

Carnegie Mellon University  
Software Engineering Institute  
+ University Libraries

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RESEARCH  
SERVICES

# High Sea

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WEDNESDAY  
MAY 17, 2023

1:00 – 2:30 P.M.

SEI JORDAN AUDITORIUM  
& SEI SEIBER CAFÉ



# Program

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## **Empowering the Future: Carnegie Mellon University at the Forefront of Cybersecurity and Open Source Advancements**

### **The Next Big Thing in Open Science: Open Source Programs Offices and How CMU Can Lead the Way**

**1:00 p.m. – 1:45 p.m.**

**Presenters:** Tom Longstaff, Keith Webster, Sayeed Choudhury, Scott Hissam and Rebecca Taylor

The White House has announced 2023 as the “Year of Open Science,” building upon previous memoranda from the Office of Science and Technology Policy related to public access of outputs from federally funded research. Additionally, the Department of Defense issued a memorandum last year focused on the consumption and production of open source software. Such developments highlight the importance of open source software as a key driver for open science. Carnegie Mellon is one of the first universities to launch an open source programs office (OSPO) that acts as a community convener and center of competency. Even at this early stage, the CMU OSPO has established a leadership position within the university sector for supporting research and education related to open science and open source software. It is important to note that cybersecurity issues remain important. The OSPO is working with the Software Engineering Institute to explore such security concerns while balancing the compelling potential of open science.

### **National Initiative for Cybersecurity Advancement (NI4CA)**

**1:45 p.m. – 2:30 p.m.**

**Presenters:** Gregory Touhill, Bill Claycomb and Tom Longstaff

This session will introduce attendees to the National Initiative for Cybersecurity Advancement (NI4CA), an ongoing effort led by the Carnegie Mellon University’s Software Engineering Institute. The NI4CA team’s goal is to define a multi-year research and development (R&D) vision and roadmap for securing the next generation of software-reliant systems in an effective, affordable, and timely way. The activities of the NI4CA will culminate in late June with a report that provides recommendations for fostering the development of technologies, methodologies, practices, and policies. Organizations can apply these recommendations at scale across the cyber ecosystem to advance cyber by design and enhance operational cyber resiliency. The NI4CA team anticipates that our study and the subsequent report will broadly guide investment in cybersecurity engineering research throughout the Department of Defense and across the U.S. government as well as by critical infrastructure providers and academia. It will define actionable R&D goals that are feasible, acceptable, suitable, and affordable by proposing solutions to near- and long-term technical challenges that strengthen the resiliency of the United States’ cybersecurity posture.

### **Reception in the SEIber Café**

**2:30 p.m.**

# Presenters

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## **Tom Longstaff**

Chief Technology Officer, Software Engineering Institute

Tom Longstaff is the Chief Technology Officer at the Software Engineering Institute. He is responsible for formulating a technical strategy and leading the funded research program of the institute based on current and predicted future trends in technology, government, and industry.

Before joining the SEI as CTO in 2018, Longstaff was a program manager and principal cybersecurity strategist for the Asymmetric Operations Sector of the Johns Hopkins University Applied Physics Laboratory (APL), where he led projects on behalf of the U.S. government, including nuclear command and control, automated incident response, technology transition of cyber Research and Development, information assurance, intelligence, and global information networks. He also was chair of the Computer Science, Cybersecurity, and Information Systems Engineering Programs and co-chair of Data Science in the Whiting School at Johns Hopkins.

Prior to joining the staff at APL, Longstaff was the deputy director for technology for the CERT Division at the Software Engineering Institute. In his 15-year tenure at the SEI CERT Division, he helped create many of the projects and centers that made the program an internationally recognized network security organization. His work included assisting the Department of Homeland Security and other agencies to use response and vulnerability data to define and direct a research and operations program in analysis and prediction of network security and cyber terrorism events.

Tom received his bachelor's degree in physics and mathematics from Boston University. He received his master's degree in applied science and his PhD in computer science from the University of California, Davis.



## **Keith Webster**

Dean of Libraries, Carnegie Mellon University

Keith Webster was appointed Dean of University Libraries at Carnegie Mellon University in July 2013 and was additionally appointed as Director of Emerging and Integrative Media Initiatives in July 2015. Keith was installed to the Helen and Henry Posner Jr. Deans' Chair in March 2022. He also has a courtesy academic

appointment at the University's H. John Heinz III College. Previously, Keith was Vice President and Director of Academic Relations and Strategy for the global publishing company John Wiley and Sons. He previously held Dean of Libraries roles at major research universities in Australia, New Zealand, and the United Kingdom.

Keith's professional interests include research evaluation, learning space design, and trends in scholarly communication. He is a regular speaker on topics such as the future of research libraries and the impact of open science on publishing and libraries.



### **G. Sayeed Choudhury**

Director of the Open Source Programs Office,  
Carnegie Mellon Libraries

G. Sayeed Choudhury is the Director of the Open Source Programs Office at Carnegie Mellon Libraries. He is a Co-Investigator for the Black Beyond Data Project. Previously, he was Associate Dean for Digital Infrastructure, Applications, and Services and Hodson

Director of the Digital Research and Curation Center at the Sheridan Libraries of Johns Hopkins University. Choudhury led the JHU Library team that supported the Covid-19 dashboard. He launched the JHU's open source programs office (OSPO), the first of its kind within a U.S. university. Choudhury was also a founding member of the Institute of Data Intensive Engineering and Science (IDIES) based at JHU. He was a Fellow in the Provost's office focused on open scholarship.

Choudhury was a President Obama appointee to the National Museum and Library Services Board. He was a member of the National Academies Committee on Forecasting Costs for Preserving, Archiving, and Promoting Access to Biomedical Data and a member of the National Academies Board on Research Data and Information. He was also a member of the Blue Ribbon Task Force on Sustainable Digital Preservation and Access. He has testified for the Research Subcommittee of the Congressional Committee on Science, Space and Technology.

Choudhury has served as principal investigator for projects funded through the National Science Foundation, Institute of Museum and Library Services, Library of Congress' National Digital Information Infrastructure and Preservation Program, Alfred P. Sloan Foundation, Andrew W. Mellon Foundation, Open Society Foundation, Microsoft Research, and a Maryland-based venture capital group.



### **Scott A. Hissam**

Chief Technology Officer, Software Engineering Institute

Scott A. Hissam is a senior member of the technical staff for the Carnegie Mellon Software Engineering Institute where he conducts research on component-based software engineering, open source software, and software assurance through his interactions with government, industry, and academic ventures.

Mr. Hissam is a founding member and former secretary of the International Federation for Information Processing (IFIP) Working Group 2.13 on Open Source Software and previously co-organizer of a number of its annual conferences. His publications include two books (*Building Systems from Commercial Components* and *Perspectives on Free and Open Source Software*), papers published in international journals, and numerous technical reports. Most recently, Mr. Hissam has been focusing his time engaging various open source software communities, open source program offices, and government program offices in best practices and their application in software- and cyber-supply chain risk management in a DoD environment.



### **Rebecca E. Taylor**

Associate Professor of Mechanical Engineering,  
Carnegie Mellon University

Rebecca E. Taylor is an Associate Professor of Mechanical Engineering and, by courtesy, of Biomedical Engineering and Electrical and Computer Engineering at Carnegie Mellon University. Her degrees are in Mechanical Engineering with a B.S.E in 2001 from

Princeton University and a PhD in 2013 with Prof. Beth Pruitt at Stanford University. During her postdoctoral training she worked in the laboratory of Prof. James Spudich in Biochemistry at the Stanford University School of Medicine. She joined the CMU faculty in 2016 and now combines both microfabrication and nanofabrication to create hybrid top-down and bottom-up fabricated sensors and actuators for nanobiosensing, robotics, and advanced manufacturing applications. She is the recipient of a Ruth L. Kirschstein National Research Service Award (F32), the NSF CAREER award, the AFOSR Young Investigator Program Award, and the 2021 CMU Dean's Early Career Fellowship.



### **Gregory J. Touhill**

Director, CERT Division, Software Engineering Institute

Gregory J. Touhill is the director of the CERT Division of the Carnegie Mellon University Software Engineering Institute, where he leads researchers who analyze security vulnerabilities, contribute to long-term improvements in cybersecurity, and develop cutting-edge training.

Touhill served as the first CISO of the United States government and as deputy assistant secretary in the Department of Homeland Security's Office of Cybersecurity and Communications. Before joining the SEI, he was president of Appgate Federal, a products and service provider.

Touhill is a 30-year U.S. Air Force combat veteran. He served as an operational commander and senior leader, advancing to the position of J6 and CIO of USTRANSCOM. He is the recipient of the Bronze Star medal, the Air Force Science and Engineering Achievement Award, and the Master Cyberspace Operations and Master Space Operations wings. He retired from the U.S. Air Force with the rank of brigadier general.

Touhill holds degrees from the Pennsylvania State University, the University of Southern California, and the Air War College. He maintains CISSP and CISM certifications, and he is an adjunct faculty member at CMU and Deakin University.

Touhill has been recognized by *Federal Computer Week* and *Security Magazine* for his contributions to cybersecurity. He is a recipient of the Baldrige Foundation Leadership Award in Cybersecurity, the General Michael V. Hayden Lifetime Achievement Award, the ICS2 F. Lynn McNulty Tribute Award, and the Government Information Security Leadership Award. He is a co-author of *Cybersecurity for Executives: A Practical Guide and Commercialization of Innovative Technologies*.



## **Bill Claycomb**

Principal Researcher, CERT Division,  
Software Engineering Institute

Bill Claycomb is a Principal Researcher for the Software Engineering Institute's National Insider Threat Center in the CERT Division, as well as Principal Cyber Advisor for the SEI's National Initiative for Cybersecurity Advancement. He leads multidisciplinary projects

related to cybersecurity and human behavior, primarily investigating novel techniques for detection, prevention, and mitigation of insider threats for government and industry. Dr. Claycomb's earlier work involved efforts to improve biometric security systems. Since then, his research portfolio has grown to include both domestic and international research efforts across a broad range of topics, such as malware detection, cloud computing security, wireless and mobile security, enterprise architecture, digital rights enforcement, and identity management. Before joining the SEI, he pioneered early efforts for preventing insider attacks on enterprise information systems at Sandia National Laboratories. Dr. Claycomb has published numerous peer-reviewed conference and journal papers, and he has held several roles to advance publications and research in the field of cybersecurity, including the following: Steering Committee Chair for the IEEE Workshop on Research for Insider Threats (WRIT), Associate Editor for a special issue on insider threats for the ACM Journal on Digital Threats—Research & Practice, Associate Editor for the inaugural issue of Counter Insider Threats: Research and Practice, and Program Chair in Chief for the IEEE Computer Society Computers, Software, and Applications Conference (COMPSAC) on four different occasions.

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## Thank You!

SEI Research Services would like to thank you for attending High Tea 2023. We would also like to thank all of our presenters and all those who helped make this event possible.

We look forward to seeing you at future events.

### Requests or Questions?

Send us an email at [rs-team@sei.cmu.edu](mailto:rs-team@sei.cmu.edu)

# Software Engineering Institute's Research Services Staff

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## **Sheila L. Rosenthal**

Manager of Research Services,  
Software Engineering Institute

| slr@sei.cmu.edu  
8-7846

Sheila L. Rosenthal is the Manager of Research Services at the Software Engineering Institute and in this position, Sheila defines goals, negotiates policies, and makes plans to ensure the continuing availability of timely and appropriate information to all areas of the organization, and also oversees all aspects of research services. In addition, she assures the availability of electronic resources in all formats (e.g., e-books and e-journals) and provides printed resources that support the mission of the SEI borrowed from the CMU Libraries as well as other external organizations. She maintains awareness of current publication trends and information practices through membership in professional organizations and participation in workshops, seminars, and conferences. Sheila provides direct supervision of the SEI Research Services staff. For Carnegie Mellon University, she serves as official liaison to the Carnegie Mellon Library community and fulfills all requirements to maintain membership within the Research Center Information Managers (RCIM) FFRDC Library Directors/Managers Group.



## **Rachel L. Callison**

Research & Reference Librarian,  
Software Engineering Institute

| callison@sei.cmu.edu  
8-7725

Rachel L. Callison has been the Research & Reference Librarian in SEI Research Services since 2004 and was promoted to Senior Librarian in 2011. Prior to joining Carnegie Mellon, she was with the University of Pittsburgh for nine years in several roles: Reference & Public Services Librarian at the Information Sciences Library, the Business Library, the Engineering Library, and Administrator of the Department of Library and Information Sciences, School of Information Sciences (now the School of Computing and Information).

An interest in learning environments, information fluency, and the research process led Rachel to design and teach numerous courses and workshops, including graduate courses for MLIS students at the University of Pittsburgh since 1999. Rachel has authored several professional publications and has held numerous governance and leadership roles within the Special Libraries Association (local and national) and the local chapter of the Association of College & Research Libraries.

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