

# Sam Belliveau

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## EDUCATION

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### Cornell University

*Bachelor of Engineering in Electrical Computer Engineering*

Ithaca, NY

Aug. 2022 – May 2026

### Stuyvesant High School

*Regents Diploma with Advanced Designation with Honors*

New York, NY

Sept. 2018 – Jun. 2022

## TECHNICAL SKILLS

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**Languages:** 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

## EXPERIENCE

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### Undergraduate Researcher

*Abe Davis's Group @ Cornell University*

June 2024 – Present

Ithaca, NY

- Rewrote 7,252 lines of code to build a well documented, expandable foundation for the ReCapture project in Swift
- Implemented a dynamic database in ReCapture, allowing for the storage and indexing of 20+ forms of metadata

### Robotics Software Engineer

*Cornell University Autonomous Underwater Vehicles*

November 2023 – Present

Ithaca, NY

- Reduced CPU usage by 80% by implementing Kalman Filtering using Nvidia's CUDA framework for linear algebra
- Improved submarine movement by implementing least squares optimization for determining thruster

### Signal Analysis Intern

*Feinstein Institute for Medical Research*

January 2023 – May 2023

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

### Software Intern on Consumer Product Team

*Reddit Inc.*

July 2022 – September 2022

Remote

- Worked with Taxonomy Group, which classified the safety of +138,000 subreddits on Reddit
- Developed a script that created realistic test data in order to verify the accuracy of the safety classification models
- Improved flagging of problematic content by adding statistics to the dashboard to find content that needed review

### Software Intern on Consumer Product Team

*Reddit Inc.*

July 2021 – September 2021

Remote

- Created comprehensive unit tests to catch bugs before deploying to production
- Worked with tools such as BigQuery and Cassandra to send notifications reminding moderators to fill out surveys

## PROJECTS

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### ReCapture | *Swift, SwiftUI, iOS, Json, OpenCV*

June 2024 – August 2024

- Rewrote ReCapture, an application that helps users take photos of subjects over time in order to create timelapses
- Expanded metadata capabilities, allowing for the fast indexing of 20+ features over a large set of images

### Dolphin Emulator | *C++, GLSL, JIT Recompilation, Hardware Hacking*

September 2022 – Present

- Improved performance of emulation software by scaling frequency of video interrupt signals for low-end hardware
- Introduced 6 GPU accelerated resolution scaling algorithms to improve the image quality for all display resolution

### Flying Dutchman | *Rust, Min Max, Alpha Beta Pruning, Chess*

June 2023 – July 2023

- Developed a Chess Engine in Rust that achieved an Elo of 2700 (Grand Master level)
- Implemented Alpha Beta Pruning using high performance Rust to achieve a higher elo rating