

Joel Castro

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EDUCATION

UC Berkeley, College of Letters & Sciences - Cumulative GPA: 3.510

May 2026

B.A. Computer Science

Berkeley, CA

Scholarships: SEED Scholar, Jack Kent Cooke, CODE2040 Fellow, eBay Pathways Fellow, Cal Alumni Association Leadership Award

Relevant Coursework: Front End Technologies, Foundations of Data Science, Structure & Interpretation of Computer Programs, Data Structures and Algorithms, Information Devices and Systems, Multivariable Calculus, Discrete Math and Probability, Computer Architecture, Optimization Models, Signals and Systems, Introduction to Robotics, Probability for Data Science

SKILLS

Technical: Java, Python, C, C++, Bash, Javascript, HTML, CSS, SQL, Git, Logisim, Unreal Engine, AutoDesk (Maya, Fusion, Inventor), Adobe Suite (Premiere Pro, Photoshop, After Effects)

Languages: English (Native Proficiency), Spanish (Native Proficiency)

RELEVANT EXPERIENCE

Carnegie Mellon University Software and Societal Systems Department

May 2024 – August 2024

REUSE SWE, Summer Intern

Pittsburgh, PA

- Developed a type theory for enhancing diagramming tools and explored a type system for diagrams, leading to submissions and presentations at SPLASH and SACNAS conferences; achieved authorship in a subsequent research publication.
- Categorically coded 150+ open-source visualization tool's source code (e.g., AMD GPUOpen, Torchview) for their data structure decomposition properties, yielding statistically significant evidence supporting our proposed diagram type theory.
- Collaborated with undergraduate peers, PhD candidates, and a CMU professor to design a human control experiment and eye-tracking study, to corroborate data observations and strengthen our theory's credibility.

Center for Computational Biology, UC Berkeley, Stellar Labs

August 2022 – May 2024

Computational Biologist, Undergraduate Research Intern

Berkeley, CA

- Updating Lab GitHub repository with corresponding documentation used in the training of 2 undergraduate peers.
- Performing Pandas, Matplotlib, and NumPy data visualization/analysis to determine protein traits that correlate with molecular binding.
- Exploring SHAP analysis on an in-lab convolutional neural network to increase its interpretability by determining which features it weighs greatest when predicting the presence of activation domains in protein.
- Streamlined all-atom Monte Carlo simulation pipeline of disordered proteins on the Savio computer cluster with Bash and Python scripting leading to a time-saving increase of over 85%.

FLIP National

May 2023 – August 2023

Web Development, Team Lead

Virtual

- Designed an interactive vector geo-map showcasing all 31 FLIP National chapters, introducing a central location for this information
- Directed a team of 3 interns in the creation of 31 pages resulting in detailed visibility of the non-profit's impact on individual campuses
- Automated mailing system's back-end utilizing the HubSpot API, causing a reduction of manual user-data manipulation of up to 100%
- Overhauled front-end mailing system's subscribe options and user-data consent collection, enabling a GDPR complaint cite

ServiceNow

May 2021 – August 2021

Software Developer, NextGxn Intern

San Diego, CA

- Followed a three-week crash course in AI/machine learning (Python) and Nine-week Service Catalog building.
- Built a productivity application, which received 2nd place in a Service Catalog creation competition judged by ServiceNow executives.

PROJECTS

Reefer | [Devpost](#)

April 2024

- Integrated the Google Gemini (LLM) API with team's custom CNN (ResNet) coral health classifier toward interpretability of predictions.
- Created front-end with Reflex framework, enabling image upload and analysis via an intuitive drag-and-drop interface.

Picture Pathway | [Devpost](#)

February 2023

- Winner of the Repl.it choice award, selected by Repl.it CEO at Stanford's TreeHacks 2023 Hackathon.
- Built a student-teacher web platform with Django the DALL-E API to generate visual mnemonics specific to student assignments.

LEADERSHIP & VOLUNTEERING EXPERIENCE

Computer Science Mentors (CSM): CS70

January 2024 – Present

Junior Mentor

Berkeley, CA

- Instructed a 1-unit supplementary CS70 course, providing additional support in discrete math and probability to small groups of students.
- Collaborated with senior mentors to develop video walkthroughs and other teaching materials to improve instructional methods.
- Recognized as Hispanic role model, fostering an inclusive learning environment and leaving a positive impact, based on feedback surveys.

(Berkeley) Anova

January 2024 – Present

Onsite tutor; Publicity Committee Member

Berkeley, CA

- Taught coding concepts in Python and Scratch to high school students weekly, enhancing their understanding of computer science.
- Developed and implemented individualized curricula to improve tech accessibility for students in under-resourced communities.