Community & Outreach

Part of MIT Arcturus' mission is to share our technology with the MIT and Boston/Cambridge community. In general, we've found the most success finding audiences as a part of larger events or in bodies of water with high foot traffic. This makes sense since it's usually easier to bring robots to people where they're at than ask them to go somewhere else to see them. Nonetheless, we also think it's great to invite the community to see what's going on inside of MIT, which has only recently reopened to the public since the COVID-19 pandemic. As such, we've run 40+ tours of the MIT Sea Grant Lab this season, reaching hundreds of students, parents, academics, industry professionals, and curious community members! Because we often showcase our work at MIT, it's very common for us to meet people who have never heard about autonomy and people who have been studying for autonomy for most of their life in the same afternoon. Autonomy is often unfamiliar to those not interested in engineering, so we work hard to cater to all levels of background knowledge during our outreach events. Here are some examples of events we have attended so far this season from our blog series!

MIT Corporation Demo (October 6th, 2022) by Audrey Chen

Arcturus recently did a demo at the MIT Sailing Pavilion of our two vessels, *Athena and Ship Happens*. This was as a part of a broader kickoff weekend for the MIT Corporation, the governing body of the Massachusetts Institute of Technology and board of trustees. Joining our vessels were several research platforms from the MIT Marine Autonomy Lab, which was working on a robot coordination project between several identical surface vehicles. It was great to get to know more of the faces behind the institute and meet many of the others working in marine engineering!

Video of us in the water:

https://drive.google.com/file/d/1-q26KVcbuOqjzGxpm_NN68Eq5fuvIt05/view?usp=share_link

Cambridge Science Festival (October 9th, 2022) by Erin Menezes

Arcturus participated in the <u>Cambridge Science Festival</u> located in Kendall Square, right on the edge of MIT's campus. We were part of the Robot Zoo section of the festival, which was a fantastic opportunity to show off our autonomous surface vehicle to the Cambridge community and introduce them to MIT newest project team. We had a fun time explaining what "autonomy" means to many families who visited, and the kids were especially fascinated by our ball launch system and LiDAR mount. It was amazing to also meet local researchers who had great ideas to share with us, and also a high school robotics team who told us all about the robots that they were building.

Overall, it was a very fun and educational day, and we look forward to participating in the future! Thank you CSF!



Aluminum Cobblers (November 6th, 2022) by Audrey Chen

The Aluminum Cobblers, a FIRST Tech Challenge team from Natick High School, reached out to us after meeting us at the Cambridge Science Festival. We offered them a tour of MIT Sea Grant, giving them the opportunity to see some of the awesome research projects we're working on including Flippy (the autonomous oyster bag flipper), Zippy (the zipline-mounted coastal monitoring robot), the underwater high speed camera rig (capturing footage of fish at 20,000 frames per second), and the SeaPerch II program (which teaches K-12 and first year college students how to build and program remotely operated underwater vehicles).

We also got to give them some tips on how to effectively run a team of different levels, overcome obstacles, and work with the 3 other robotics teams they share a space with. We also closed out with a design review of their modules on their robot. So many of us had also done FTC or FRC robotics in high school, so this was an awesome blast from the past for us. We really enjoyed sharing what we've learned about building robots (and robotics teams!) with them!



Blue Innovations Symposium (January 24th, 2023) by Wendy Sun

On Tuesday, five of us from Arcturus attended the <u>Blue Innovation Symposium</u> in Rhode Island, an annual event centered around marine technology and the blue space. This event brought together marine technology experts, investors, and companies, which was a valuable opportunity for us to learn about the most advanced technologies in the blue space field and the future steps of development.

A highlight was that we got to meet Dr. Jim Bellingham, the executive director of the Institute of Assured Autonomy at Johns Hopkins University. Dr. Bellingham founded the MIT Autonomous Underwater Vehicle (AUV) Lab in 1988 which is part of the MIT Sea Grant. After Dr. Bellingham was very happy to share with us his previous experience working at MIT Sea Grant and founding the AUV Lab.

After the speaker panel, we also met many startups with innovative marine technologies covering different aspects of the blue space. Among the companies we met, Juice Robotics mainly focuses on AUV; Net-Zero Edge provides subsea data; Shift Environmental Technology runs various projects on coastal technology and coastal resource management, such as the

Coastal Incident Management System that aims to reduce incidents' impacts; and Sensor Technology produces acoustic sensors.

Seeing how these startups create different technologies to contribute to the blue space also emphasized an important theme of the event — to maintain and even improve the health of the ocean ecosystem. One of the projects that really spoke to this theme was Net-Zero Edge's data center, which uses subsea data centers that can reduce not only energy costs but also CO2 emissions. It is also our goal to learn from these pioneers in the field and develop autonomous on-surface and underwater vehicles that are environmentally responsible.

Overall, we thought the Blue Innovations Symposium was a wonderful opportunity to meet those interested in the Ocean Engineering space and learn more about where our technology might be applied in industry.



ProjXpo (February 10th, 2023) by Jessica Lam

Today several members of the team presented our work at ProjXpo, the final expo for ProjX. ProjX has supported Arcturus for two semesters now, giving us and other students small amounts of funding to create their own personal projects. We brought both of our boats, *Ship Happens* and *Athena*. We also showcased the newly renovated hull for *Ship Happens* with the azimuth thruster pod integrated. We also brought along our newly-manufactured ball launcher to shoot balls into the audience. It was also a great opportunity to hear about the other student-led projects on campus!

Because ProjX ran right next to the <u>XFair</u>, MIT's spring semester career fair, we also had the opportunity to meet many companies which work in naval construction, sensing, or autonomy. As a new team, these connections are precious to us, and we're always looking for new sponsors and mentors. We met so many people who were interested in our technology, and we're excited to follow up with them and further these relationships!