

OCEANS '18 Charleston

SAG Final Report

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Overview

In October, 2018, I attended the OCEANS '18 conference in Charleston, SC. I attended because a project I worked on had been accepted into the student poster competition. While at the conference, I was able to attend multiple talks ranging on topics from marine robotics to the future of oceans on Earth. In addition to attending these talks, I was able to pool the research I'm working on with professors and researchers I met at the conference and gain insights into ocean engineering that may impact my own work.

Research at Olin

For the past year, I've been working on a robotic fish research project at Olin. The fish we've been working on could potentially serve as a swarming agent, and swarms of these robotic fish could be used to collect data samples of marine environments as well as inspect small pipes. In the spring, the student who had already been working on this project submitted an abstract to the conference's student poster competition, and it was the only undergraduate project out of twenty accepted projects. Once the abstract was accepted, we spent the summer writing a paper for the conference and the other student made a poster for the competition, which was on display for the duration of the conference.

The Conference

There were a number of interesting events during the time that I was there. There were two really interesting keynote talks - one in which there was a video conference call with U.S. Marines in submarines, and another with a video conference call with a U.S. astronaut on the International Space Station (ISS). It was interesting to see the facilities on the submarines and ISS that are used for research. The marines showed footage of robotic arms extending from the submarine to take samples for analysis, and the astronaut talked about scientific experiments done on the ISS. I particularly enjoyed hearing about a school program in which elementary and middle school students can control a camera on the ISS and see live footage, and older students in college can submit experiments to be conducted on the ISS. I really appreciate this outreach program that can excite young students about STEM fields.

In addition to keynote talks, there were a variety of technical sessions that consisted of four presentations from different groups that centered around similar topics. My favorite technical session covered biomimicry and biorobotics. This session included four talks by representatives from various graduate student research groups from around the world. Hearing about their approaches to marine robotics and biomimicry and asking them questions about their methods provided inspiration for ways to continue with our robotic fish project as well as potential other projects that could potentially be done at Olin. After this technical session, I had the opportunity to speak with a professor who leads one of these research groups about the work done in his lab as well as the work I've done at Olin and discuss similarities in our research and interests.

Reflection Piece

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When I arrived at Olin, I knew that I wanted to do research, but I wasn't really sure what the field was like. As I was working on the project last year, I grew to really enjoy research and I was beginning to enjoy the idea of pursuing a career in research, but I still didn't know much about research outside of Olin. When the opportunity arose to attend a research conference, I was really excited to learn how conferences work and what a research career might look like.

At OCEANS, I explored how the conference worked, companies that work in ocean engineering, and other student research projects. I had the opportunity to view research of other students and work that companies are doing, and reflect upon my own research at Olin. Seeing the variety of work being done in ocean engineering, particularly biology inspired marine robotics, was very helpful in understanding the need for these robots for ocean research and what has already been done. A lot of graduate students are working on projects similar to the robotic fish that we have been working on, which was encouraging and also provided insight into progressing with our project.

Overall, the conference was a positive experience and a great platform for gaining an understanding of what potential avenues there are for pursuing research beyond undergraduate education as well as what to expect if I decide to submit for a student poster competition or technical session at a conference in the future.