Sergio Zavala

szaval314@gmail.com • (831) 744-9190 • linkedin.com/in/sergiozavala1 • github.com/sezavala • sergiozavala.tech

EDUCATION

California State University Monterey Bay | Seaside, CA **Expected: May 2026**

B.S. in Computer Science **GPA: 3.8**

Data Science Concentration

RESEARCH

NHGRI GREAT Scholar Undergrad Researcher | University of California, Santa Cruz **June 2025 - Present**

- **Principal Investigator:** Dr. Benedict Paten
- **Project:** *TBD*
- **Description:** *TBD*
- **Relevant Skills:** *TBD*

COURSE-BASED UNDERGRADUATE RESEARCH EXPERIENCE

Undergraduate Researcher | California State University, Monterey Bay **March - May 2023**

- **Course:** MATH 170 - Discrete Mathematics
- **Principal Investigator:** Professor Lipika Deka
- **Project:** How many standard Young Tableaux are of L shape with a total of n boxes?
- **Description:** Collaborated with an undergraduate team to research L-shaped standard young tableaux, focusing on search libraries and proof methodologies.
- **Relevant Skills:** Formal proof techniques, combinatorial problem-solving, search libraries, discrete mathematics, team collaboration, mathematical modeling, data analysis, group session organization, and time management.

PROFESSIONAL EXPERIENCE

Computing Talent Initiative (CTI) | Research Software Engineer **February 2025 - Present**

- Developing a GenAI Feedback Tool, an AI system that evaluates student writing at scale using OpenAI's **fine-tuned GPT models** and function-calling for structured, rubric-aligned feedback.
- Engineered an automation pipeline integrating **Canvas LMS**, Google Docs, and **Apps Script**, running on a scheduled basis to grade blog submissions for over 100 students during SOSE continuously.

Outlier | Software Engineer AI Model Trainer **September 2024 - February 2025**

- Develop complex AI prompts to challenge and refine large language models (LLMs) for improved performance.
- Review and score contributor prompts and responses, providing critical data for model evaluation.
- Collaborate with ScaleAI to provide testing data for industry leaders like OpenAI.

EBSCO Information Services | CodeDay, Software Engineer Intern **October 2024 - November 2024**

- Under the guidance of Rutu Nanavati, a machine-learning data scientist at EBSCO, I worked in a team of two to develop an **AI** tool using the Longformer Encoder-Decoder (**LED**) model.
- We built a preprocessing pipeline using **Pandoc** to extract and clean scholarly data from arXiv's **AWS S3** bulk access, generating a structured **JSON dataset** for model training.
- Designed and deployed a **Flask API** to provide real-time summarization, allowing users to input arXiv URLs and receive concise, accurate summaries of academic content.

Oppia | CodeDay, Software Engineer Intern **June 2024 - August 2024**

- Worked with an engineer from UnitedHealth Capital and a team of 2 to fix issues on Oppia, an open-source project used by **1 million**+ users to help underprivileged students around the world receive a quality education.
- Fixed documentation errors on Mac installation instructions, resolved a critical 404 error, which led to a failed resource loading and broken functionality, and implemented a validation check using **TypeScript**.

Open Energy Dashboard | CodeDay, Software Engineer Intern **January 2024 - February 2024**

- Worked with an engineer from Hubtel and a team of 2 to contribute to OED, an open-source dashboard used by a few government agencies, along with **10k**+ users, that displays energy-related data
- Developed and executed a **JavaScript** test case to verify data accuracy in the **PostgreSQL** database by comparing it with the application's API readings. Used the **Docker** environment to implement a test case.

PROJECTS

Personal Website | *Express.js, MySQL, EJS, API* **May 2025 - Present**

- Developing a dynamic personal website with **Express** and **EJS**, featuring custom routes for pages like home, about, CV, and research.
- Integrated secure **admin-only login** functionality to restrict blog post creation and management to authorized access.
- Built with **MySQL** backend and planned **API** integrations for Spotify (music) and image albums to enhance interactivity and personalization.

Shiny Tracker | *Angular, TypeScript, Cookies, Express* **July 2024 - August 2024**

- After my **Summer Open-Source Experience**, my team and I had to learn **Angular** to contribute to **Oppia**. We created a web application to enhance shiny Pokémon hunting by providing real-time tracking and calculating the probability of finding shiny Pokémon
- Utilized **TypeScript** for type safety, calculating shiny encounter rates with precision, **HTML/CSS** for a user-friendly UI, **API** calls to retrieve game data, and **cookies** for tracking and persisting Pokémon encounters.

AITeacher | *Django, Python, HTML/CSS, Javascript* **July 2024**

- Developed an educational platform for the **Headstarter AI hack-a-thon**, providing interactive and adaptive learning experiences—implemented features such as dynamic quizzes and real-time feedback.
- Built with **Django** for the backend, used OpenAI **REST API** to generate questions and options, and utilized **JavaScript** and **jQuery** for a responsive frontend.

Econvert | *Python, Reflex* **October 2023**

- Developed a **Reflex** web application in **Python** to convert currencies given by the user to any virtual/physical currency of their choice for **CalHacks 10.0**
- The front end and back end were managed in **Python,** and conversions were requested from the AI API together.
- Implementing our API was my role in the team.

PROFESSIONAL DEVELOPMENT, OUTREACH, & MENTORSHIP

Student Accelerator | Computing Talent Initiative (CTI Accelerate Program) **June 2025 - Present**

- Supporting new student cohorts during CTI Accelerate 2025–2026 through mentoring, onboarding assistance, and technical guidance.
- Participating in summer training and program kick-off, with planned involvement in structured peer sessions to foster collaborative learning.
- Collaborating with returning SAs to deliver effective, inclusive support in workshops and community sessions.

Student Ambassador | CS++ Program **Fall 2022 - Fall 2023**

- Actively participated in community outreach events, presenting the CS++ program at local high schools to encourage students to pursue careers in computer science and STEM.
- I shared my experience as a first-generation student, motivating underrepresented students to explore opportunities in tech.
- Provided information on resources available at CSUMB and how the CS++ program helps students succeed in STEM fields.

CTI Participant | Computing Talent Initiative **Summer 2023 - Summer 2024**

- Completed two-phase program covering technical interviewing, open-source collaboration, Python/Git fundamentals, AI literacy, and career development.

- Contributed to a mentored micro-internship team, engaged in weekly deep work sessions, and attended industry-led mock interviews and tech talks.
- Built skills in teamwork, self-directed learning, and communication across diverse peer-led learning communities.

CS++ Cohort Member | CS++ Program **Summer 2022 - Present**

- Selected for the CS++ program at CSUMB, a learning community designed for incoming freshmen studying computer science. The program includes enrichment sessions, tutoring, project work, and career preparation, and provides a need-based scholarship. Participation involves a commitment to a predetermined course pathway and regular engagement in academic and professional development activities.

HONORS & AWARDS

NIH NHGRI GREAT Scholar **Spring 2024 - Present**

- Part of the NIH NHGRI GREAT program, a prestigious initiative that supports undergraduate students in genomics research and aims to diversify the workforce through research engagement and academic development.
- The program provides comprehensive support, including mentoring, professional development, and financial assistance across Spring, Summer, Fall 2025, and Spring 2026 semesters.

CSUMB College of Science Dean's List Recipient **Fall 2022 - Present**

- Awarded to students who maintain a GPA of 3.5 or higher while enrolled in at least 12 letter-graded units, with no incomplete grades or grades below a C.

SKILLS

Technical Skills:

- **Programming Languages**: Java, Python, JavaScript, SQL, Kotlin, TypeScript, bash
- **Web Development**: ReactJS, AngularJS, Spring Boot, Django, Flask, Bootstrap, Express
- **Database Management**: MySQL, SQLite, PostgreSQL
- **Data Analysis**: Pandas, JSON, API integration, NumPy, matplotlib
- **Version Control & Development Tools**: Git, GitHub, IntelliJ, VSCode, Docker
- **Software Engineering**: Full-stack development, RESTful APIs, User Authentication, CORS Configuration
- **Machine Learning**: Large Language Models (LLMs), AI prompt engineering, Data preprocessing, Longformer Encoder-Decoder (LED), sci-kit-learn
- **Testing & Debugging**: Test Cases, MochaJS, ChaiJS, Unit Testing
- **UI/UX Design**: HTML/CSS, Responsive UI Design, User-centered design, Cookies for state persistence
- **Project Management & Collaboration**: Agile practices, Team collaboration, Documentation

Research Skills:

- **Mathematics & Algorithms**: Formal proof techniques, Discrete mathematics, Mathematical modeling
- **Data Handling**: Search libraries, Data analysis, Group session organization
- **Combinatorial Problem Solving**: Standard Young Tableaux, Proof Methodologies