

John Wu

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EDUCATION

The Ohio State University, Honors College of Engineering
Bachelor of Science in Computer Science and Engineering
GPA: 3.94

Columbus, OH
May 2023

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
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RESEARCH EXPERIENCE

Das Lab, Steve and Cindy Rasmussen Institute for Genomic Medicine
Principal Investigator, Jayajit Das, PhD

Columbus, OH
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
Principal Investigator, Christopher Stewart, PhD

Columbus, OH
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, MongoDB, SQL, OpenMP, PyTorch

PUBLICATIONS

John Wu, William CL Stewart, Ciriya 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 Review)

Seth Ockerman, **John Wu**, Christopher Stewart, "A Case for Data 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 answer specific questions about the program.

HONORS & AWARDS

Maximus Scholarship, The Ohio State University 2019-2023

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