Sam Belliveau

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EDUCATION

Cornell University   Ithaca, NY
Bachelor of Engineering in Electrical Computer Engineering   *Aug. 2023 – May 2026*

Related Courses: Discrete Structures Computer Science I-III, Introduction to Algorithms, Linear Algebra, Differential Equations, Data Science for Engineers, Signals & Systems

TECHNICAL SKILLS

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

Undergraduate Researcher   June 2024 – Present
Abe Davis's Group @ Cornell University   *Ithaca, NY*
- Rewrote 7,252 lines of code to build a well documented, expandable foundation for the ReCapture project in Swift
- Implemented a database allowing for the stoage and indexing of 20+ features over a large set of images

Robotics Software Engineer   November 2023 – Present
Cornell University Autonomous Underwater Vehicles   *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 speeds

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

Software Intern on Consumer Product Team   July 2022 – September 2022
Reddit Inc.   *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   July 2021 – September 2021
Reddit Inc.   *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

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

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

Dolphin Emulator | *C++, GLSL, JIT Recompilation*   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