

MSC NEWSLETTER – MARCH/APRIL 2017



MSC completes DHS S&T biennial review. MSC completed a multi-phase biennial review organized by DHS S&T's Office of University Programs. The process included a series of preliminary activities leading to a three phase review including, a Letter Review, a Federal Coordinating Committee (FCC) Review, and an OUP Management Review.

The FCC Review took place on March 15, 2017, at the USCG Headquarters in Washington, DC. The Center's research projects and educational portfolio were assessed and determinations regarding which projects are to move forward were made. Updates to the Center's research project and educational program portfolio are currently being implemented in preparation for the start of the Center's next fiscal year, beginning July 1, 2017.

UTRGV faculty and students to conduct VR-based research at the MSC in Hoboken, NJ. Dr. Alley Butler, Professor in the Department of Manufacturing and Industrial Engineering and two graduate-level students from the [University of Texas Rio Grande Valley \(UTRGV\)](http://www.utrgv.edu) will explore the use of virtual reality (VR) hardware to increase maritime domain awareness and to advance the response capabilities of homeland security practitioners.



The research project will assess the use of VR to visualize imaging sonar data collected by Stevens Institute of Technology's remotely operated vehicles (ROVs) to develop a 3D virtual environment that displays what an ROV might see when inspecting a ship hull or pier piling for parasitic devices. The goal of the project is to begin to develop an environment that replicates a range of operational underwater conditions (e.g. cloudy water, rough currents, narrow and constrained spaces, etc.) that can be used to better prepare ROV operators to conduct inspections in complex underwater environments in preparation for a real-time event.

Dr. Butler and his team's research is being funded through a DHS Minority Serving Institution (MSI) Summer Research Team (SRT) grant. To learn more about the MSI SRT program, please visit the following link: <http://www.orau.gov/dhseducation/faculty/>.



Dr. Alexander Sutin (L) and Dr. Barry Bunin (R) congratulate MSC Graduate Research Assistant, Blaise Linn, after the successful defense of his master's thesis.

Maritime Security students present master's theses and prepare for positions in the homeland security enterprise. Tyler Mackanin, a DHS Career Development Grant Maritime Security Fellow and Blaise Linn, Graduate Research Assistant each presented their master's theses this past week for an audience of Stevens faculty members, students and MSC research PIs at the Maritime Security Center.

Tyler's thesis titled *Arctic Ice Sound Detection and Localization* explored the use of underwater passive acoustic systems to determine how ice-generated sounds can be identified and localized to provide information that will enhance maritime domain awareness for vessels transiting the Arctic. [Click here for an abstract of Tyler's research.](#)

Blaise Linn's thesis titled *Requirements and Hardware Elements for an Acoustic Smart Buoy* examined system requirements and components needed to build a low-cost, wireless passive acoustic system capable of detecting and classifying small vessels, and transmitting alerts to a command center. Blaise's research analyzed small boat detection distances and ambient noise-levels. [For more information on Blaise's research, click here for an abstract.](#)

Both students will complete their degree requirements in early May to receive a master's degree in Maritime Systems with a Graduate Certificate in Maritime Security. The students are actively pursuing employment opportunities within the homeland security domain.

MSC to hold 8th annual Summer Research Institute. Starting June 5, 2017, MSC will host 22 undergraduate and graduate-level students in the Center's 8th Annual [Summer Research Institute](#). The Engineering and Science students will represent seven US universities including Elizabeth City State University, Northeastern University, Stevens Institute of Technology, SUNY Maritime, University of Alabama-Huntsville, University of Alaska-Anchorage, and the University of Texas Rio Grande Valley.

Throughout the eight-week program, students will work in conjunction with MSC research PIs and Stevens faculty members on projects related to arctic acoustics, maritime cybersecurity, ROVs in maritime and port environments, and Virtual Reality-based applications for maritime domain awareness.



MSC presents multi-use capabilities of Acoustics research at IEEE 2017 International Symposium on Technologies for Homeland Security. MSC Doctoral Fellow, Alex Pollara and Dr. Alexander Yakubovskiy, Research Engineer, presented two papers at the [IEEE 2017 International Symposium on Technologies for Homeland Security](#), held April 25 -26, 2017 in Waltham, MA. The papers discussed MSC's and Stevens' use of passive acoustic systems to detect and classify vessels and to support CBP agricultural specialists to detect invasive species and harmful pests in wood packing material and agricultural products at US ports of entry.

Citations for the two IEEE Symposium papers can be found on the MSC website at: <https://www.stevens.edu/research-entrepreneurship/research-centers-labs/maritime-security-center/reports-publications>.

MSC to announce new RFP for Maritime Security Research. The Maritime Security Center (MSC) will soon release a new Request for Proposals (RFP) for Maritime Security Research. The RFP is intended to address current and emerging concerns in the maritime domain in the following areas:

- Maritime Risk, Threat Analysis, and Resilience
- Maritime Domain Awareness (MDA)
- Maritime Technology
- Integration of Science and Engineering with Maritime Security Governance and Policy

Funding is expected to include up to \$300,000 over a two year performance period. Stay tuned for further announcements. MSC aims to announce the call for proposals by July 1, 2017.

Maritime Security Center
www.stevens.edu/msc