

Koray Akduman

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EXPERIENCE

Executive Director & Founder

Oct. 2018 - Present

Birdflop, 501(c)3 | St. Louis, MO

- Spearhead the development of free and open-source software with 250,000+ monthly users incorporating Python (including PyTorch), SQL, REST APIs, React/Qwik, and HTML/CSS/JS/TypeScript to provide publicity and improve services.
- As a sysadmin, assemble, configure, and troubleshoot/debug rackmount Linux servers hosting Python, JS, and Java applications (via JVM) for 200+ clients using UNIX, Nginx, Docker, and Bash, generating \$30,000+ in annual revenue.
- Publish articles and videos reaching 100,000+ readers/viewers.

Biosecurity Research Fellow

Jul 2023 - Aug 2023

Rethink Priorities / Existential Risk Alliance (ERA) | Cambridge, UK

- Extracted over 200,000+ genetically-engineered sequences through web scraping techniques in Python.
- Conducted an independent research project, biologically featurizing 200,000+ genetically-engineered sequences, performing evolution and statistical analysis using Python with NumPy, Pandas, and PyTorch across 5,000+ lines of code, resulting in a comprehensive database of genetically-engineered sequences featurized into human-interpretable variables.
- Using biologically-significant featurization, independently developed competitive machine learning models achieving a 92% accuracy in locating correct sequence designers within the top-10 rankings out of 2,100 labs, surpassing leading models.
- Independently drafted a publication for submission to scientific journals, detailing evolution in genetic engineering over time.

Undergraduate Researcher

Feb. 2022 - Present

Yale University School of Medicine (Ring Lab) / Yale Department of Computer Science (van Dijk Lab) | New Haven, CT

- Help develop LLMs contributing to the understanding of protein-protein interactions in cells.
- Conduct research into the causal relationship between autoantibodies and several diseases.
- Develop and use a yeast library for Rapid Extracellular Antigen Profiling (REAP) to comprehensively profile the autoantibodies of patients against 6,000 targets, expanded to include mouse antibodies enabling mouse experiments.

Director & Co-Founder

Jun. 2022 - Present

Yale Existential Threats Initiative (YETI) | New Haven, CT

- Oversee all organizational activities, identifying and implementing improvements, and actively promoting careers related to existential risk mitigation within the Yale community, resulting in membership growing from 0 individuals to 50.
- Design and oversee 8-week fellowships, engaging and educating 12 participants on forecasting and biosecurity, consistently receiving positive feedback for the program's value and impact.
- Led a team of 4 to 1st/12 (\$2,250 prize) in the Spring 2023 OPTIC Undergraduate Forecasting Tournament.

EDUCATION

Yale University (New Haven, CT)

Bachelor of Science, Computer Science | GPA: 3.94/4.0 | C.S. GPA: 4.0/4.0

Expected May 2025

Coursework in Data Structures, Algorithms, Systems Programming, Embedded Systems, Digital Systems, Multivariable Calculus, Discrete Math, Machine Learning (ML), Applied ML, Biology, Organic Chemistry, Physics, Biochemistry

PUBLICATIONS

- Klein, J., ... Akduman, K., ... Iwasaki, A (2023). *Distinguishing features of Long COVID identified through immune profiling*. *Nature*. - 198 citations

PROJECTS

Birdflop Website (<https://birdflop.com> | <https://birdflop.com/resources> | <https://github.com/birdflop/web>)

Feb. 2021 - Present

An open-source website in Qwik + TypeScript with 250,000+ monthly users providing accessible server hosting and resources.

Botflop (<https://github.com/birdflop/botflop>)

Jan. 2021 - Present

An open-source Discord bot in JavaScript with 300,000+ users that analyzes timings delay reports to suggest mitigations for common Minecraft server issues and automatically uploads text files to a globally accessible bin.

Content Distribution Network

Jul. 2021 - Present

Maintain a Content Distribution Network (CDN) for Birdflop to make locally hosted files available across the world.

Sir Stabby's Perpetual Motion Machine (<https://github.com/AddisonGoolsbee/sir-stabbys-torture-device>)

Dec. 2023 - Dec. 2023

An embedded system created in Python & C++ featuring voice FFTs, two-way wireless communication, OpenAI APIs, and ESP32s.

Binflop (<https://bin.birdflop.com>)

Feb. 2021 - Jul. 2021

A fork of the original <https://hastebin.com> that patches bugs and adds improvements, as listed [here](#).

BirdTickets (<https://github.com/birdflop/BirdTickets>)

Feb. 2021 - Aug. 2021

An open-source Discord bot in Python that allows Discord servers to incorporate a free and advanced ticket system.

Birdflop Panel Bot

Jan. 2021 - Mar. 2021

A Discord bot in Python to communicate with the Birdflop management panel API to link Discord and game panel accounts.