Carnegie Mellon University
Software Engineering Institute + Libraries

Research Services High Tea 2022

Wednesday, June 8, 2022

2:00–4:00 p.m. | Brought to you by Zoom

Program

Software Engineering Institute's Research Services & Carnegie Mellon University Libraries Present:

High Tea 2022

brought to you via Zoom

https://sei.zoomgov.com/j/1615368999?pwd=VU5Tc25LcHVUMWdsMnowaFBHYzNydz09

Wednesday, June 8 | 2:00–4:00 p.m.

Presented by the Software Engineering Institute's Research Services, and Carnegie Mellon University Libraries, High Tea brings the SEI closer together with the University Libraries and "main campus." This event also seeks to expose CMU students, faculty, and staff to opportunities at the SEI and many of the wonderful and vital resources and services provided by the University Libraries.

Alex Van Deusen, Member of the SEI Technical Staff, and Assistant Design Researcher in the AI Division, is the Host and Master of Ceremonies for High Tea 2022

Program includes the following three presentations:

"The Future of Artificial Intelligence Engineering"

2:00–2:45 p.m.

Presenters:

Tom Longstaff, CTO, Software Engineering Institute—Tom will provide an overview describing the future strategy of AIE/Cyber/SWE and will turn to the emphasis on AI Fusion as a good campus collaboration between SEI and the Carnegie Mellon campus.

Matt Gaston, Director AI Division, Software Engineering Institute

William H. Sanders, Dr. William D. and Nancy W. Strecker Dean of the College of Engineering at Carnegie Mellon University and a professor of electrical and computer engineering.

Rachel Dzombak, Technical Director, and Head of Digital Transformation in the SEI AI Division

Abstract:

This session with Dean Sanders will consist of a panel moderated by Dr. Tom Longstaff (SEI CTO) and include Dr. Matt Gaston (SEI Director AI Division), and Rachel Dzombak, Technical Director, and Head of Digital Transformation, to discuss the partnership in AI between the SEI and Engineering with a focus on AI Engineering and AI Fusion. The panel will emphasize partnership and collaboration across CMU and highlight student and faculty involvement around AI.

"Artificial Intelligence: Impacts and Roles for Libraries"

2:45–3:45 p.m.

Presenters:

Keith Webster, Helen and Henry Posner, Jr. Dean of Libraries

Huajin Wang, Liaison Librarian, Program Director for Open Science & Data Collaborations, CMU Libraries.

Abstract:

Keith Webster will present on emerging trends of AI in the research, publishing, and library landscapes and discuss the opportunities for libraries to support AI education and research, based on work at Carnegie Mellon, the most prolific AI research institution in the United States. He will also touch on opportunities afforded by AI to advance library priorities.

Huajin Wang will discuss technical and human solutions for making data FAIR (Findable, Accessible, Interoperable, and Reusable) and share her view on the essential role of building a healthy data ecosystem to support AI research. She will also present the services offered by the Open Science & Data Collaborations program at the CMU Libraries to support AI work.

Q&A Session

3:45–4:00 p.m.

Presenter:

Alex Van Deusen will present questions from attendees and encourage those who provided the questions to unmute for engagement. These questions can be addressed to and answered by any of our High Tea presenters.

Host and Master of Ceremonies

Alex Van Deusen is a Design Researcher at the AI Division of the Software Engineering Institute (SEI) at Carnegie Mellon University. Prior to this role, Alex was a Multimedia Designer on the Communication Design team at the SEI. Alex plans and implements forward-looking design research that showcases the impact of the SEI's current technical research work and strategic vision.

Alex is a co-author of the Defense Innovation Unit's Responsible AI Guidelines in Practice. This work supports the responsible use of AI and serves as a guide for organizations in industry and government to implement the DoD's Ethical Principles for Artificial Intelligence and other responsible AI considerations into practice in real-world problems.

Presenters

Tom Longstaff

Chief Technology Officer, Software Engineering Institute

Tom 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.

William H. Sanders

William H. Sanders, Dr. William D. and Nancy W. Strecker Dean of the College of Engineering at Carnegie Mellon University and a professor of electrical and computer engineering

William H. Sanders became dean of Carnegie Mellon University's College of Engineering in 2020. Before coming to Carnegie Mellon, he spent 25 years at the University of Illinois in various faculty and leadership roles. In 2018, he was appointed as the interim director of the Discovery Partners Institute, a purpose-driven, collaborative research institute focused on building prosperity for all through technology-based economic growth. During his time at the University of Illinois, he spent six years as the head of the Department of Electrical and Computer Engineering, and director of both the Information Trust Institute and the Coordinated Science Lab. He received his BS in Computer Engineering ('83), MSE in Computer, Information and Control Engineering ('85), and PhD in Computer Science and Engineering ('88), all from the University of Michigan.

Over the course of his research career, Sanders has published more than 270 technical papers in the areas of secure and dependable computing; and resiliency metrics and evaluation for critical infrastructures. He created some of the earliest secure power grid architectures, as well as the assessment tools and metrics to quantify smart grid resilience. In 2005, he was the Principal Investigator of the National Science Foundation–supported center-scale power grid program, which brought together prominent universities with major utilities and power

grid equipment vendors in the first-ever university–industry–government partnership for power system cybersecurity. The center was the first to propose a comprehensive architecture for a secure smart grid through further development of the resiliency mechanisms that Dr. Sanders had pioneered earlier.

In addition to these prestigious accomplishments, Sanders has received numerous academic and industry awards, including the Institute of Electrical and Electronics Engineers (IEEE) Technical Field Award, Innovation in Societal Infrastructure. He is an elected fellow of IEEE, the Association for Computing Machinery, and the American Association for the Advancement of Science, as well as the co-founder of Network Perception Inc.

Matt Gaston, PhD

Director, SEI Ai Division

Dr. Matt Gaston is the director of the AI Division at the Carnegie Mellon University Software Engineering Institute. He also holds an appointment as an adjunct associate professor at the Carnegie Mellon University Institute for Software Research.

As the director of the AI Division, Dr. Gaston leads a diverse team of researchers, engineers, and innovators who assist the US Department of Defense in developing and using leap-ahead AI capabilities that are reliable, responsible, safe, fair, and transparent. He is a leader of the community-wide National AI Engineering Initiative focused on establishing and growing the discipline of AI Engineering. Dr. Gaston also led the establishment and growth of the SEI's Emerging Technology Center (ETC). With his leadership, the ETC research portfolio grew to include work in the fields of autonomy, analytics, visualization, and quantum computing.

Before joining the SEI, Dr. Gaston was the director of research at Viz, a business area of General Dynamics C4 Systems (GDC4S), where he led research activities for the Battle Management System Division. This work included a research portfolio that spanned command and control, intelligence analysis, information interaction and visualization, and cyber situational awareness. During this time, he also served as a member of the External Advisory Board for Sandia National Laboratory's Network Grand Challenge, which focused on novel techniques and computing paradigms for large-scale network analysis applications in cybersecurity, counter-proliferation, and other national security issues.

Prior to his work with GDC4S, Dr. Gaston served as the technical director of the Advanced Analysis Laboratory at the U.S. National Security Agency, where he led numerous activities to bring new technology and innovation to the process and practice of intelligence analysis. His work included developing and applying advanced computational intelligence analysis techniques, leading the development of a massive-scale network analysis system, and co-founding the Institute for Analysis.

He has published in the fields of complex networks, machine learning, multi-agent systems, and operations research. He is a member of Leadership Pittsburgh XXVIII and is a founding trustee of Awesome Pittsburgh.

Dr. Gaston holds a BS in Mathematics from University of Notre Dame and an MS and PhD in Computer Science from University of Maryland Baltimore County.

Rachel Dzombak

Head of Digital Transformation, SEI AI Division

Rachel Dzombak is a technical director and Head of Digital Transformation in the SEI AI Division, where she is leading the SEI's AI engineering efforts. Dzombak's background is in engineering systems and human-centered design. Before joining the SEI, Dzombak was an Innovation Fellow and on the faculty at the University of California, Berkeley, where she helped to define and advance the field of Development Engineering. Dzombak holds a PhD in Civil and Environmental Engineering from the University of California, Berkeley.

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.

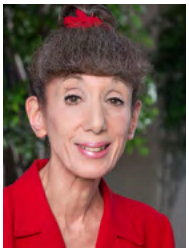
Keith's professional interests include research evaluation, learning space design, and trends in scholarly communication. He is a regular speaker on topics such as the future of research libraries and the impact of open science on publishing and libraries.

Huajin Wang is a Liaison Librarian, Program Director for Open Science & Data Collaborations, CMU Libraries. As a liaison librarian, she helps students and faculty with their information and data needs. As the program director for Open Science & Data Collaborations, she leads innovative initiatives that facilitate research data sharing, reuse, and reproducibility, and bring together communities across disciplinary boundaries to build a healthy data ecosystem. As a researcher, she has led many successful research projects and collaborated with biologists, clinicians, information professionals, and data scientists on interdisciplinary research topics. Huajin holds a PhD in Cell Biology. Before joining the libraries, she had more than 10 years of experience in biomedical research including molecular and cellular biology, lipid metabolism, bioinformatics, and computational analysis of large biomedical datasets."

Program Planner and Creative Director

Shay N. Badolato is an Event Planner II for Communication Services at the SEI. Before joining the SEI, Shay was a hospitality professional for more than 6 years with Fairmont Hotels & Resorts at Fairmont Pittsburgh, where she held two positions, Concierge and Sales, Catering, and Events Coordinator. Shay is a published writer in *Whirl Magazine, Pennsylvania Meetings & Events Magazine, Mt. Lebanon Magazine,* and *Maniac Magazine.* She has a Bachelor of Arts Degree in Professional Writing with a Visual Communications Design focus from La Roche University. Shay spent her time at La Roche University as Editor-in-Chief of the campus newspaper, La Roche Courier, and Co-President of Sigma Tau Delta—English Honors Society.

Software Engineering Institute's Research Services Staff



Sheila L. Rosenthal is the Manager of Research Services at the Software Engineering Institute (SEI) 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 Research Services staff and in regard to 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 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 (1995-2004) in several roles: Reference & Public Services Librarian at the Information Sciences Library, the Business Library, and the Engineering Library; and as the 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.

Thank You!

The SEI would like to thank you for attending High Tea 2022. We would also like to thank all our presenters and event staff for making this event possible.

We look forward to seeing you at future virtual and in-person events.

Requests or Questions? Send us an email at **rs-team@sei.cmu.edu**

Copyright 2022 Carnegie Mellon University.

This material is based upon work funded and supported by the Department of Defense under Contract No. FA8702-15-D-0002 with Carnegie Mellon University for the operation of the Software Engineering Institute, a federally funded research and development center.

The view, opinions, and/or findings contained in this material are those of the author(s) and should not be construed as an official Government position, policy, or decision, unless designated by other documentation.

NO WARRANTY. THIS CARNEGIE MELLON UNIVERSITY AND SOFTWARE ENGINEERING INSTITUTE MATERIAL IS FURNISHED ON AN "AS-IS" BASIS. CARNEGIE MELLON UNIVERSITY MAKES NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, AS TO ANY MATTER INCLUDING, BUT NOT LIMITED TO, WARRANTY OF FITNESS FOR PURPOSE OR MERCHANTABILITY, EXCLUSIVITY, OR RESULTS OBTAINED FROM USE OF THE MATERIAL. CARNEGIE MELLON UNIVERSITY DOES NOT MAKE ANY WARRANTY OF ANY KIND WITH RESPECT TO FREEDOM FROM PATENT, TRADEMARK, OR COPYRIGHT INFRINGEMENT.

[DISTRIBUTION STATEMENT A] This material has been approved for public release and unlimited distribution. Please see Copyright notice for non-US Government use and distribution.

Internal use:* Permission to reproduce this material and to prepare derivative works from this material for internal use is granted, provided the copyright and "No Warranty" statements are included with all reproductions and derivative works.

External use:* This material may be reproduced in its entirety, without modification, and freely distributed in written or electronic form without requesting formal permission. Permission is required for any other external and/or commercial use. Requests for permission should be directed to the Software Engineering Institute at **permission@sei.cmu.edu**.

* These restrictions do not apply to U.S. government entities.

Carnegie Mellon® is registered in the U.S. Patent and Trademark Office by Carnegie Mellon University.

DM22-0649

©2022 Carnegie Mellon University | 5803 | C 05.03.2022 | S 08.03.2022