



OLD DOMINION UNIVERSITY

Center for Coastal Physical Oceanography



**INSTITUTE FOR COASTAL
ADAPTATION & RESILIENCESM**

Spring 2022 Virtual Seminar Series

“SENSING AND AUTOMATION IN THE FUTURE MARITIME ENVIRONMENT”

DANIEL STERNLICHT

U.S. Naval Surface Warfare Center, Panama City Division

Monday, April 11, 2022

3:30 PM EST

**Innovation Research Park Building II Conference Center
4211 Monarch Way, Norfolk, VA 23508**

<https://odu.zoom.us/j/99005451266?pwd=a0tyeXZQMVICRmdadFIVc0o2UnFqQT09>

Meeting ID: 990 0545 1266

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Abstract

In this emerging era of great power competition, the goal of outpacing potential adversaries in the development of military technology takes on a new urgency. Evolving capabilities in sensing and automation are driven by a trade space that includes range and lethality versus close engagement and survivability; finders versus hidiers; centralized command/control versus asset independence/dispersion; and planning and judgement versus reaction and autonomy. This lecture explores this trade space first by describing sensing and automation innovations demonstrated during the 1991 Gulf War and shortly thereafter, followed by discussion on current and emerging game-changing technologies. Capabilities projected for near and far term advantage include: weapons systems ensuring long-range lethality; unmanned cooperative networks of offboard systems; artificial intelligence and machine learning; and exploitation of advanced materials and quantum technologies. These will play a vital role in realizing a networked force of manned and unmanned systems with the ability to sense, comprehend, communicate, predict, plan, and take appropriate action in the future maritime environment. The lecture will conclude with discussion of intersections in Ocean Sensing & Automation between the Navy, NOAA, NASA, other government agencies, academia, and industry and will preview associated panels and sessions for MTS/IEEE OCEANS Hampton Roads, October 17-21, 2022 at the Virginia Beach Convention Center.

Biography

Dr. Daniel Sternlicht is a specialist in maritime reconnaissance and surveillance, whose career has focused on the development of advanced sensors, signal and information processing, and concepts of autonomous operation. Dr. Sternlicht's research has been in new sensor design, through-the-sensor environmental characterization, automatic target recognition and multi-sensor fusion, automated seabed change detection, underwater munitions mapping, and historical development of maritime sensing technologies. He received the B.A. degree in biology from the University of Pennsylvania, Philadelphia; the M.S. degree in electrical engineering from the University of Hawaii, Manoa; and the Ph.D. degree in electrical engineering and applied ocean science from the University of California, San Diego and Scripps Institution of Oceanography. Dr. Sternlicht currently serves as the Distinguished Scientist for Littoral Sensing Technologies at the U.S. Naval Surface Warfare Center, Panama City Division (NSWC PCD).

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