Pinyi Wu

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EDUCATION

Program in Biomedical Science, University of Michigan — **Ann Arbor, MI**
Ph.D. Student in Bioinformatics, Draelos Lab — *May 2024 - Present*
Ph.D. Student in Program in Biomedical Science (PIBS) — *Aug. 2023 - Apr. 2024*

Mailman School of Public Health, Columbia University — **New York, NY**
Master of Science in Biostatistics — *May 2023*

- **GPA**: 4.08/4.0 | **Courses**: Theoretical Neuroscience, Survival Analysis, Longitudinal Data Analysis, Numerical Methods, Biostatistical Methods, Data Science, Statistical Inference, Probability

University of Rochester — **Rochester, NY**
Bachelor of Science in Brain & Cognitive Science, Bachelor of Arts in Data Science — *May 2021*
Minor in Psychology

- **GPA:** 3.99/4.0 **| Honors:** Summa Cum Laude, Highest Distinction
- **Courses**: Neurobiology, Auditory Perception, Sensory & Motor Neuroscience, Computational Model of Cognition, Data Mining, PHP, SQL, Artificial Intelligence

RESEARCH INTEREST

- Adaptive Stimulation, Neuropsychiatry Disorders, Sensory & Motor Neuroscience, Data Mining, Statistical Modeling

SKILLS

- **Programming language**: Proficient in Python, R, SQL, MATLAB, LaTex, Command Line; experience in Bash, Docker, Java, SAS
- **Laboratory skills**: EEG recording, monkey chairing, brain perfusion, animal behavior training
- **Languages**: English, native speaker of Mandarin, Japanese JLPT N2, intermediate learner of Spanish

RESEARCH EXPERIENCE

Draelos Lab, University of Michigan — **Ann Arbor, MI**
PhD Student — *May 2024 - Present*
Rotation Student — *Oct. 2023 – Dec. 2023*

- Analyzed 2P-Calcium Imaging data collected from mouse's superior colliculus. Performed data wrangling, fit statistical models. Studied math and statistics behind Gaussian Process and Bayesian Optimization.
- Developing adaptive kernel techniques for better model robustness and flexibility

Watson Lab, University of Michigan — *Aug. 2023 – Oct. 2023*
Rotation Student

- Investigated circadian rhythms and brain waves in mice. Explored the temporal aspect of Non-REM (Rapid Eye Movement) sleep. Preprocessed and analyzed electrophysiological signals collected from mice cortex.

Allada Lab, University of Michigan
Rotation Student — *Jan. 2024 – Mar. 2024*

- Explored homeostasis (Process S) in Drosophila circadian rhythm system. Analyzed differentially expressed genes in transcriptomics data.

Kaczorowski Lab, University of Michigan
Rotation Student — *Mar. 2024 – Apr. 2024*

- Studied genetic mechanisms behind Alzheimer's Disease using the mouse model.

Brain Imaging Lab, Columbia University — **New York, NY**
Research Assistant | Supervisor: Dr. Spiro Pantazatos — *Jun. 2022 – May 2023*

- Super-resolved clinical MRI scans to 1 mm-isotropic research-quality images using the "SynthSR" package in Python and Command Line.
- Dockerized procedures using Dockerfile to facilitate code distribution.Connected the procedure to XNAT to further facilitate imaging management and productivity, coded in JavaScript.

Research at Department of Psychiatry, Columbia University **New York, NY**

Project Biostatistician | Supervisor: Dr. Richard Sloan *Feb. 2022 – May 2023*

- Analyzed Midlife in the United States (MIDUS) dataset, to investigate the effect of childhood trauma on the changes in adult psychosomatic conditions across different time points using R.
- Conducted longitudinal analysis, cleaned and wrangled raw data, built Linear Mixed Effect Models. Also conducted modifier analysis on the effect of psychological factors on attenuating cognitive functioning.
- Found higher childhood trauma led to a greater decline in Episodic Memory during one's adulthood. Preparing manuscripts for future publication.

Snyder Lab, University of Rochester **Rochester, NY**

Research Assistant *Feb. 2020 – May 2021*

- Assisted in research focusing on decoding EEG signals of novel detections of different kinds of visual components in 8 macaques, chaired macaques, prepared experiments setups.
- Analyzed EEG data using Python and MATLAB in collaboration with graduate students, built a logistic regression model to classify and predict motion direction from EEG signals, ran behavioral training using MATLAB.

Xiongjie Yu Lab, Zhejiang University **Hangzhou, China**

Research Assistant *Jul. 2019 – Aug. 2019*

- Designed experimental protocols of discrimination task of time intervals between a pair of sound stimuli, trained one animal subject (rat) to complete experiment, coded in Spike 2 for training protocols and MATLAB for data analysis.
- Assisted in novel detection of sound frequency in nonhuman primates, examining neural activity using electrophysiology (EP).

Hailan Hu Lab, Zhejiang University **Hangzhou, China**

Research Assistant *Jun. 2019 – Jul. 2019*

- Trained C57 mice using the Tube Test protocols, used optogenetic stimulation (on mPFC) to examine changes in social hierarchy on 20 mice (5 cages), recorded and marked mice behaviors using BORIS. Presented the final product to the whole lab during the meeting.
- Used perfusion fixation to prepare brain tissue for microscopy observation, dissected brains and observed under fluorescence microscopy, assisted in observations and recording of calcium signals.

TEACHING EXPERIENCE

University of Michigan

PACCAR **Ann Arbor, MI**

Co-director of Curriculum Development *May. 2024 - present*

Member of Programming Education Committee *Sept. 2023 – Apr. 2024*

- Taught and facilitated weekly course in basic Python/R programming using Google Colab/R studio to U of M students
- Designed semester-long curriculum incorporating basic coding skills, version control, and self-guided analysis
- Participated in mentoring students in preparation for 4D Nucleome Hackathon

Columbia University, Mailman School of Public Health

P8105: Data Science I **New York, NY**

Teaching Assistant *Sept. 2022 – May 2023*

- Held weekly office hours, answered R and GitHub related questions, offered coding help and instructions regarding homework. Graded homework, midterms, final projects.
- Provided instructions to 5 groups on their final projects. Held meetings to address programming related questions.

Computing Club at CUIMC **New York, NY**

Leader and Lecturer of the Python Workshop *Oct. 19th, 2021 & Nov. 1st, 2022*

- Led the demonstration of the coding section using Google Colab notebooks, covered topics including Python basics data structures, data preprocessing, data frame, graphing, and machine learning basics. Utilized various data processing and machine learning libraries.

Skills for Health and Research Professionals Training Program **Online**

Teaching Assistant for Machine Learning Bootcamp *Jun. 16th-17th, 2022*

- Assisted in teaching modules (Penalized Regression, Tree Based Methods, Dimension Reduction) in Machine Learning in R to healthcare professionals. Answered questions synchronously regarding concepts and coding tasks on Slack during lectures and lab sessions.

University of Rochester

Center for Excellence in Teaching and Learning **Rochester, NY**

One-on-one Subjects Tutor *Feb. 2019 – May 2021*

- Tutored peer students on a one-on-one basis in various subjects, including Computer Science, Brain and Cognitive Science, and Biology.
- Answered questions regarding course materials, offered instructions to homework assignments, made test preparation plans, and advised overall study skills in specific subjects upon the requests of each tutee.

CSC 161: Intro to Programming **Rochester, NY**

Lab Teaching Assistant *Sept. 2020 – May 2021*

- Held bi-weekly lab sessions, answered Python-related questions, offered coding help and instructions regarding weekly assignments and a 3-staged project on various Python topics. Graded weekly lab assignments, projects, midterms, and final exams.

Workshop Leader *Sept. 2019 – May. 2020*

- Led weekly workshop sessions to a group of 16 peer students, promoted peer discussion upon Python-based questions, explained concepts of syntax and programming logics, graded weekly quiz.

BCS 204: Lab in Cognitive Neuroscience **Rochester, NY**

Teaching Assistant *Sept. 2020 – Dec. 2020*

- Held weekly office hour, offered instructions on analysis of behavioral, EEG, fMRI data using Excel, EEGLAB, and SPM12, assisted in recording EEG signals in the actual laboratory setting.

BCS 110: Neural Foundations of Behaviors **Rochester, NY**

Teaching Assistant *Sept. 2019 – Dec. 2019*

- Held weekly recitations to a group of 15 students, reviewed lecture materials, answered questions.
- Additionally held four 2-hour review sessions with three other teaching assistants to help students prepare for unit exams. Graded 4 unit exams and 1 optional final.

OUTREACH

Data Science for All – Women **Online**

Team Member *Jul. 2022 – Aug. 2022*

- In a group of five, investigated the effect of abortion bans on foster care entries.
- Scraped data from national services, cleaned raw data, fit random forest and XG-boost models, found more restrictive abortion laws is associated with higher rates of infants entering foster care systems.
- Presented the final product to more than 250 program attendees, TAs and instructors.

China Thinks Big **Online**

Academic Coaching Team Member *Oct. 2018 – Dec. 2018*

- Reviewed public health related research papers written by Chinese high school students.
- Made academic suggestions and participated in grading.

Harvard Summit for Young Leaders in China **Hangzhou, China**

Teaching Fellow *Aug. 12-22, 2018*

- Co-taught 3 seminars in Morphology to 30 students in total, answered questions, made class notes daily, graded homework and final exam.
- Taught a Capstone research project class to 9 students, provided detailed guidance on research methodology, including topic selection, data collection, data analysis, and presentation preparation.
- With two other fellows, led a house of 54 students, won the House Cup.

HONORS

- **Dean's Scholarship** ($28,000), University of Rochester, Sept. 2017 – Jan. 2021
- **Dean's List**, University of Rochester, Sept. 2017 – May 2021