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Global Security PLuS

presents

NEW APPROACHES TO GREY ZONE THREATS

11 . 09 . 18 SYDNEY

JOHN B REID LECTURE THEATRE, UNSW SYDNEY, 9:00AM – 3:00PM BOOK HERE

12 . 09 . 18 CANBERRA

LECTURE THEATRE 07, BUILDING NORTH, UNSW CANBERRA, 9:00AM – 3:00PM BOOK HERE

- Propaganda and information Grey Zone operations
- Detecting biowarfare in the Grey Zone
- Synthetic biology and implications for biowarfare
- Emerging technology issues
- Cybersecurity
- Formal and automated methods for cybersecurity
- Cross disciplinary approaches to threat detection
- Civil-military cooperation

PROGRAM

9:00am	**Opening**
9:15am	**Biodefense in the age of synthetic biology and precision gene editing**
	Regent's Professor George Poste, Arizona State University; Chief Scientist, Complex Adaptive Systems Initiative
9:45am	**Lawfare in the Grey Zone**
	Professor Robert McLaughlin, The University of New South Wales, Canberra; Director, Australian Centre for the Study of Armed Conflict and Society (ACSACS)
10:15am	**Civil-military Grey Zone threats in the era of Novichok**
	Associate Professor David Heslop, Director, Health Management Program, School of Public Health and Community Medicine, The University of New South Wales; Senior Medical Advisor for CBRNE to Special Operations Headquarters Australia and to Australian Defence Force (ADF)
10:45am	**Morning tea**
11:15am	**The grey area of biowarfare and bioterrorism**
	Professor Raina MacIntyre, Program Head, Biosecurity Program, Kirby Institute, The University of New South Wales; NHMRC Principal Research Fellow
11:45am	**Information warfare and propaganda in the Grey Zone**
	Dr Scott Ruston, Research Scientist, Global Security Initiative, Arizona State University
12:15pm	**Lunch**
1:00pm	**Use of genetic data in the Grey Zone**
	Associate Professor Matthew Scotch, Department of Biomedical Informatics; Assistant Director of Biodesign Centre for Environmental Health and Engineering, Arizona State University
1:30pm	**Care or Not Care: Security in Internet of Things (IoT)**
	Professor Sanjay Jha, Director Cybersecurity and Privacy Research Lab (Cyspri), School of Computer Science and Engineering, University of New South Wales
2:00pm	**The vulnerability of artificial intelligence to data manipulation**
	Dr Patrick Veenstra, Data Scientist, Department of Informatics, King's College London
2:30pm	**Data Mining and Modelling as a Tool for Biosecurity**
	Dr Grigorios Loukides, Assistant Professor, Department of Informatics, King's College London
3:00pm	**Close**

SPEAKER BIOGRAPHIES

Professor George Poste is the Del E. Webb Professor of Health Innovation and Chief Scientist, The Complex Adaptive Systems Initiative (CASI) at Arizona State University (ASU). This program integrates research in genomics, synthetic biology and high performance computing to study the altered regulation of molecular networks in human diseases to develop new diagnostic tests for precision medicine and the remote monitoring of health status using miniaturized body sensors and mobile devices. He has published more than 350 research papers and edited 14 books.

He has served as a member of the Defense Science Board of the U.S. Department of Defense and currently serves on advisory committees for several U.S. government agencies in defense, intelligence, national security and healthcare. He is a Fellow of the U.K. Royal Society, the Royal College of Pathologists and the U.K. Academy of Medicine, a member of the Council for Foreign Relations and the US Academy of Medicine Global Forum on Infectious Disease, a former Distinguished Fellow at the Hoover Institution at Stanford University and a Governor of the Bulletin of Atomic Scientists.

He was named "R&D Scientist of the Year" by R&D Magazine (2004), he received the Einstein award from the Global Business Leadership Council (2006), the Scrip Lifetime Achievement award voted by the leadership of the global pharmaceutical industry (2009), and the Lifetime Achievement award from the Arizona BioIndustry Association (2016).

Dr Scott Ruston (Ph.D., University of Southern. California) is a Research Scientist with Arizona State University's Global Security Initiative, a university wide interdisciplinary hub for researching complex challenges in the global security arena, where he leads the GSI's Decision Making research pillar. Also a member of ASU's Center for Strategic Communication, Dr. Ruston's research focuses on the socio-cultural dimensions of the information domain. He has applied his expertise in narrative theory and media studies to a variety of counter violent extremism and counter violent extremist ideology research contexts, including: analysis of extremist narratives; strategies for counter or alternative narratives; and the neurobiology of narrative comprehension. He is co-author of Narrative Landmines: Rumors, Islamist Extremism and the Struggle for Strategic Influence (Rutgers University Press, 2012), as well as articles on strategic communication, extremist videos, the narrative potential of new media technologies, narrative/counternarrative and terrorism, propaganda and information operations in the Grey Zone.

Professor Robert McLaughlin is Professor of Military Security Law and Director of the Australian Centre for the Study of Armed Conflict and Society at UNSW Canberra. Prior to taking up this appointment he was on the faculty of the College of Law at the Australian National University, and from 2012-2014 he served as the inaugural Head of the UN Office on Drugs and Crime's Maritime Crime Program (for which he continues to regularly consult). Before becoming an academic, Rob served in the Royal Australian Navy for several decades as both a Seaman officer and a Legal officer. He served in surface units and submarines, and deployed to East Timor, Iraq, and on maritime border protection operations. As a lawyer, he served as Fleet Legal Officer, the Strategic Legal Adviser, Director of the Naval Legal Service, and Director of Operations and International Law in the Department of Defence. In a reserve capacity he continues to serve as an Assistant Inspector General of the

Australian Defence Force. He holds degrees in history, law, and international relations, and earned his PhD at Cambridge. His research areas are law of the sea, maritime law enforcement, the law of armed conflict, and national security law.

Associate Professor David Heslop is the Director of Health Management at the School of Public Health and Community Medicine, at UNSW Sydney. He retains significant military responsibilities as Senior Medical Adviser for CBRNE to Special Operations Headquarters Australia and to Australian Defence Force (ADF) joint senior leadership. He is also a clinically active vocationally registered General Practitioner, a senior trainee in Occupational and Environmental Medicine with the Royal Australasian College of Physicians, and a fellowship candidate for the Academy of Wilderness Medicine. During a military career of over 12 years he has deployed into a variety of complex combat environments, and has advanced international training in Chemical, Biological, Radiological, Nuclear and Explosive (CBRNE) Medicine. In 2014, he was appointed as Senior Medical Officer for Special Operations Command, and was the Officer Commanding and Senior Medical Officer to the ADF CBRNE medical incident response element at Special Operations Engineer Regiment from 2012–2015. He has direct experience in planning for and management of major disasters, mass casualty and multiple casualty situations. He participates in the development and review of national and international clinical and operational general military and CBRNE policy and doctrine and in complex systems modelling.

Professor Sanjay K. Jha is Director of the Cybersecurity and Privacy Laboratory (Cyspri) at UNSW. He also heads the Network Systems and Security Group (NetSys) at the School of Computer Science and Engineering at the University of New South Wales. His research activities cover a wide range of topics in networking including Network and Systems Security, Wireless Sensor Networks, Adhoc/Community wireless networks, Resilience and Multicasting in IP Networks. Sanjay has published over 200 articles in high quality journals and conferences and graduated 25 Phd students. He is the principal author of the book Engineering Internet QoS and a co-editor of the book Wireless Sensor Networks: A Systems Perspective. He is an editor of the IEEE Trans. of Secure and Dependable Computing (TDSC) and served as an associate editor of the IEEE Transactions on Mobile Computing (TMC) and the ACM Computer Communication Review (CCR).

Dr Patrick Veenstra is a data scientist at the Department of Informatics at King's College London with experience in modelling, statistical inference and machine learning on a variety of complex datasets, including those featuring spatial and time series components.
His research focuses on using techniques in machine learning and mathematical modelling to develop risk models for outbreaks of avian influenza in Southeast Asia. His work involves the combination of many different datasets into a spatial analysis framework and handling complex problems such as spatial auto-correlation and problematic presence/absence ratios.

Professor Raina MacIntyre is Professor of Global Biosecurity and NHMRC Principal Research Fellow at the Kirby Institute, UNSW Sydney, and an adjunct professor at the College of Public Affairs and Community Solutions and College of Health Solutions, ASU. She is a specialist physician with a masters and PhD in epidemiology. She leads a research program in control and prevention of infectious diseases, spanning epidemiology, risk analysis, vaccinology, bioterrorism, mathematical modelling, public health and clinical trials. She has over 300 peer reviewed publications in medical journals and sits on national and international expert committees in infectious diseases. She has received many awards including the Sir Henry Wellcome Medal and Prize from the Association of Military Surgeons of the US in 2007 for her work on bioterrorism. She currently heads a NHMRC Centre for Research Excellence in Epidemic Response. She has pioneered concepts of biological threat detection in public health, using cross-disciplinary methods. Her current research focuses on vaccinology (including smallpox), emerging infections, personal protective equipment and bioterrorism detection and prevention.

Associate Professor Matthew Scotch is Associate Professor in the Department of Biomedical Informatics and Assistant Director of the Biodesign Center for Environmental Health Engineering at Arizona State University. He is also Senior Visiting Fellow at the University of New South Wales. His research focuses on the theory and application of phylogeography to study the migration of zoonotic RNA viruses with a particular interest in influenza A viruses. Work in his lab includes the integration, analysis, and presentation of viral genetics for public health/animal health surveillance.

Current projects include studying approaches to advance phylogeography models in order to identify climate, population, and genetic factors that support viral spread (funding: NIH/NLM R01LM012080) and geospatial metadata in virus sequence databases and approaches to include observation error for virus phylogeography (funding: NIH/NIAID R01AI117011).

Dr Grigorios Loukides is a Lecturer (Assistant Professor) in the Department of Informatics, King's College London. He was a Royal Academy of Engineering Research Fellow (2011–2016) at School of Computer Science & Informatics, Cardiff University and a Postdoctoral Research Fellow (2008–2011) at the Department of Biomedical Informatics, Vanderbilt University, USA. His research interests lie broadly in the field of data mining with a focus on privacy/security. His recent research investigates theoretical and practical aspects including algorithmic design, optimization, and formal modeling, and explores applications in healthcare and business. He is editor of Medical Data Privacy Handbook and author of Anonymization of Electronic Medical Records to Support Clinical Analysis.