Samuel **Weston**

swesto01@calpoly.edu | 916-693-8681 | Rocklin, CA

EDUCATION

CAL POLY, SAN LUIS OBISPO
BS in Electrical Engineering
Expected June 2027
College of Engineering
GPA: 3.728

OAKMONT HIGH SCHOOL
International Baccalaureate Diploma - Suma Cum Laude
Grad. June 2023 | GPA(W): 4.54

CERTIFICATIONS

STANFORD, DEEPLEARNING
- Advanced Learning Algorithms
- Machine Learning Specialization
- Unsupervised Learning, Recommenders, Reinforcement Learning
- Supervised Machine Learning: Regression and Classification
- Used: **Python, Jupyter Notebooks, NumPy, Matplotlib, Tensorflow, PyTorch, Scikit-learn**

COURSEWORK

APPLIED
Electronics Manufacturing Lab
Circuit Analysis Lab
Digital Design - FPGAs

LANGUAGE

Fluent - English, Spanish
Global Seal of Biliteracy - French

LINKS

github.com/westonsam
linkedin.com/in/westonsamuel

EXPERIENCE

MONITORING PLANT DISTRESS USING ML | Paid Researcher
May 2024 - September 2024 | Cal Poly, San Luis Obispo, CA

- Developed a **C++ (20)** system in **NuttX RTOS** to remotely record and save audio, video, and timing data to **persistent storage**.
- Engineered a **TensorFlow Neural Network** in **Python** and **Jupyter Notebooks** to analyse data and detect unhealthy plants.
- Designed and **reflow soldered** a **PCB** for **ultra high frequency microphones**.
- Modified **clock speed** and **pin configurations** with a custom **Li-Po Cell power management system** to maximize battery life.
- Used **Solidworks** to design and **3D print** a hydroponic safe circuit enclosure.

PROJECT OWL | Paid Researcher
May 2024 - Present | San Luis Obispo, CA

- Converted and expanded **Arduino** codebase to **C++ (20)** for transition to Pi-5 and Pi-0 **Ubuntu** environments for **SDR LORA Mesh Networks**.
- Designed and implemented **inter process communication (IPC)** protocol using **Rabbit MQ**.
- Wrote onboarding guides for OWL Integration's CDP networking protocol.

ALGAE BIO-FUEL RESEARCH | Researcher
September 2023 – Present | Cal Poly, San Luis Obispo, CA

- Working on achieving and documenting algae cell lysis using **Pulsed Electric Fields** - formerly sponsored by **Boeing**.
- **Update**, **maintain**, and **document** a **C++ (18)** codebase and **MOSFET** circuit.
- Improved algae insertion techniques and sterilization procedures for <30 micron ITO testing chambers using capillary action techniques.

E-COMMERCE STORE & DASHBOARD | Freelance Developer
June 2023 | Rocklin, CA

- Developed administrator dashboard in **Typescript**, **React**, and **Tailwind** for users to create, customize, and manage their e-commerce website portfolio.
- Created a site-generation program using **NextJS** within the dashboard, reducing customer development time for new E-commerce sites by weeks.
- Used a **MySQL Database** to implement **persistent static data storage** to store project assets and manage stores, billboards, and products.
- Implemented **API hooks** in **React** to support extensions and scripts.

IDTECH | Freelance Developer
Spring 2023 | Rocklin, CA

- Created and designed an OTA firmware update packet required for secure POS devices compliance with PCI Security requirements.
- Engineered **CLI tools** using **C++ (20)** and **GCC** for optimized **package compression** and **checksum hash** for use on **Jenkins Linux Build Servers**.
- Used GTEST to build a CLI tools verification plan including test scenarios for **checksum**, **JSON/XML** formatting and **binary compression**.
- Set the scope of the project, identified acceptance criteria, defined delivery schedule and delivered installation guides for user onboarding

VIRTUAL MEMORY MANAGEMENT | Independent Paper
September 2022 - May 2023 | Roseville, CA

- Examined how **page size** affects the algorithmic efficiency of **virtual memory management algorithms**.
- Completed a **structured theoretical review** of existing research, followed by methodological experiments and evaluation of results and findings.
- Modified the **Linux boot GRUB configuration** for different page sizes and ran **diagnostics tests** under simulated and real workloads written in **C++ (20)**.