Newt Powers

+1 (310) 567-7102 | njpowers21@gmail.com | github.com/newt-powers | linkedin.com/in/newt-powers/

Education

Santa Rosa Junior College, A.A./A.S. Environmental Studies, Computer Science | GPA: 3.03 **May 2025**
Cornell University, B.S. Electrical and Computer Engineering | GPA: 3.14 **Aug 2021-May 2023**
Relevant Courses: Climate Change and Engineering, Environmental Science, Environmental Justice, Web Development I, Intro to MATLAB, Data Science, General Chemistry, Calculus I-III, Linear Algebra

Skills

Software: AutoCAD, ArcGIS, QGIS, Microsoft Excel, Final Cut Pro, iMovie, Adobe InDesign, Canva
Programming Languages: C, C++, Python, Verilog, VHDL, MATLAB, Linux, Powershell
Technical Equipment: Quartus, Xilinx Vivado, FPGAs, Arduino, Raspberry Pi, Jetson Nano, 32 Bit ARM Dev Board, PCB Layout, Schematic Capture, Oscilloscope, Function Generator, DC Power Supply

Professional Experience

NASA, *Electrical Engineering Intern* | Presentation Link **Jan 2024-May 2024**
- Created a counting method to calculate and store accelerometer frequencies in 6 registers using VHDL to obtain more precise angle measurements for aeronautics applications
- Wrote a script for SPI communication for a 96 bit signal transmission using MISO line and the clock

Raytheon, *Systems Engineering Intern* **June 2023-Aug 2023**
- Performed AN/TPY-2 radar simulations utilizing Linux and reported errors to the hardware team
- Developed a script to plot simulation objects to aid in future regression efforts for 10 deployed radars
- Analyzed 6 MATLAB script errors to root cause issues to ensure test functionality for future analysts

Extracurricular Experience

Cornell Engineers in Action, *Project Manager, Quality Control Engineer* **Oct 2021-May 2023**
- Built a 100 meter footbridge in Eswatini, Africa over 6 weeks while measuring tier heights, mixing concrete to the correct ratios, bending rebar, and documenting as-built dimensions for a drawing set
- Led 30 student team and craft weekly meeting plans while communicating review call deadlines, writing legal chapter agreements, and helping raise over 20,000 dollars
- Drafted abutment drawings in AutoCAD and ensured 30+ factors of safety were met using an Excel spreadsheet to allow safer crossing over a river during increasing flooding due to climate change

Cornell Autonomous Drone, *Electrical Engineering Subteam Member* **Oct 2021-May 2023**
- Breadboarded a motor control rig circuit and wrote a script in C++ that conducted thrust calculations with a potentiometer and an Arduino microcontroller
- Analyzed a digital signal from a speed controller with an oscilloscope to find flaws in motor initiation
- Programmed a virtual controller by emulating drone channels and sending data to a Raspberry Pi

Chadwick School Sustainability Council, *Co-Leader* **May 2018-May 2021**
- Presented to over 400 elementary school students about how climate change creates fire risks
- Advocated for and helped pass a city-wide styrofoam ban at the Redondo Beach City Hall
- Formed seed pods and threw them on cliffside ecosystems to establish native plant populations

Research Experience

Palos Verdes Peninsula Land Conservancy, *Research Intern* **May 2018-May 2021**
- Founded a study monitoring the host plants of the endangered Palos Verdes Blue Butterfly using ArcGIS, ultimately analyzing the data to present to the city for the optimal reintroduction locations
- Educated 75+ volunteers on the local flora and fauna and using tools like weeding forks, trowels, and shovels while removing invasive plant species and planting native species like poppies

University of Colorado Boulder, *Research Intern* | Poster Link **June 2019-Jul 2019**

- Designed a printed circuit board for a Yagi-Uda antenna transceiver in Autodesk Eagle, placing electrical component pads and making connections to top and ground wires
- Simulated a 10 director wire antenna design using 4nec2, resulting in a 43.8% increase in the horizontal gain, increasing the efficiency of signal transmission at the 150 MHz frequency
- Searched through technical specification documents to find capacitors and inductors of the correct dimensions that use the least power and are the most cost-efficient

Publications

Analyzing Oscillations on a Bridge, *Lead Author* **June 2020-Jan 2021**

- Derived mathematical model to determine when bridges collapse due to uniform impulses and graphed the oscillating, resonant behavior using Python's matplotlib library
- Powers, N., & Goldsztein, G. (2021). Analyzing Oscillations on a Bridge. *Journal of Student Research*, 10(4).https://doi.org/10.47611/jsrhs.v10i4.2046

Volunteer Experience

California Homemaker's Association | Organization Website **Aug 2024-Present**

- Canvassed 100+ homes to promote CHA's mission to end poverty for part-time, seasonal, and temporary workers in Sonoma County while signing up members and discussing economic conditions
- Designed flyers using Adobe InDesign for educational events and prepared meals for other volunteers

Projects

NPTech, *Founder, Content Creator* | Channel Link | Instagram Link **Jan 2024-Present**

- Surpass 4000+ views and 115+ likes across platforms making short-form educational content on environmental technology while editing using Final Cut Pro and iMovie
- Designed graphics and wrote descriptions of environmental news for 66 Instagram posts using Canva

Soil Moisture Sensor App | Demo Link **Apr 2024**

- Utilized an Arduino and a soil moisture sensor to alert users when they need to water their plants
- Read moisture data into a Python script over a serial port and sent the value to a MongoDB database
- Built a website for analytics, winning People and Planet Hack out of 100+ participants and 27 teams

Embedded Accelerometer Game | Article Link **Apr 2023-May 2023**

- Mapped tilting of an on-board accelerometer to the horizontal motion of a spaceship avoiding asteroids with button interrupts for a reset button using C, transmitting data through a USB interface
- Created a random spawn algorithm and collision logic for 8 game objects in Python using Pygame

Honors and Awards

- Granted the 20 under 20 award by the South Bay Magazine for my environmental extracurriculars
- Won the Nicodemus Wilderness Project Apprentice Ecologist 2020 Awards for "exceptional personal leadership, initiative, and environmental stewardship" (#1/63 photo essays)
- Named a Audobon Youth Environmental Steward for 100 hours of environmental community service
- Scored 26th in the United States for the 2021 Science Olympiad Circuits Lab event by studying op-amps, Wheatstone bridges, and RC circuits