



RONGHAO ZHANG

Updated 2022-12-15

✉ ronghao.zhang.academic@gmail.com  [linkedin.com/in/ronghao-zhang-a81b05234](https://www.linkedin.com/in/ronghao-zhang-a81b05234)  <https://ronghao-zhang.github.io/>

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
- High-lighted Coursework: Neurobiology, Statistical Learning, Artificial Intelligence, Mathematical modeling in Biological Systems, Statistics for Signal Processing, Computational Neuroscience (*Spring 2023*)

RESEARCH INTEREST

NeuroEngineering / Computational Neuroscience

- Computational foundation of sensory perception and motor systems
- Brain Computer Interface and neuroprosthetics for rehabilitation
- Signal propagation and information processing in neural networks
- Neuromodulation and stimulation techniques for neurological diseases

RESEARCH EXPERIENCE

Department of Organismal Biology & Anatomy, University of Chicago

May 2022 – August 2022

Research Assistant

PI: Dr. Sliman Bensmaia

- Investigated the neural basis of skin biomechanics in tactile perception
- Observed Brain Computer Interface sessions on human patients for recording cortical activities and mapping sensory-motor functions in the virtual environment
- Used MATLAB to simulate mechanical indentation profiles and spike trains of afferent mechanoreceptors of fingertips on over 20 compliant textures
- Developed algorithms to completely reject artifacts including location offsets and light refraction of all textures for future frequency analysis of spatial signals

Department of Physiology and Biophysics, School of Medicine, CWRU

November 2019 – Present

Research Assistant

PI: Dr. Jeffrey Garvin

- Investigated the mechanism of fructose-induced salt-sensitive hypertension
- Helped perform analysis on urinary norepinephrine to study the role of sympathetic response in hypertension
- Practiced kidney perfusion surgeries on rodents to obtain high-quality proximal tubule suspensions for analyzing oxidative stress using luminescent detection
- Currently constructing scripts using R and Unix Command Lines for determining transcriptional changes in response to dietary fructose ingestion

Department of Biology, CWRU

December 2021 – January 2022

Research Assistant

PI: Dr. Mark Willis

- Prepared daily nutrition and removed wastes to meet the needs of moth (*Manduca sexta*) at different developing stages

PUBLICATIONS

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>.

WORK EXPERIENCE

Undergraduate Teaching Assistance

August 2021 - 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 and developed a rapport with patients by conversing with them 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

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

MedWish International

Sep 2019 – November 2019

Student Volunteer

Cleveland, OH

- Assisted in fixing medical devices according to the instructions provided
- Packed devices according to international standards to have them delivered to developing nations

AWARDS & HONORS

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

- **Programming Languages:** R, MatLab, Unix Command Lines, Java, MySQL
- **Tools:** LaTeX, Unity, GitHub & Git
- **Operating Systems:** Windows, MacOS, Linux with Ubuntu
- **Others:** surgeries on rodents, quantitative biological experiments, mRNA purification

LEADERSHIP & EXTRACURRICULAR ACTIVITIES

Kendo Club

September 2019 – March 2020

Secretary

Case Western Reserve University

- Practiced Kendo (a modern Japanese martial art) and organized club activities

Guqin, pronounced [ku-ch'in]

Year 2014 – Present

- 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 – Present