John Wu

Columbus, OH | wu.4427@osu.edu | (614) 638-7981

EDUCATION

The Ohio State University, Honors College of Engineering Columbus, OH
Bachelor of Science in Computer Science and Engineering May 2023
GPA: 3.94
Thesis: Optimization for Explainable Modeling (Ongoing)

SPECIALIZED COURSEWORK:

- Quantitative Biology, Deep Learning, Algorithms, Honors Engineering Robotics Course
- (In Progress) Computer Vision, Natural Language Processing, Machine Learning Statistics

RESEARCH EXPERIENCE

Das Lab, Steve and Cindy Rasmussen Institute for Genomic Medicine Columbus, OH
Principal Investigator, Jayajit Das, PhD February 2021-Present
Research Assistant

- Develop parameter estimation software CyGMM in C/C++ for rule based and mechanistic modeling.
- Utilize parallel programming to improve particle swarm optimization performance up to a factor of 10x.
- Analyze mass cytometry datasets, getting parameter estimates through generalized method of moments.
- Train a convolutional neural network to attempt to analyze an image mass cytometry dataset of breast cancer.
- Communicate and meet on weekly basis to discuss project progress and do literature reviews.

Rerout Lab, Department of Computer Science, The Ohio State University Columbus, OH
Principal Investigator, Christopher Stewart, PhD May 2022-Present
Research Assistant

- Build prototype docker containerization infrastructure for model commons project, allowing for ease of Python code shareability.
- Benchmark different particle swarm optimization configurations, contributing to a model benchmarking paper for model commons.
- Collaborate and communicate plans and necessary data for benchmarking.

Research Interests

Bioinformatics/Computational Modeling
Applied Machine Learning
Model Interpretability and Explainability

TECHNICAL SKILLS

Languages: C/C++, Python, Java, MATLAB, R, Javascript, CSS, HTML, Ruby
Tools and Frameworks: Flask, Ruby on Rails, Excel, Microcontrollers, Docker, Elastic, SQL, OpenMP, PyTorch

PUBLICATIONS

John Wu, William CL Stewart, Ciriyam Jayaprakash, and Jayajit Das, "Generalized Method of Moments Improves Parameter Estimation in Biochemical Signaling Models of Time-Stamped Single-Cell Snapshot Data." BioRxiv, Preprint, 1 Jan. 2022, https://www.biorxiv.org/content/10.1101/2022.03.17.484491v1. (In Progress)

Seth Ockerman, **John Wu**, Christopher Stewart, "A Case for Datast Specific Profiling." aRxiv, Preprint, 1 Aug. 2022, https://arxiv.org/abs/2208.03315. (In Progress)

CONFERENCE PRESENTATIONS

John Wu, qBio Conference, Fort Collins, Colorado, United States, June 2022
Generalized Method of Moments improves parameter estimation in biochemical signaling models of time-stamped single-cell snapshot data

TEACHING EXPERIENCE

College of Engineering, The Ohio State University — Columbus, OH
Teaching Assistant, Department of Computer Science — Autumn 2021

- Assisted with instruction of Introduction to C++ course to class size of 40 students.
- Tutored freshman engineering students in office hours.
- Graded labs and coding assignments, giving constructive feedback.

Summer Experience Columbus Academy — Gahanna, OH
Counselor — Summer 2019

- Facilitated group activities for students, ranging from kindergarten to 9th grade.
- Taught children to regulate and manage their emotions through breathing exercises.

INDUSTRY-EXPERIENCE

Converge Technologies — Hilliard, OH
Software Intern — Summer 2020

- Developed Selective Harmonic Elimination Pulse Width Modulation firmware for lab-grade industrial coolers, improving power efficiency.
- Programmed microcontrollers' interrupt vectors to setup failsafes in case of power failures.
- Assisted in pre-prototyping research, devising early plans for prototype design and bills of materials.
- Tested analog-digital camera sensors, ensuring functionality and quality standards.

UNIVERSITY SERVICE

New Albany Ambassadors, The Ohio State University — Columbus, OH
Participant — Autumn 2021

- Presented OSU's engineering program during STEM Outreach activities for high school students.
- Shared personal experiences in engineering with students and answered specific questions about the program.

HONORS & AWARDS

Maximus Scholarship, The Ohio State University 2019-2023
Dean's List, The Ohio State University 2019-2022