

# NAVY SBIR TRANSITION PROGRAM

# SPOTLIGHT

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## Sarcos Guardian® Robotic Systems Prove Revolutionary in Shipyard Operations

By Eric Radulski

Sarcos Guardian® robotic systems are transforming the face of shipyard operations for the better. The company's groundbreaking robotics technology is leading the charge in revolutionizing the shipbuilding industry, making it safer and more efficient and effective.

In September 2022, Sarcos Defense, a wholly owned subsidiary of Sarcos Technology and Robotics Corporation (Sarcos), completed a field trial for the U.S. Navy at the first-ever Repair Technology Exercise (REPTX)-2022 at the Naval Base Ventura County in Port Hueneme, California. The event showcased and assessed several ship maintenance technologies. Over 60 technology companies, government, and academic laboratories from around the world participated.

During REPTX, Sarcos performed field tests on the ground and at height using a suite of their solutions, notably the Guardian XT and Guardian XM robots, the Guardian Sea Class underwater robotic system, and the Guardian S visual inspection robot. Built to perform maintenance, inspection, and repair activities, Sarcos' robotic systems are capable of operating on ships that are both underway and pier side, helping Navy sustainment teams tackle construction, maintenance and decommission jobs in the most extreme working conditions.



Photo courtesy of Sarcos

Guardian Sea Class At Work

Describing REPTX, Jim Miller, vice president of operations, Sarcos Defense, explained, "Our participation in REPTX was a tremendous success, as we completed 16 scenarios over five exercise days, showcasing our four Sarcos technologies. The event provided us with a great opportunity to build a strong customer partnership and establish ourselves as a key industry demonstrator. We were thrilled to coordinate with other technology providers and perform actual Navy-specific maintenance tasks in partnership with those vendors. Our internal teamwork and communication were excellent and it was a fantastic team-building event for our company. We collected solid lessons learned and data points, which were distributed company-wide daily. The REPTX staff was eager and adaptable, and the NAVSEA O5T team brought their 'A' game to

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planning and executing REPTX '22.

“The real-world test and demonstration environment provided by REPTX was excellent for test, analysis, and learning, and we had the opportunity to conduct multiple key customer and influencer meetings and conversations. Although some of the scenarios were not initially designed with Sarcos technology in mind, the REPTX staff was able to adapt operational scenarios and ensure feasibility and support to benefit the Navy and successfully demonstrate Sarcos capabilities at the event.

“Despite a lack of subsurface scenario support due to available divers, our Guardian Sea Class technology performed well and impressed observers. Since REPTX, NAVSEA has extended efforts to arrange realistic and supported operational test events with the right Navy customers.”

The Guardian XT, Guardian XM, and Sea Class systems use one- or two-armed robots that mount on various mobile and lift platforms. Designed to facilitate the dexterous

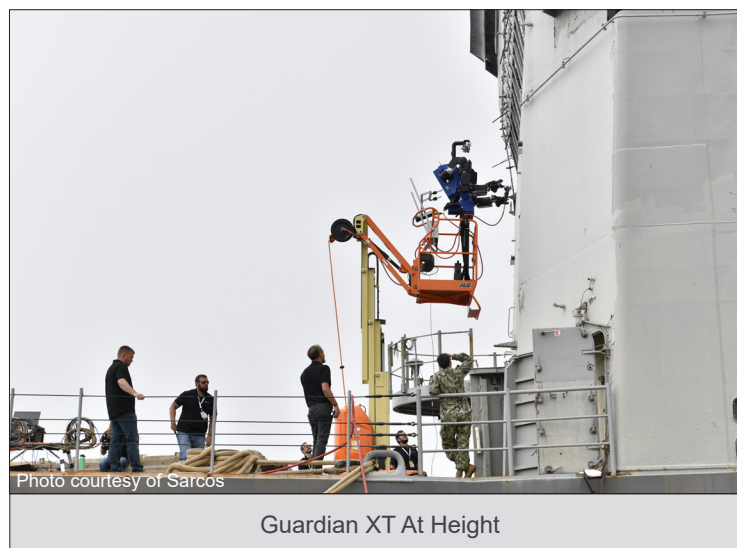
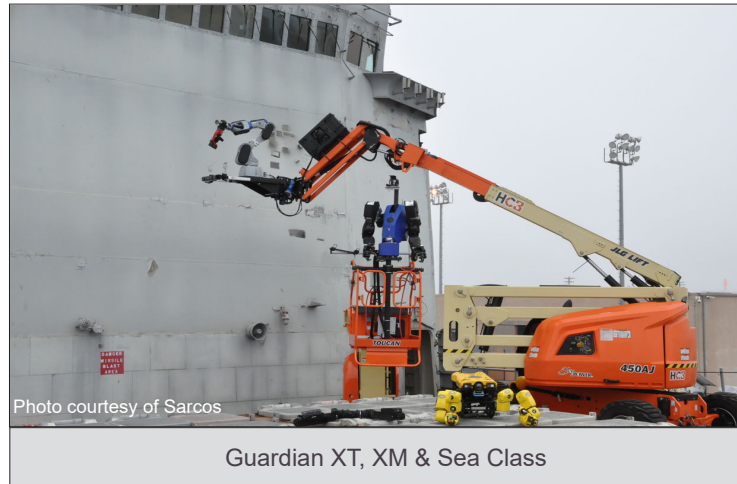
manipulation of tools and the completion of dangerous tasks, these systems can safely take on risks that would otherwise be

assumed by service members and the civilian workforce, enhancing the performance and efficiency of Navy personnel without increasing the sustainment workforce requirement. Likewise, the

Guardian S visual inspection robot can traverse ferromagnetic vertical surfaces and access confined spaces that are either inaccessible or unsafe for humans.

At REPTX, participants tested technologies in four areas: visualization, command-and-control, forward manufacturing, and expeditionary maintenance. Sarcos' Guardian Sea Class underwater robotic

system, designed for both shallow and up to 1-kilometer-deep underwater use, performed inspections on a ship's hull and propeller shaft. The Guardian S visual inspection robot was deployed inside and outside a ship to identify foreign objects.



“As we prepared for REPTX, we recognized that our Guardian XM system was based on technology much closer to the product status desired by the Navy customer base. REPTX highlighted many issues of which we were already aware, and some that were new, regarding the first prototype DX system. We were then able to record a lot of data and observations

that have been factored into our Pilot Product Unit XT/DX which is in delivery at this time. The information gathered was critical to product development. The Sea Class also performed well and impressed observers even without sub-surface scenario support. The Guardian S quickly found all four foreign objects attached to the hull of a ship, demonstrating good communication connectivity throughout. Navy users found the Guardian S easy to operate, with the Navy reservist becoming the main driver,” said Miller.

Working closely with the DoD and other federal and international government agencies, Sarcos Defense identifies capability gaps and undertakes research and development efforts, as well as rapid systems integration, to transform Sarcos’ commercial products into specialized, mission-ready solutions that meet specified requirements.

Sarcos recently participated in the Navy

SBIR Transition Program (Navy STP.) “Navy STP has provided a great opportunity for Sarcos to gain access to Navy customer engagement opportunities that we would

not have had access to otherwise,” said Miller. “Additionally, Navy STP provided a Market Research Analysis Report that was thorough and focused. Our ability to receive steering and mentorship from our business consultant has been very helpful

as she is motivated, experienced, and well connected. Our Navy STP sponsored ability to participate in the Sea-Air-Space event was very informative and provided unique opportunities to engage with potential collaborators, as well as showcase our technology.”

Sarcos Defense, led by a team of former U.S. military officers and business leaders who understand the current and future threat environment, is equipped to deliver solutions that meet the needs of the modern military.

For more information on Sarcos Guardian® Robotic Systems, visit the company’s website at <https://www.sarcos.com/>.

