# Keith Curry

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## EDUCATION

*Bachelor of Science*, Computer Science **Expected Dec 2025**
**San Francisco State University**, San Francisco, CA

*Bachelor of Arts*, General Biology **Expected Dec 2025**
**San Francisco State University**, San Francisco, CA

## ACADEMIC RESEARCH EXPERIENCE

**Bioengineering Researcher (NIH-URISE)** **May 2023 – Dec 2023**
**Project: Robocam Autofocus**
**PI: Raymond Esquerra PhD (SFSU), Tom Zimmerman (IBM)**
There are many waste chemicals that end up in our natural water sources (lakes, ponds, rivers) because they have been deemed harmless. Often, we are unable to determine how safe a substance is until the health damage has been done. In the Esquerra lab we aim to get ahead of this issue by introducing a low-cost high-throughput screening method called Robocam. Robocam is a 3D printer that has been modified to conduct experiments related to chemical pollution and its effect on microorganisms. We equipped the printer with a camera using custom printed parts, and use Python scripts to control and automate the process. To reduce the amount of user intervention needed, I developed an autofocusing algorithm with the aim of removing the need to refocus the camera mid-experiment.

**Undergraduate Researcher** **May 2023 – Dec 2023**
**Project: S-Quad Stentor Shake, Shine, Shock (NSF-STC)**
**Mentors: Mark Slabodnick (Knox College), Peter Chudinov (SFSU)**
Stentor are a freshwater ciliate that can rapidly respond to changes in their environment. Stentor also exhibits a rudimentary form of learning called habituation. In this study we tested which conditions Stentor responded to, rapid change in acceleration (Shake), their phototaxic response (Shine), and their reaction to electricity (Shock). While also measuring whether or not the Stentor could habituate (stop reacting) to these conditions. We created a modified Robocam (StentorCam) using an enclosed printer to keep light out. Using 3D printing we created a custom mount for a laser attachment that was used to shine light on the subjects, we also utilize IR illuminations in order to not add an unintended stimulus as Stentor has shown to react to visible light. Process and segment images captured using FIJI.

**Bioengineering Researcher (NIH-URISE)** **May 2023 – Present**
**Project: StentorCam V2**
**PI: Raymond Esquerra PhD (SFSU) Mentors: Tom Zimmerman (IBM), Mark Slabodnick (Knox College)**
We sought to improve upon the StentorCam used during the S-Quad project. I designed a more stable mount and way to attach a larger camera lens for more detailed imaging. I designed and engineered a replacement infrared light tray that used diffusion film and indirect light to provide even illumination. We also are updating the code base to make it more user-friendly.

**Project: FlyCam V2**
**PI: Raymond Esquerra PhD (SFSU)**
I served as the lead researcher on the FlyCam V2 project, tasked with extending the RoboCam system's longevity by modernizing its hardware platform. After evaluating available options, I proposed and led the migration to a low-cost Ender-3 3D printer, ensuring that the imaging system remained accessible and sustainable. I designed and engineered a new hardware setup, reducing overall costs and securing a reliable, long-term foundation for future high-throughput experiments.

## HONORS AND AWARDS

**Genentech Foundation Scholarship ($11,000)** **Sep 2025-Dec 2025**

Awarded to students preparing for biomedical careers through academic excellence, research engagement, and commitment to pursuing graduate education. Includes summer research internship, weekly colloquia, academic year research participation, and funding to present at a national scientific meeting.

**Dean's List** **Aug 2022 – Present**

**NIH URISE Scholarship ($28,000)** **May 2023 – May 2025**

Two-year research training fellowship awarded to undergraduates with the goal of increasing underrepresented groups in science to transition into and complete biomedical, research-focused higher degree programs. Approximately $28,000/year, covering tuition, travel, supplies and monthly stipend.

**Bengier Foundation University Scholarship ($4,000)** **Aug 2024 – May 2025**

To provide educational experiences that motivate, broaden and qualify bright, hard working young people who have limited means and limited opportunities to enlarge their expectations of what they can accomplish in life.

**Vincent Costantino Scholarship Endowment ($500)** **Aug 2024 – May 2025**

The goal of this scholarship is to provide financial assistance to students exhibiting academic promise and financial need.

**CSU Louis Stokes Alliance for Minority Participation Award** **May 2023 –May 2025**

Two-year research training fellowship awarded to undergraduates with the goal of increasing underrepresented groups in science to transition into and complete biomedical, research-focused higher degree programs. Approximately $28,000/year, covering tuition, travel, supplies and monthly stipend.

**ABRCMS Student Travel Award** **Oct 2024 – Oct 2024**

The ABRCMS Student Travel Award is open to undergraduate students, postbaccalaureate students, and community college students that will be presenting for the first-time at ABRCMS. The full travel award includes registration, housing, and travel.

## ORAL PRESENTATIONS

**Curry, K.,** Chandrasekaran, T., Gonzalez, S., Jr., Luo, J., Chudinov, P., Duong, J., Ceron, D. (2023, July). *Autofocusing for a Low-Cost High-Throughput Computer Vision System (RoboCam)* [Oral Presentation]. SFSU Summer 2023 Symposium, San Francisco, CA.

**Curry, K.,** Chudinov, P., Nesbeth, A., Ceron, D., Lee, K., Vazquez, J., Zimmerman, T., Esquerra, R., Slabodnik, M. (2024, July). *StentorCam: A Flexible High-Throughput Device for Photosensitive Subjects* [Oral Presentation]. Center for Cellular Construction, UCSF, San Francisco, CA.

## POSTER PRESENTATIONS

**Curry, K.,** Chandrasekaran, T., Gonzalez, S., Jr., Luo, J., Chudinov, P., Duong, J., Zimmerman, T., Esquerra, R. (2023, October). *Autofocusing for a Low-Cost High-Throughput Computer Vision System (RoboCam)* [Poster]. SACNAS NDiSTEM, Portland, OR.

**Curry, K.,** Chandrasekaran, T., Gonzalez, S., Jr., Luo, J., Chudinov, P., Duong, J., Zimmerman, T., Esquerra, R. (2024, January). *Autofocusing for a Low-Cost High-Throughput Computer Vision System (RoboCam)* [Poster]. Biopharma Leaders of Color – JP Morgan Healthcare Reception, San Francisco, CA.

## TEACHING EXPERIENCE

**Discussion Leader, Learning Assistant, Tutor** **Sep 2023 – Present**

*San Francisco State University Computer Science Department, San Francisco, CA*

I taught supplementary lectures to 20 students weekly in intermediate programming. This provided students the opportunity to ask questions there normally wouldn't have been space for in a 150-student lecture. I also provided help during lecture for students who may have fallen behind or show up late in order to keep them on track without disrupting class. Provided Volunteer tutoring sessions 4 times a week to help students outside of my normal class.

**Peer Mentor** **Jul 2024 – Jul 2024**

*Center for Cellular Construction, San Francisco, CA*
Participated in a 2-week experimental design course with the Center for Cellular Construction. I guided students through the process of designing experiments to quantify regenerative conditions of Chlamydomonas. Tested effects of temperature, pH, and media on flagellar regeneration of Chlamydomonas. Also assisted with guiding questions and maintaining supplies for experimenters.

## TECHNICAL SKILLS

**Programming:** Java, Python, C/C++, HTML, CSS, JavaScript
**3D Printing & Design:** Autodesk Fusion, Shapr3D, 3D Printing (CAD, FDM, SLA), G-code
**Hardware & Embedded Systems:** Raspberry Pi, Arduino, PCB Design (Easy EDA), ImageJ

## COMMUNITY SERVICE AND LEADERSHIP

**President and Founder** **May 2024 – Present**
*3D Printing and Design Club at SFSU, San Francisco, CA*
Founded club to create space for students of any background to learn computer aided design and 3D printing skills using Autodesk Fusion 360, Shapr3D, and Cura Slicer through hands-on workshops and collaborative projects. I also led recycling and sustainability efforts, and provide consulting/design services to other laboratories on campus. Regularly hosted meetings and facilitated off-campus tours to highlight the importance of skills members developed.

**Outreach Chair** **May 2024 – Present**
*Association of Computing Machinery (ACM) at SFSU, San Francisco, CA*
Mentored and managed a team of 15 outreach officers to fundraise and seek partnerships/sponsorships for ACM and its 10 sub organizations. I contacted various corporations in the SF Bay Area to garner sponsorships for student-centered activities, and secured $20,000 in funding for the annual hackathon. Coordinated with companies to host resume reviews, technical interview prep, career fairs, and hackathons.

**Career Preparation (CP) Fellow, Campus Recruiting Captain** **Apr 2024 – Present**
*Management Leadership for Tomorrow (MLT), San Francisco, CA*
Accepted into a selective 18-month professional development program for high-achieving diverse talent. Through this program I completed business case studies and assignments to grow leadership/technical skills. As Recruiting Captain I recruited top CP talent, co-hosted events, and collaborated with DEI leaders to enhance MLT's outreach

**Site Operations Manager** **Oct 2018 – Mar 2024**
*Hair Fairies: The Head Lice Helpers, San Francisco, CA*
I restructured & developed a training curriculum to adapt a customer-centric, public-health approach to business. I developed a school tracking system for lice outbreaks, and utilized this information to help schools stay ahead of outbreaks. I also increased our pro-bono services available to maximize accessibility to under-served communities. Helped destigmatize the parasites for thousands of K-12 students in the San Francisco Bay Area through education and sharing insights to highlight the prevalence of head lice throughout human history.