2022

- Awarded for the following semesters: Fall 2019, Spring 2020, Fall 2020, Spring 2021, Fall 2021, and Spring 2022.

Outstanding Junior Award | Case Western Reserve University

April 2022

Certificate of Completion | Coursera – Command Line Tools for Genomic Data Science

March 2022

Phi Beta Kappa Prize | Case Western Reserve University

September 2021

Heartsaver CPR & AED Certificate | American Heart Association

January 2020

TECHNICAL SKILLS

- | | | | |
|-----------------|---------|---------|----------------------|
| • R Programming | • Java | • LaTeX | • GitHub & Git |
| • MATLAB | • MySQL | • Unity | • Unix Command Lines |

LEADERSHIP & EXTRACURRICULAR ACTIVITIES

Kendo Club

September 2019 – March 2020

Secretary

Case Western Reserve University

- Practiced Kendo and organized club activities.

Guqin, pronounced [ku-ch'in]

Year 2014 – Now

- Guqin is a plucked seven-string traditional Chinese musical instrument that has a history of over 3000 years.
- Sounds are produced by plucking strings and harmonics, involving a large number of glissandi and portamenti.

Acrylic Painting & Sketch

Year 2010 – Now

LANGUAGES

- | | | |
|--------------------|--------------------|------------------------------|
| • Chinese (Native) | • English (Fluent) | • Spanish (Elementary Level) |
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