



LSSU Team AMORE: Community Outreach

A key objective of the RobotX program is to strengthen and enhance the community. Teams are encouraged to participate in educational outreach activities and describe those activities here. Maximum 500 words

Team AMORE takes great pride in our involvement with the local community, hosting various demonstrations and educational opportunities throughout the year. While Team AMORE's initial goal was to focus solely on the Maritime RobotX challenge and Roboboat competition, the team has leveraged resources to advance the field of marine robotics by hosting various educational events and conducting research in partnership with Lake Superior State University's Center for Freshwater Research and Education (CFRE).

Through two senior projects dedicated towards freshwater research using unmanned surface vessels, Team AMORE has built a strong working relationship with CFRE and non-engineering majors. The first senior project focused on freshwater research was centered on using the Wave Adaptive Modular Vessel (WAM-V) to autonomously conduct water quality monitoring. The water quality research was overseen by a conservation biology student, who had a major impact on the outcome of the project. This project resulted in a research paper that was published and presented at IEEE/MTS OCEANS 2024. A new senior project has been established this year that will utilize a Blueboat from BlueRobotics to conduct bathymetric mapping autonomously in Lake Superior. This project looks to contribute to the Lakebed 2030 project led by the Great Lakes Observing System (GLOS). This project looks to create a high definition bathymetric map of the Great Lakes, as only 15% of the lake floor has been mapped at high-density. The Blueboat will also be used to conduct bathymetric mapping of inland lakes such as those seen at Greenwood Wildlife Sanctuary in Indian River as part of our partnership with the Greenwood Foundation. Outside of senior projects, our autonomous kayak that we have brought to the Roboboat competition has been used to conduct zooplankton sampling. The samples that were collected were brought back to CFRE for analysis. Two conservation biologists took part in this research at Greenwood in collaboration with Team AMORE.

Team AMORE also holds various educational outreach events throughout the year. Most recently, a local FIRST Lego League team was invited to a demonstration of our autonomous kayak and were given a tour of the LSSU engineering facilities. The team has brought both the WAM-V and autonomous kayak to various educational events held at CFRE for local high schools and career and technical education (CTE) centers. The team has had a strong relationship with the local FIRST robotics team #1596, having members of the club serve as mentors. The team has regularly volunteered at the International I-500 Snowmobile race; the largest, longest single-day snowmobile race in the world. The team manned a booth and assisted with various race day responsibilities. Over the summer, the team participated in the local Engineers Day, where they manned a booth to promote the team and the university engineering department. Starting this year, the team has created a lecture series on topics related to marine robotics. These lectures are open to everyone, not just engineering students. Finally, Team AMORE hopes to continue this lecture series to garner more interest in the field of marine robotics.