John Wu

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EDUCATION

The Ohio State University, Honors College of Engineering — Columbus, OH
Bachelor of Science in Computer Science and Engineering — August 2019-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.

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.

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

PREPRINTS

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.

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

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

Commented [WJ1]: Start with the action and end with the result.
Action+Subject+Outcome/Result/Accomplishment

Commented [WJ2]: Move into technical skills, rename technical skills to qualifications (maybe to help with flow?)

Commented [WJ3]: Tailor to schools

Commented [SJ4]: Optional. Useful if your interests are aligned with program in some way or ongoing research.

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.

EXTRACURRICULARS

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 AND AWARDS

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