

ALEX HOFFMAN

PHD CANDIDATE



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Yale Science Building, Rm 422

EDUCATION

2024-Present

Yale University

Advanced to Candidacy for **Molecular Cellular and Developmental Biology** PHD in February 2026

2020-2024

Duke University (4.0 GPA)

Bachelor of Science in Engineering in **Biomedical Engineering**

Bachelor of Arts in **Computer Science**

WORK EXPERIENCE

Graduate Researcher, Gendron Lab

Yale University, March 2025 - Present

In progress building four novel genetic engineering strategies for tuning plant photoperiodic response: reverse photoperiodic response, extend range of activating photoperiods, create orthogonal photoperiod measurement system, and induce photoperiodic response in previously non-photoperiodic systems. ..

Undergraduate Researcher, You Lab

Duke University, January 2021 - May 2024

Studied encapsulated E. coli growth, growth of the Keio strain collection, and growth of clinical isolates with mathematical and machine learning models, involving the use of the Freedom EVO pipetting robot for high throughput bacterial growth data collection.

Summer Researcher, Levine Lab

Memorial Sloan Kettering Cancer Center, June 2018 - August 2021

Built an in-vivo and ex-vivo murine model of Acute Myeloid Leukemia which acquired mutations in a stepwise pattern.

Coding Conversion Assistant

Department of Biomedical Engineering, Duke University, June 2023 - October 2023

Assisted Biomedical Engineering Faculty in conversion of coursework from MATLAB to Python. // Independently authored "Intro to Python" document for future BME271 students.

Medical Device Engineering Intern

Siemens Industry Software, May 2022 - August 2022

Authored novel application to compare success rates of medical device corrective action, preventive actions, and risk assessments with digital vs. manual practices. // Designed and demonstrated novel cybersecurity framework to FDA Office of Counterterrorism and Emerging Threats Innovation Laboratory to encourage advanced manufacturing practices. // Led Quality Assurance and Control efforts to train FDA staff on next generation tools (i.e. product lifecycle management, Monte Carlo design space explorations, and 3D CFD simulations). // Built Requirements and Risk model for prototype ventilator in Application Lifecycle Management Tool.

PUBLICATION

Holmes, Z., Shyti, I., Hoffman, A., Duncker, K., You, L. (2023). A foundation model for microbial growth dynamics. Manuscript in preparation (revise and resubmit stage)

SCHOLARSHIPS & HONORS

2024 Gruber Science Fellow

Awarded to the most highly ranked applicants to Yale PhD programs in the life sciences, and in cosmology and other fields of astrophysics

2024 Da Vinci Award

Presented to the Biomedical Engineering senior with the most outstanding academic record, as determined by a faculty committee

2024 Walter J. Seeley Scholastic Award

Presented to the member of the graduating class who has achieved the highest scholastic average in all subjects

2021 Appointment as Pratt Research Fellow

Two-year undergraduate research fellowship

2020-2024 Recipient of The Dr. Bart Kamen Memorial FIRST Scholarship

\$40,000 college scholarship for students pursuing Biomedical Engineering

ORGANIZATIONS

Duke University Stand-Up Troupe (2022-2024)

Treasurer and Executive Board Member (2023-2024)

Tau Beta Pi: Engineering Honor Society (2023-2024)

Duke Technology Scholars (2021-2024)

Duke Democrats (2021-2024)

Duke Votes (2021-2024)

Society of Women Engineers (2020-2024)

ADDITIONAL SKILLS

Programming Languages and Computational Analysis:

Python, Java, C, C++, MIPS Assembly, MATLAB, Mendix Studio Pro, SQL, Freedom EVO code