



FACULTY MENTOR

Curt Schurgers

PROJECT TITLE

Engineers for Exploration

PROJECT DESCRIPTION

Engineers for Exploration or E4E (<http://e4e.ucsd.edu>) is a one-of-a-kind program promoting multidisciplinary and collaborative research projects with the broad goals of protecting the environment, studying wildlife, uncovering mysteries related to cultural heritage, and providing hands-on learning experiences. We team student engineers with scientists from a wide range of disciplines, such as ecology and oceanography, to create innovative technologies that are deployed around the world. Our projects have seen us collaborate with scientists at the San Diego Zoo Wildlife Alliance, Scripps Institution of Oceanography, National Geographic, and various other institutions. Our goal is to develop prototype systems that are then jointly deployed in the field, providing the engineers with the real constraints of practically deployable systems and the domain scientists with the new technological tools they critically need. Last year, students worked on projects that included machine learning to detect bird species in audio recordings and to study the extent of mangroves in aerial imagery, underwater camera systems, and associated image processing algorithms, a system to monitor animal sleep cycles, and much more.

This project will be in person.

INTERNS NEEDED

10 Students

PREREQUISITES

- We place a high value on prior experience, specifically related to system building and software development. This could be, for example, working with machine learning, embedded software (e.g., Raspberry Pi, Jetson, etc.), image processing, etc.
- In your application, include all relevant experience and describe in detail what you did. If you enjoy flying drones, making stuff, and learning new things, explore how you might contribute to one of our projects. Enthusiasm and motivation are key.



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PROJECT TITLE

Software Development for Pedagogical Use

PROJECT DESCRIPTION

The goal of this project is to develop and expand on a set of software tools that were created to help instructors in the classroom. One of these tools is a web-based student response system built using Firebase that allows students to vote with their smartphones. This system needs to be expanded and made more robust, with new features added. In addition, we will explore how we can make this system standalone by relying on Wifi hotspots. The project may further be expanded to involve the creation of new software tools for pedagogical uses as well.

This project can accommodate both remote and in-person students.

INTERNS NEEDED

2 Students

PREREQUISITES

- Students need some experience with front-end web development and JavaScript. Having worked with Firebase is a plus.
- Please indicate any relevant software development skills and experience on your application.