

GARY C. KESSLER

Twenty years experience as a college/university professor; research interest in maritime cybersecurity and cyberdefense, and data communications protocols. Active in USCG Auxiliary and maritime industry cybersecurity activities.

EDUCATION

- B.A., Mathematics, , Humboldt State University (Arcata, CA), 1975
- M.S., Computer Science, University of Vermont (Burlington, VT), 1980
- Ph.D., Computing Technology in Education, Nova Southeastern University (Ft. Lauderdale, FL), 2010

RECENT PROFESSIONAL HISTORY

- Non-Resident Senior Fellow, Cyber Statecraft Initiative, Scowcroft Center for Strategy and Security, The Atlantic Council, 02/2021-present.
- Principal Consultant, Fathom5, 02/2021-present.
- Visiting Professor of Cybersecurity, Electrical Engineering and Cyber Systems Section, U.S. Coast Guard Academy, New London, CT; 08-12/2019. (*Sabbatical semester from ERAU*)
- Professor of Cybersecurity, Security Studies & International Affairs Dept., Embry-Riddle Aeronautical University (ERAU), Daytona Beach, FL;08/2012-12/2020.
 - Department Chair, 08/2015-07/2019
- Program Director, M.S. in Information Assurance, Norwich University, Northfield, VT; 01/2011-07/2012.
- Program Coordinator, Champlain College, Burlington, VT, 07/2001-06/2010.
 - Computer Networking (2001-2005), Digital Forensics (2003-2008), and M.S. in Digital Investigation Management (2008-2010) programs
- President, Gary Kessler Associates, 09/1988-present.

MARITIME CYBERSECURITY-RELATED PUBLICATIONS AND PRESENTATIONS

- Kessler, G.C. (2017, November 8). Web Site Security for Seaports and Shipping Lines. *The Maritime Executive Online*. <https://www.maritime-executive.com/editorials/web-site-security-for-seaports-and-shipping-lines>
- Kessler, G.C., Craiger, J.P., & Haass, J.C. (2018, September). A Taxonomy Framework for Maritime Cybersecurity: A Demonstration Using the Automatic Identification System. *TransNav, The International Journal on Marine Navigation and Safety of Sea Transportation*, 12(3), 429-437, DOI: 10.12716/1001.12.03.01.
- Kessler, G.C. (2018, October 12). Cybersecurity and the Return-on-Negligence. *The Maritime Executive Online*. <https://www.maritime-executive.com/editorials/cybersecurity-and-the-return-on-negligence>
- Kessler, G.C. (2019, Spring). Cybersecurity in the Maritime Domain. *USCG Proceedings of the Marine Safety & Security Council*, 76(1), 34-39. https://www.dco.uscg.mil/Portals/9/D%20CO%20Documents/Proceedings%20Magazine/Archive/2019/Vol76_No1_Spring2019.pdf
- Mraz, R., Kessler, G.C., Gold, E., & Cline, J.G. (2020). Enhanced Iceberg Information Dissemination for Public and Autonomous Maritime Use. *International Journal of Transport and Vehicle Engineering*, 14(4). <https://panel.waset.org/abstracts/125523>
- Kessler, G.C. (2020, June). Protected AIS: A Demonstration of Capability Scheme to Provide Authentication and Message Integrity. *TransNav, The International Journal on Marine Navigation and Safety of Sea Transportation*, 14(2), 279-286. DOI: 10.12716/1001.14.02.02.
- Kessler, G.C., & Shepard, S.D. (2020). *Maritime Cybersecurity: A Guide for Leaders and Managers*.
- Kessler, G.C., & Zorri, D.M. (2021). *Cross Domain IW Threats to SOF Maritime Missions: Implications for U.S. SOF*. Joint Special Operations University (JSOU) Report 21-4. MacDill Air Force Base (FL): The JSOU Press. https://jsou.libguides.com/ld.php?content_id=61653860

- Zorri, D.M., & Kessler, G.C. (2021, September 8). Cyber Threats and Choke Points: How Adversaries are Leveraging Maritime Cyber Vulnerabilities for Advantage in Irregular Warfare. *Modern War Institute at West Point*. <https://mwi.usma.edu/cyber-threats-and-choke-points-how-adversaries-are-leveraging-maritime-cyber-vulnerabilities-for-advantage-in-irregular-warfare/>
- Presented course on "Maritime Cybersecurity" as part of the Naval Education and Training Security Assistance Field Activity (NETSAFA) course on International Anti-terrorism/Anti-piracy (IATP) course, 12/2017-present.
- Presented "Cyber Attacks and Physical Property Damage" at ASTM F25 Workshop on Autonomous Shipping, Vessel Automation and Maritime Cyber Security, Washington, D.C., 12/2018.
- Presented "Maritime Cybersecurity" at National Marine Electronics Association (NMEA) Annual meeting, Portsmouth, VA, 09/2019.
- Taught "Foundations of Information Security" and "Maritime Cybersecurity" courses at U.S. Coast Guard Academy, Fall 2019.
- Presented talks on AIS security at DEF CON 28/Hack The Sea 2020, 08/2020.
- Moderated "Critical Infrastructure Cyber Defence In Digital Transformation Journey" panel session at OT-ISAC Virtual Summit 2020, 09/2020 (Singapore).
- Presented talk on maritime cybersecurity at the 2021 Port of the Future Virtual Conference, 03/2021.
- Chaired panel on maritime cybersecurity at the Container Terminal Automation Conference (CTAC2021), 05/2021.
- Presented talks on AIS protocols at DEF CON 29/Hack The Sea 2021, 08/2021.
- Presented "Cyber Challenges Around AIS, Navigation Systems, and Maritime Communication Protocols" talk as part of a maritime cyber technology panel at Cyber-SHIP Annual Symposium, Plymouth University, U.K., 10/2021.
- Scheduled to participate in Maritime Cybersecurity Technical and Engineering Advancements panel session at Maritime Risk Symposium, 11/2021.
- Pre-processor/user interface and NMEA sentence unpacker code contributed to TrendMicro AIS BlackToolkit, posted on GitHub (<https://github.com/trendmicro/ais>)
- AIS research software tools posted at <https://www.garykessler.net/software/#ais>

OTHER RELATED EXPERIENCE AND TRAINING

- Colchester Rescue Squad (Colchester, VT), 1978-1981, 1984-1998, 2002-2005.
- Vermont Emergency Medical Technician (EMT), 1979-2006.
- Colchester Rescue Dive Team, 1991-1998.
- U.S. Coast Guard Auxiliary, 2017-present
 - Cybersecurity Division, Branch Chief - Cyber Augmentation (BC-CIG)
 - Division 7, Flotilla 44, Daytona Beach, FL
 - Coxswain
 - Auxiliary University Program (AUP) Unit Officer
 - Flotilla Staff Officer, Finance (FSO-FN)
 - Other qualifications: Instructor, ATON Verifier
- Member of advisory board, Maritime & Port Security Information Sharing & Analysis Organization (MPS-ISAO), 2017-present.
- Member of Scientific Programme Committee of the 13th International Conference on Marine Navigation and Safety of Sea Transportation, *TransNav 2019*.
- Member, International Programming Council of *TransNav, the International Journal on Marine Navigation and Safety of Sea Transportation*, 2019-2020.

- Member, National Marine Electronics Association (NMEA) OneNet Standards Committee, 2019-present.
- Member of program committee, Maritime Risk Symposium, 2020-present.

CERTIFICATIONS AND LICENSES

- L.A. County Parks & Recreation, SCUBA Diver (1967)
- PADI Master SCUBA Diver Trainer (#250556)
- USCG Merchant Mariner Credential -- 50 GT Master; Assistance Towing
- Certified Information Systems Security Professional (CISSP)
- Certified Computer Examiner (CCE)

PROFESSIONAL MEMBERSHIPS

- International Information System Security Certification Consortium [(ISC)²]
- International Society of Forensic Computer Examiners (ISFCE)
- Maritime Archaeological and Historical Society (MAHS)
- Professional Association of Dive Instructors (PADI)

A more complete professional resume can be found at <https://www.garykessler.net/resume.html>