

SEBASTIAN CRUZ

Orlando, FL | (689) 254-8886 | scruzloaiza@middlebury.edu | [GitHub](#) | [Portfolio](#)

EDUCATION AND CERTIFICATIONS

Middlebury College | Middlebury, VT

Expected May 2027

Bachelor of Arts in Computer Science | GPA: 3.82/4.00

Relevant Coursework: Software Development, Artificial Intelligence, Data Structures, Algorithms and Complexity, Embedded Systems

Honors & Awards: College Scholar's List (Highest Academic Honors) for 2 years in a row, QuestBridge Scholar

CodePath Intermediate Web Development

2025

CodePath Intro to Web Development

2025

Google Project Management Professional Certificate

2022

EXPERIENCE

Research Assistant | Middlebury College | Middlebury VT

Summer 2025

- Contributed to [NPSV-deep](#), a machine learning project for structural variant genotyping using deep neural networks.
- Implemented InfoNCE and RINCE loss functions, improving embedding-based classification accuracy by 0.5–2.9% across 4 datasets and increasing non-reference concordance by up to 3%.
- Trained and evaluated deep learning models in PyTorch Lightning using TensorBoard, optimizing parameters such as temperature scalars and rank thresholds, and using version control to maintain working iterations.

Research Assistant | Middlebury College | Middlebury VT

Summer 2024

- Collected, analyzed, and visualized records from Town Hall meetings across 204 Vermont towns.
- Developed an interactive [R shiny web app](#) as a public, searchable database for Selectboard meeting minutes.
- Analyzed meeting minutes and audio transcripts using TF-IDF, sentiment scoring, and word frequency to uncover discrepancies.

TECHNICAL PROJECTS

Scrum Master & Developer | [MiddBin](#) | Middlebury, VT

Fall 2025

- Developed a full-stack marketplace web application using Next.js and Supabase, while collaborating via GitHub pull requests and serving as the Scrum Master.
- Designed and implemented a dynamic listing creation form with conditional inputs (categories, clothing sizes, gender, shoe sizing) and polished UI transitions to improve usability and data validation.
- Engineered a scalable image upload system using Supabase Storage, including multi-image previews, gallery views, and automatic cleanup on listing deletion and fully integrated it with listing grids and detail pages.

Embedded Systems Developer | [MiddLaundryLive](#) | Middlebury, VT

Fall 2025

- Designed and implemented a vibration-based state detection algorithm on an ESP32 board using accelerometer data, applying calibration, exponential moving averages, and tuned thresholds to reliably classify washer and dryer activity in noisy real-world environments.
- Integrated sensing logic with WiFi and MQTT communication, publishing real-time machine status updates as structured JSON payloads and ensuring data transmission from the microcontroller to the website.
- Built, styled, and deployed a React-based real-time web interface that subscribes to MQTT topics over WebSockets, visualizing machine availability instantly and enabling students to check laundry status remotely.

ADDITIONAL INFORMATION

Technical Skills: React, Git, HTML, CSS, JavaScript, C/C++, Java, R, Python, PyTorch

Other Skills: Leadership, Project Management, Event Planning, Adobe Premiere Pro

Languages: English (Fluent), Spanish (Native), Portuguese (Intermediate)

Interests: Visual Arts, Traveling, Video Games, Films