

Proceedings of ICCWS 2022 Editorial

These proceedings represent the work of contributors to the 17th International Conference on Cyber Warfare and Security (ICCWS 2022), hosted by the State University of New York at Albany, USA on 17-18 March 2022. The Conference Chair was Dean Robert P. Griffin, College of Emergency Preparedness, Homeland Security, and Cyber Security (CEHC), and the Program Co-Chairs were Dr. Unal Tatar, from University at Albany and Dr. Benjamin Yankson, from the College of Emergency Preparedness Homeland Security and Cybersecurity.

ICCWS is a well-established event on the academic research calendar and now in its 17th year, the key aim remains the opportunity for participants to share ideas and meet the people who hold them. The scope of papers will ensure an interesting two days. The subjects covered illustrate the wide range of topics that fall into this important and ever-growing area of research.

Keynote presentations were given by Heather Hage, Griffiss Institute (GI), USA, Tony Sager, Senior Vice President & Chief Evangelist, Center for Internet Security, USA on the topic of *Stranger in a Changed Land*, and Col. Jeffrey Erickson, the director of the Army Cyber Institute, *Developing the Critical Capabilities Needed to Respond to Cyber Attacks on Modern Cities*.

With an initial submission of 120 abstracts, after the double blind, peer review process there are 52 Academic research papers, 7 PhD research papers, 10 master's research papers and 2 work-in-progress papers published in these Conference Proceedings. These papers represent research from Australia, Canada, Czech Republic, Estonia, Finland, Germany, Ireland, Kosovo, Malaysia, Netherlands, Norway, Pakistan, Qatar, South Africa, Sweden, the UK and the USA.

Dean Robert P. Griffin

State University of New York at Albany
Albany, New York, USA
March 2022

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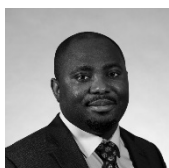
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Biographies

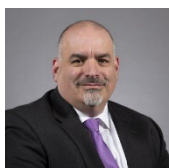
Conference and Programme Chairs



Dr. Unal Tatar is currently an Assistant Professor of Cybersecurity at the College of Emergency Preparedness, Homeland Security, and Cybersecurity, University at Albany. He has 16+ years of cybersecurity experience of cybersecurity in government, industry, and academia. He is the former coordinator of the National Computer Emergency Response Team of Turkey. Dr. Tatar's research is funded by NSF, NSA, DOD, and Society of Actuaries. Dr. Tatar holds a BSc degree in Computer Engineering, an MS degree in Cryptography, and a Ph.D. in Engineering Management and Systems Engineering. His main topics of interest are cybersecurity risk management, cyber resiliency, cyber insurance, and blockchain.

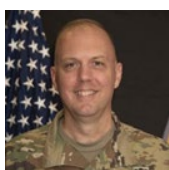


Dr. Benjamin Yankson is an Assistant Professor of Cybersecurity at the College of Emergency Preparedness Homeland Security and Cybersecurity. He has over 15yrs experience in various technical leadership roles in Information Technology security within Healthcare and Education. He is the former Application Manager, Critical Care Information System for the province of Ontario's (CitiCall Ontario), Canada. Dr. Yankson holds a CompTIA Security+, a BA degree in Information Technology, a master's degree in Information Technology Security (MITS), and a Ph.D. Computer Science. His current teaching and research work focuses on IoT Security, Cybersecurity Risk Management, Threat Risk Assessment (TRA), Security Auditing/Compliance, Digital Forensics, and Privacy.



Robert Griffin currently serves as the Founding Dean of the College of Emergency Preparedness, Homeland Security, and Cyber Security (CEHC). He came to CEHC after a long career in homeland security at the Federal and local levels of government. In the Federal Government, Dr. Griffin served as the Under Secretary (Acting) for Science and Technology at the US Department of Homeland Security (DHS), the Deputy Under Secretary for Science and Technology, and the Director of the Science and Technology Directorate's First Responders Group. While at Science and Technology, he managed a diverse \$1.1 billion dollar portfolio of homeland security research. Dr. Griffin was recognized for his exceptional management and leadership skills in 2016 when President Obama awarded him the Presidential Rank Award (Distinguished), the Nation's highest award for career members of the Senior Executive Service.

Keynote Speakers



Colonel Jeffrey M. Erickson is the Director of the Army Cyber Institute at the United States Military Academy (USMA) located at West Point, New York. In his position as Director, COL Erickson leads a 50-person, multi-disciplinary research institute focused on expanding the Army's knowledge of the cyberspace domain. He began his Army career as an Armor officer before transitioning to the Simulation Operations functional area, where for the last 15 years he has been using simulations to train from the individual up to the Joint and Combatant Command levels. He has a B.S. in Computer Science from the United States Military Academy, an M.S. in Management Information Systems from Bowie State University, and a M.S. in National Resource Strategy from the Eisenhower School (formerly the Industrial College of the Armed Forces). His fields of interest are simulations for live-virtual-constructive training, testing, and wargaming.



Heather Hage is President & CEO of the Griffiss Institute (GI), a leading national nonprofit talent and technology accelerator for the United States Department of Defense. Heather leads the expansion of the GI's portfolio of international talent and technology development programs, and the standup of Air Force Research Laboratory Information Directorate's new "over the fence" R&D and incubator facilities at Innovare Advancement Center in Rome, NY. Prior to joining the Griffiss Institute, Heather served the State University of New York for 17 years, where she oversaw innovation and partnerships for the SUNY System. A graduate of Hamilton College and Albany Law School, where she was Managing Editor of the Journal of Science and Technology, Heather's professional background includes media relations, telecommunications, IP management and corporate transactions. An adjunct faculty member at Albany Law School and SUNY Polytechnic Institute's College of Nanoscale Science and Engineering, Heather is the recipient of various honors and awards, including SUNY's 2015 Woman of Excellence award for outstanding service, exemplary support of women in leadership, and a distinguished career.



Tony Sager is a Senior Vice President and Chief Evangelist for CIS® (The Center for Internet Security, Inc.). He leads the development of the CIS Controls™, a worldwide consensus project to find and support technical best practices in cybersecurity. Sager champions of use of CIS Controls and other solutions gleaned from previous cyber-attacks to improve global cyber defense. He also nurtures CIS' independent worldwide community of volunteers, encouraging them to make their enterprise, and the connected world, a safer place. In addition to his duties for CIS, he is an active volunteer in numerous community service activities: the Board of Directors for the Cybercrime Support Network; and a member of the National Academy of Sciences Cyber Resilience Forum; DHS Cyber Safety Review Board. Sager retired from the National Security Agency (NSA) after 34 years as an Information Assurance professional. Sager's awards and commendations at NSA include the Presidential Rank Award at the Meritorious Level, twice, and the NSA Exceptional Civilian Service Award.

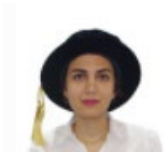
Mini Track Chairs



Dr. Jawad Hussain Awan is a member of IFIP WG 9.10: ICT Uses in Peace and War, and an active researcher with the Global Foundation for Cyber Studies and Research Group. His research interests are ICT, Data Science, Cyber security, Security challenges in Smart and Physical Systems. He has published his research in several national and international research journals. He is the member of Editorial Review Board of a number of journals including of IEEE Access, Egyptian Journal of Informatics and the Journal of Information Warfare. He performed his duties as Committee member in ICCWS 2019, 2020, 2021 and 2022. He is also Microsoft Certified Professional in Web Programming, and has won research awards with the collaboration of HEC, Pakistan and the British Council. He also worked as Lab Manager, Lecturer, and Research Fellow.



Dr Elena Sitnikova is an academic at UNSW Canberra. She is a global research leader in Critical Infrastructure protection currently focusing on intrusion detection for SCADA systems cybersecurity, cyber-physical systems and industrial IoT(IIoT). Her research explores systems resilience and the use of artificial intelligence in the analytics of abnormal data that may affect critical systems. She is one of the first Australians to be certified in Certified Secure Software Lifecycle Professional (CSSLP). Elena is holding a Senior Fellowship of the Higher Education Academy(SFHEA) and Australian Office for Learning and Teaching(OLT) Team Citation award for Outstanding Contributions to Student Learning.



Dr. Pardis Moslemzadeh Tehrani, is a Senior Lecturer at the Faculty of Law, University of Malaya where she has been since 2015. Her research interests span in the area of Information Technology Law and International Humanitarian Law. Pardis has made scholarly contributions in peer-reviewed Journals and presented papers in a number of conferences and served on many program committees. She is an International

Scientific Member of the Australian and New Zealand Society of International Law and currently a member of Editorial Review Board of International Journal of Digital Crime and Forensics.