Sarah Reine Bulatao

(858)248-0627 • sbulatao@ucsd.edu • www.linkedin.com/in/sarahreinebulatao/

EDUCATION

University of California San Diego September 2021 – June 2025
Bachelor of Science in Computer Engineering

Hudson County Community College September 2017 – December 2019
Associates of Science in Mathematics

SKILL

Software/Programming: HTML, CSS, JavaScript, Python, Java, C++, MySQL
Machine Learning & Data: PyTorch, NumPy, Pandas, CNNs, k-NN, Decision Trees, Optimization (Adam, MSE)
Hardware/IoT: ESP32, Raspberry Pi, Arduino, PCB Design, Soldering
Prototyping & Design: Github, Circuit Design, Fusion 360, OnShape, 3D Printing, KiCAD, Cadence, SystemVerilog

PROJECT EXPERIENCE

Custom EEG Hardware Device Winter 2025
- Designed a 2-layer EEG PCB in KiCad with ESP32 integration and custom footprints.
- Developing Python-based firmware for SPI communication with ADS1299 to enable real-time neural signal acquisition and wireless data streaming.
- Hosted final project on: https://sites.google.com/ucsd.edu/cogs189/home

Real-Time Data pH Sensor Fall 2024
- Build a real-time data plotting pH regulation system using an ESP32-S3, custom PCB, and pumps.
- Developed a web interface using HTML, CSS, JavaScript, and Python to visualize pH readings in real time.
- Debugging PCB footprint/gpio mapping errors, improving reliability of live data streaming.
- Hosted final project on: https://final-project-team-scam.onrender.com.

DescoverMe - A Personalized ADs Display Spring 2024
- Developed a Raspberry Pi-based proximity-triggered advertising system using Bluetooth.
- Built a web app with HTML, CSS, JavaScript, Python, MySQL, and Docker for ads managed by small businesses.
- Enabled user/admin login features and dynamic ad updates.
- Source code: https://github.com/UCSD-ECE140/mvp-project-m3.

Machine Learning Colorization Winter 2024
- Implemented a Convolution Neural Network to colorize grayscale images using CIFAR-100 dataset and pass the L channel of the image into a ConvNet architecture.
- Created a 4 convolutional layer and 4 transposed convolution layer to predict the a and b channel from the L channel.
- Trained models using Adam optimizer and Mean-Square Error (MSE) loss to improve color accuracy and vibrancy. Compared the original RGB images with the colorized prediction.

EXPERIENCE

Virtual Reality Health Researcher/Volunteer | UCSD Qualcomm Institute Calit2 March 2025 – Present
- Debugging Unreal Engine Scripts for better visual overview.
- Researching and testing biometric sensors to apply with the VR Questa Headset.
- Evaluated Dispelix AR glasses in both indoors and outdoors environments with Eizo Monitor Testing.

EnVision Volunteer | UC San Diego Makerspace January 2025 – June 2025
- Guided students on 3D printing, laser cutting, vinyl cutting, soldering and other prototyping technologies, fostering innovation and hands-on learning.

College Corps Volunteer | AmeriCorps August 2023 – June 2025
- Tutored K–12 students in the AVID program, tailoring instruction to diverse learning styles to improve academic outcomes.
- Mentored at-risk youth at the San Diego Youth Shelter, promoting personal growth and emotional well-being.