Sofia Echavarria

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EDUCATION

Cornell University, College of Engineering, Ithaca, NY **Expected December 2024**

Bachelor of Science, Electrical and Computer Engineering, GPA: 3.557

Relevant Courses: Embedded Systems, Digital Systems Design Using Microcontrollers, Network Systems and Games, Sustainable Engineering, Data Science for Engineers, Probability and Inference, The Earth System

RELEVANT EXPERIENCE

Arcadis, San Francisco, CA, *Environmental Engineering Consultant Intern* **June 2022, Present**

- Testing IoT emerging technology for use in variety of Arcadis environmental remediation project sites
- Conducting field measurements using a variety of sensors and measurement tools
- Developing digital twins' data solutions for large-scale projects with 100+ sensors and field events to better map and understand large datasets
- Retrofitting systems (from small to large scale) with up-to-date cybersecurity protocols and equipment

Bioreactor Control System Research and Retrofit, Cornell University Department of Environmental and Civil Engineering & Department of Electrical and Computer Engineering, *Researcher* **January 2022 – May 2023**

- Developing an autonomous woodchip bioreactor that increases nitrate removal by overcoming limitations to denitrifying microbial metabolisms while utilizing IoT technology and feedback control to optimize performance
- Creating a flexible blueprint for implementing IoT and real-time control methods in woodchip bioreactors to facilitate the uptake of these technological innovations among farmers
- Calibrating, testing and maintaining digital, analog and SDI-12 sensors
- Retrofitting these sensors and modules to function with Arduino technology (pr to increase cost accessibility and easier implementation of the system
- Leading the development of the IoT system which will enable weather forecasts to control automated and pro-active preparation for high discharge storm events through carbon pumping & water drainage

RMS Energy Consulting, Los Angeles, CA, *Environmental Engineering Consultant Intern* **May 2019-December 2021**

- Connecting academia and start-ups with the Southern California utilities to test, implement and commercialize emerging energy and sustainable technology on a wide scale.
- Leading a first of its kind project, which tests a direct current to DC-to-DC solar power solution
- Conducting critical market research activities to support engineering findings and calculations including providing valuable support on the Water Energy Nexus workpaper measure amongst other emerging technology projects for Southern California Edison, Pacific Gas and Electric and San Diego Gas & Electric.
- Compiling 45-page technical report and analysis on project I managed and presented to senior management and stakeholders (should be published January 2023).
- Developed measurement and verification plans for a variety of in the field or lab projects.
- Applied to and successfully won a $4 million DOE Electric Vehicle grant with Stanford's National Energy Lab

Medium Design Collective, Cornell University, *Engineer/Designer/Researcher* **August 2021 - Present**

- Supports the development, researching, designing and prototyping for the semester-long design challenge

ADDITIONAL EXPERIENCE

AGU Ignite Talk, NASA & ESIP Sponsored Talk, *f(diversity)=Woodchip Bioreactor+ Carbon Dosing* **December 2022**

- Scientific storytelling event at the American Geophysical Union Conference
- 5-minute-long presentation with 20 slides and with the slides advancing automatically every 15 seconds
- Presented about the connection between my research automating a carbon dosing system for woodchip bioreactors to increasing diversity through supporting young minorities in stress periods and times of transition
- To watch the presentation, go to https://www.youtube.com/watch?v=I3I0x3Xonm4&list=PL8X9E6I5_i8jx5mw3SHmtMNlP3kqfgar9&index=4

Semiconductor Research Corporation Scholar, Intel, IBM and Texas Instruments Sponsored Research, **August 2022 – May 2023**

- Funded undergraduate research conducted during the schoolyear on the bioreactor control project

SPECIALIZED SKILLS

Programming Languages: Java, MATLAB, C# for Arduino, Python, Verilog & Quartus

Fabrication Skills: 3D printing, drilling, sawing, wiring, soldering, multimeters, circuit design, and oscilloscopes

Design Skills: Proficiency in drawing, print design, understanding principles of design through visual arts, Photoshop & Illustrator experience, ecad (circuit design)

Interpersonal Skills: leadership, communication, project management skills, MS Office (Excel, PowerPoint etc), grant writing, academic & scientific writing