THE STEVENS INDICATOR

SPECIAL ANNIVERSARY ISSUE

SPRING/SUMMER 2021 ✦ THE MAGAZINE OF THE STEVENS ALUMNI ASSOCIATION

STEVENS AT 150

A proud past
A promising future

How can the U.S. protect its waterways?

Hady Salloum

The Maritime Security Center and the Sensor Technology and Applied Research (STAR) Center Director Hady Salloum is leading a team to develop a cost-effective underwater acoustic sensor system for commercial port and waterway security and operations. The project is funded by a $3.3 million contract from logistics technology company iModal Ground LLC.

Building upon a Stevens-patented technology called SPADES (Stevens Passive Acoustic Detection System) initially developed for the U.S. Navy, this portable passive listening system uses underwater microphones to detect, classify and track divers and small watercraft by sound frequency. Sensor data is processed by algorithms, which compare the data to sound libraries and trigger alerts as appropriate.

Potential applications include intruder detection, toll collection, supply chain efficiency and cruise ship passenger safety. The underlying technology has also been modified by Stevens for submersible, unmanned aerial systems, aircraft and invasive insect detection.

The new prototype improves upon the original designs while taking advantage of advances in signal processing, sound technology, hardware and software. The STAR Center team is also engineering certain components in-house to make the product lighter, smaller, and cheaper to manufacture.

Stevens STAR Center researchers deploy a passive acoustic sensor in the Hudson River.

This higher-performance system will be faster, leaner, more accurate, more rugged and lower maintenance, Salloum says, while significantly lowering the bar to entry to technology previously available only to the military or large enterprises.

The team aims to have the prototype built, deployed, tested and refined by 2022. — *Kellie Walsh*