

# Sam Belliveau

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## EDUCATION

### Cornell University

Bachelor of Engineering in Electrical Computer Engineering

Ithaca, NY

Aug. 2023 – May 2026

**Related Courses:** Introduction to Algorithms, Linear Algebra, Differential Equations, Data Science for Engineers, Signals & Systems, Reinforcement Learning, Computer Architecture, High Level Synthesis, Convex Optimization

## TECHNICAL SKILLS

**Languages:** C, C++, C#, Python, Java, Rust, Swift, Go, JavaScript, Verilog HDL, SQL, HTML, GLSL, Bash / ZSH

**Technologies:** Git, Linux, Docker, VS Code, Robot OS (ROS), Cassandra, BigQuery, Numpy, Scipy, PyTorch, GenAI

## EXPERIENCE

### Teaching Assistant – ECE 4760: Microcontrollers

January 2025 – Present

Cornell University

Ithaca, NY

- Graded laboratory assignments and provided feedback to students on reports and code quality
- Assisted student groups during lab sessions with debugging hardware/software and completing experiments
- Documented pin configurations and hardware specifications for laboratory equipment to improve student workflow

### Undergraduate Researcher

June 2024 – Present

Abe Davis's Group @ Cornell University

Ithaca, NY

- Contributing to research projects as first and second author on computational photography and audio analysis
- Refactored the ReCapture iOS application, rewriting 7,252 lines of Swift to work with modern devices.

### Teaching Assistant – ECE 3250: Introduction to Signal Processing

January 2025 – Present

Cornell University

Ithaca, NY

- Conducted office hours to provide one-on-one and group support for students learning signal processing concepts
- Assisted students with assignments covering topics including Fourier transforms, convolutions, and system analysis

### Signal Analysis Intern

January 2023 – May 2023

Feinstein Institute for Medical Research

Manhasset, NY

- Automated Sharp Wave Ripple (SWR) detection using Python and SciPy to analyze EEG data
- Researched SWRs, which help predict the onset of seizures, in order to improve the accuracy of the detection

## PROJECTS

### CaptureGraph (First Author, In Preparation) | Python, DSL Design, Computer Vision

September 2024 – Present

- Designed Python-based domain-specific language for defining automated data collection procedures
- Partnering with environmental groups in Australia to deploy long-term timelapse systems for ecological monitoring

### CineCraft (Second Author, Under Review) | iOS, Mobile HCI, User Studies

June 2024 – December 2024

- Developed mobile application assisting users in capturing cinematic shots with real-time guidance
- Conducted user studies to evaluate interface design and cinematography assistance effectiveness

### Dynabox (Co-Author, In Preparation) | Audio Signal Processing, Python

June 2024 – December 2024

- Analyzed talk box audio effects to isolate mouth cavity influence on input audio signals
- Developed system to extract and apply vocal tract modifications to novel audio inputs

### iOS Application: ReCapture | Swift, SwiftUI, iOS, Json, OpenCV, Computer Vision

June 2024 – August 2024

- Rewrote ReCapture, an application that helps users take photos of subjects over time in order to create timelapses
- Implemented Computer Vision algorithms that indexed the metadata to automatically create unique visualizations