

Opening Remarks

Dr. Jaspinder Komal

**Assistant Deputy Minister Defence Research and Development Canada (DRDC)
Department of National Defence, Canada**



Dr. Jaspinder Komal graduated from the Faculté de médecine vétérinaire at the Université de Montréal in Saint-Hyacinthe, Quebec, with a degree in Veterinary Medicine and a post-graduate degree in Veterinary Microbiology. In 1994, Dr. Komal joined the Public Service as a Veterinary Inspector as well as a Laboratory Supervisor in Atlantic Canada. Dr. Komal and his family moved to Ottawa where he held various positions of increasing responsibility within the Canadian Food Inspection Agency (CFIA) and other departments, such as Agriculture and Agri-Food Canada (AAFC) and Health Canada. Over the course of his long career, Dr. Komal has gained extensive and diversified experience as a senior scientific leader, having advanced key Government of Canada priorities, and building collaborative partnerships within government, academia, and industry.

Major General Karsten Stoye

Head of Civil-Military Cooperation Division, Advisor to the DG EUROCONTROL



MGen Karsten Stoye assumed his position as Head of Civil-Military Cooperation Division and Military Advisor to the Director General at Eurocontrol after his previous assignment as Chief of Staff at NATO's Headquarters Allied Air Command at Ramstein Air Base. MGen Stoye served as a Branch Chief at the NATO Combined Air Operations Centre 4 (CAOC 4) in Messstetten, Germany, where he was responsible for training and exercises. He contributed to the NATO Operation in Kosovo as Chief Air Task Order Planner at the Balkan CAOC in Vicenza. Previously, he served as Commander of the Flying Group of Fighter Bomber Wing 31 "Boelcke" in Nörvenich. MGen Stoye had been the Commander of the NATO E-3A Component in Geilenkirchen, Germany, from 2015 to 2018, where he led an international military and civilian staff representing 16 NATO nations which provide an airborne early warning, command and control and battle management capability in support of NATO commanders. In 2018 MGen Stoye began his assignment as the Deputy Chief of Staff Operations at NATO's Headquarters Allied Air Command and 2019 as Chief of Staff.

Keynote Speakers and Panelists (15 May 2024)

Major General Kathryn Toohey (Rtd)

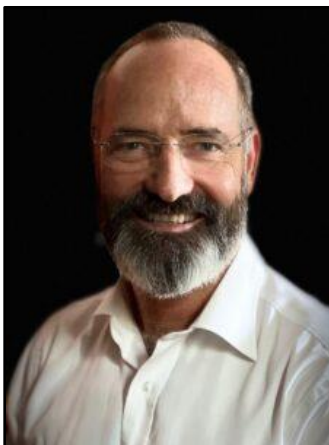
Australian Army



Kathryn Toohey retired from the Australian Army at the rank of Major General in late 2022. As a senior Army officer, Kathryn specialised in Defence capability and was appointed the first Head Land Capability within Army Headquarters where she was responsible for the modernisation and sustainment of Army capability. In her last role as Head Force Integration, she was responsible to provide test and evaluation advice to the Defence Investment Committee. In 2021, her team released the Defence Test and Evaluation Strategy. Kathryn holds an Executive Master's degree in Business Administration (MBA), a Master's of Management in Defence Studies; a Graduate Diploma in Information Technology and a Bachelor of Electrical Engineering (Honours). Since retiring from the Army, Kathryn provides a range of mentoring and advisory services and is a member of several boards, including the Swinburne Defence Advisory Board.

Air Marshal Mel Hupfeld (Rtd)

Royal Australian Air Force



Mel Hupfeld is a member of the Air Services Australia Board since 2023 as a non-Executive Director. He also has roles on the Air Force Association Board, the Spitfire Association Advisory Council, the Swinburne Research Institute Advisory Board and is a member of the Public Service Advisory Board to provide strategic advice to Government and Industry clients. Mel flew Mirage, Classic Hornet and Super Hornet fighter aircraft in several of the Air Force's fighter squadrons and achieved over 3,500 flying hours. In 2001, Mel took command of No 75 Squadron (75SQN) and led the Squadron in operations in the Middle East on Operations BASTILLE and FALCONER. He completed several staff appointments including in the capability development and force design areas and completed the Royal Air Force Advanced Command and Staff Course, graduating with a Master of Arts in Defence Studies from King's College in London in 1998. Mel commanded at every level within the Air Force and was appointed as Chief of Joint Operations in 2018 then Chief of Air Force in 2019. He has assisted the Minister for Home Affairs and Cyber Security as a member of the Expert Advisory Board to develop a National Cyber Security Strategy, contributing to various Boards and Advisory Councils.

Vice Admiral Michael Noonan (Rtd)

Royal Australian Navy



Vice Admiral Mike Noonan retired from the Royal Australian Navy in 2022 after over 38 years service. As Chief of Navy Australia, he was entrusted by the government to be its principal naval advisor, and to raise, train, and sustain Australia’s naval forces. His Command of the Royal Australian Navy spanned a critical period where Australia’s strategic environment underwent rapid and unanticipated deterioration, described as the most consequential strategic realignment since WWII – with the Indo-Pacific at its centre. His tenure was characterised by a genuine respect and care for the people he led, and he determinedly worked to expand the Navy and secured the government’s commitment to grow to 21,000 by 2035. He oversaw the introduction into service of several new naval capabilities, and personally led a small team that transformed the idea of nuclear powered submarines for Australia to an attainable capability outcome. When not tending to his small herd of cattle in south-east Queensland, Admiral Noonan supports industry and academia on a broad range of defence and maritime issues and sits on several related boards.

BGen Gary Hogan (Rtd)

Senior Adviser, Swinburne University of Technology, Australia



BGen Gary Hogan is a former Head of Military Intelligence and Director-General of Scientific and Technical Analysis in the Australian Defence Department. He is a graduate of the Chinese National Defence University and taught China Studies on faculty at the US National Defense University, Washington DC. He was Australia’s first Defence Attaché to the Socialist Republic of Vietnam and the first foreigner to graduate from Indonesia’s National College of Governance. He served three years as Defence Head at the Australian Embassy in Jakarta. He speaks Mandarin, Vietnamese, and Bahasa Indonesia. He is currently Professor of Business Analytics at the University of Newcastle and Managing Director of space exploration company “Lunaria.One”. Gary’s superpower is utilising his linguistic experience to translate between the cryptically unintelligible languages of government, the private sector and Higher Education.

Mr. Pete JW Saunders

Director General, NORAD Continental Defence Modernization Office, Canada



Mr. Saunders enrolled in the Canadian Forces 23 March 1990. He enjoyed operational postings flying and instructing on his beloved Sea King Helicopters at 443 (MH) Sqn in Pat Bay, British Columbia; 423 (MH) Sqn, and 12 Wing Operations in Shearwater, Nova Scotia; culminating in Command of 406 (M) OTS. He has served in HMCS Annapolis, HMCS Iroquois, HMCS Fredericton and HMCS Toronto and has deployed throughout the Middle East. Staff postings to date include two stints in the Career Management shop, the last being a two-year sojourn as DMilC4; responsible for 300 high-maintenance LColts and managing 10,000 members of the RCAF. Mr. Saunders is a graduate of the Joint Command and Staff Program at the Canadian Forces College and the Senior Course at the NATO Defence College. He holds a master's degree in business administration from Heriot Watt University and a master's degree in Defence Studies from the Royal Military College of Canada. In his current role, Mr. Saunders retains oversight of RCAF contracted training programs whilst standing up and leading the RCAF component of NORAD modernization.

Mr. Siegfried Usal

Vice President, Digital Innovation, Thales North America General Manager and General Manager of Thales Digital Solutions, Thales Group



In 2017, Mr. Siegfried Usal co-founded cortAIx in Canada, Thales' operational centre for research and technology in intelligent and expert agents. Today, he is CEO and founder of Thales Digital Solutions, an industrial laboratory responsible for designing and developing human-centric AI in the defence and aerospace sectors. In this capacity, he guides and directs the technology development strategy towards applications specific to collaborative combat and autonomous systems for ethical and responsible use of defence and aerospace assets. Siegfried has over 2,500 hours of flying time on Mirage 2000 and CF-18 aircraft and has flown 75 war missions as a fighter pilot in France and Canada. Serving as a Colonel in the French Air Force, he has held several senior positions in the presidential cabinet of the French Republic and at the French Embassy in Canada. Siegfried Usal is a Knight of the Legion of Honour, Officer of the National Order of Merit, Croix de Guerre in the order of the Air Division, holder of the General Service Medal (Canada) and the General Campaign Star (Canada).

Dr. Edward Tunstel

Chief Technical Officer, Motiv Space Systems, Inc. US



Dr. Edward Tunstel is the CTO at Motiv Space Systems, Inc., a space robotics and motion control company following several years as Robotics Associate Director and Group Leader at Raytheon Technologies Research Center. He spent a decade at Johns Hopkins APL leading robotics and autonomous systems RandD for national security and space applications as both a Senior Robotacist in its Intelligent Systems Center and Space Robotics and Autonomous Control Lead in its space department. He was with NASA JPL for 18 years as a Senior Robotics Engineer and Advanced Robotic Controls Group Lead where he worked on NASA Mars rover missions as flight systems engineer. He has also chaired advisory boards for academic research focused on test and evaluation, and on secure and safe assured autonomy within urban air mobility vehicle systems. He is a past President of the IEEE Systems, Man, and Cybernetics (SMC) Society, an IEEE Fellow, and AIAA Senior Member with over 180 publications in his areas of research interest including autonomous, cooperative, and human-collaborative robotics.

Professor Saeid Nahavandi

Associate Deputy Vice-Chancellor Research and Chief of Defence Innovation, Swinburne University of Technology, Australia



Distinguished Professor Nahavandi is currently Swinburne University of Technology's inaugural Associate Deputy Vice-Chancellor Research and Chief of Defence Innovation. He previously served as Pro Vice-Chancellor (Defence Technologies) and Founding Director of the Institute for Intelligent Systems Research and Innovation, Deakin University. Professor Nahavandi received a Ph.D. from Durham University, U.K. in 1991. He is the Vice President Human-Machine Systems of the IEEE SMC Society and an IEEE Fellow. His research interests include autonomous systems, modeling of complex systems, robotics and haptics. He has published over 1000 scientific papers in various international journals and conferences.

Lieutenant Colonel David Dunwoody

Deputy Director, Data and Analytics Enablement Department of National Defence, Canada



LCol Dunwoody joined the Royal Canadian Air Force in 1991 as a reservist and Aircraft Instrument Electrician with 402 Squadron. Upon earning his wings, he was posted to 14 Wing Greenwood, Nova Scotia to serve on the CP-140 Aurora as an acoustic sensor operator. Attending the Aerospace Systems Course at the Canadian Forces School of Aerospace Studies (CFSAS) at 17 Wing Winnipeg, LCol Dunwoody authored a technical paper on a Human Centred Approach to Uninhabited Aerial Vehicle Operations. During his second tour in Afghanistan, LCol Dunwoody operated the CU-170 Heron flying over 450 hours in theatre operations. LCol Dunwoody served as the school's Operational and Technical Support Flight Commander before being posted to the Canadian Forces School of Aerospace Studies as the Chair for the Department of Aerospace Capability Development and the Deputy Commandant 2016-2020. Assigned as the Senior Aide-de-Camp to the Governor General of Canada, LCol Dunwoody was then posted to the Digital Transformation Office as the Deputy Director for Data and Analytics Enablement in 2023.

Lieutenant Colonel Jean Leymarie

Concept Development Section Head Royal Canadian Air Force Aerospace Warfare Centre



LCol Jean Leymarie brings 24 years of experience in the French Air and Space Force. LCol Leymarie served as an exchange officer at the Royal Canadian Air Force Aerospace Warfare Center (RAWC), where he currently serves as the Concept Development Section Head. His expertise spans the development of future concepts for the RCAF, with a focus on Human-Machine Teaming (HMT) aspects and Air Power, including his current work on an Affordable mass concept for the RCAF. LCol. Leymarie graduated from Nice Air Base in 2000 and earned his Weapon Systems Officer Wings in 2004. He has 2000 flight hours and participated in 85 combat missions. LCol Leymarie holds two Master's of Engineering degrees, obtained from the French Air Force Academy in 2003 and the Ecole Nationale Supérieure des Telecommunications de Paris in 2014, along with a Master in Military Studies from the Canadian Forces College in 2020.

Lieutenant Commander Joseph Geeseman

Science & Technology Portfolio Manager

Naval Aviation Training Systems and Ranges Program Office, United States Navy

Co-Chair, Human-Autonomy Teaming Specialist Team

NATO Joint Capability Group Unmanned Aircraft Systems



LCDR Joseph Geeseman is an accomplished Aerospace Experimental Psychologist in the U.S. Navy continuously serving since his commissioning in 2012. His extensive experience includes serving as program manager during the highly visible development of a fully-autonomous MQ-9 system in an effort called “Smart Sensor” at the Chief Digital and Artificial Intelligence Office (CDAO) in Washington, D.C. Currently, he holds the critical role of military deputy for the establishment of the Live, Virtual, and Constructive (LVC) aviation training environment for the Naval Aviation Training Systems and Ranges Program Office (PMA-205) within NAVAIR. Additionally, LCDR Geeseman contributes his expertise as the Co-Chair of the Human-Autonomy

Teaming Specialist Team for the Joint Capability Group Unmanned Aircraft Systems (JCGUAS) for NATO, shaping the future of human-autonomy teaming in aerial operations.

Kevin Di Filippo

Lockheed Martin Canada



Kevin Di Filippo has been with Lockheed Martin Canada since 2018. Having originally joined as a software developer working on ground control stations for Uncrewed Aircraft Systems (UASs), he switched to product management three years ago, focusing on Alternative Position, Navigation, and Timing (A-PNT) solutions. Prior to joining Lockheed Martin, Kevin earned degrees in Physics (McGill) and Computer Science (Hong Kong University of Science and Technology) and has worked in fields ranging from astronaut training software and satellite attitude determination algorithms to urban wind simulation, atmospheric dispersion modelling, and oil and gas wellbore completion simulation.

Major Cody-Jean “Pinky” Carignan

Deputy Project Director, NORAD Future CAOC Capability Royal Canadian Air Force

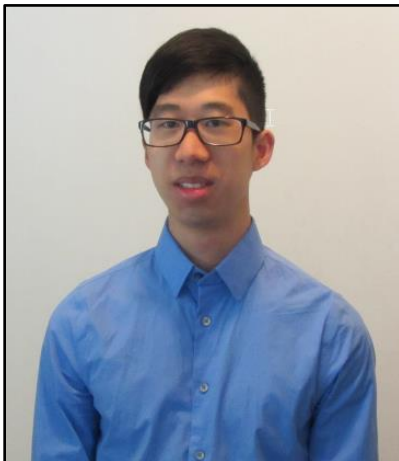


Major Carignan is an RCAF Air Battle Manager with over 1,500 combat hours supporting coalition operations in the Middle East. He has served as the Squadron Weapons and Tacti2cs Officer for the Canadian Air Defence Sector (CADS), as the Chief of Training and Chief of Standards and Evaluations for the 729th Air Control Squadron, and has executed the duties of the CENTCOM Regional Air Defence Commander in his role as a Mission Commander with the 727th Expeditionary Air Control Squadron. Maj Carignan is a graduate of the RCAF Fighter Weapons Instructor Course (FWIC) and a USAF CAF Mission Commander. He is currently assigned to the NORAD-Continental Defence Modernization Office as the Deputy Project Director for the RCAF's Future Combined

Air Operations Centre Capability (FCC) Project.

King Ma

Complex System Inc. (CSI)



King Ma has been overseeing the integration and development of artificial intelligence/machine learning approaches for industrial/defense applications at Complex System Inc. He has been leading projects for the development of a multi-satellite analytic platform for maritime surveillance, machine learning for smart manufacturing, and an edge-server processing framework for smart-city and defense applications. He received the MSc. Degree in Electrical Engineering from the University of Calgary. His research interests include applications of machine learning and data analysis in areas such as defense, space, smart-city and infrastructure monitoring systems.

Dr. Anthony Faust

Program Manager, DRDC Toronto Suffield



Anthony A. Faust received a B.Sc. (Hons) in Physics and Mathematics (1994) from the University of Victoria, Canada, and a Ph.D. in Physics (1999) from the University of Alberta, Canada, contributing to the experimental search for the Higgs Boson at the Large Electron–Positron Collider. He joined Defence R&D Canada (DRDC) - an agency of the Canadian Department of National Defence - as a Defence Scientist in 1999, promoted to Principal Defence Scientist in 2021. In his incumbent position he serves as the Scientific Lead for DRDC's Counter-Explosive Threat program and Head of the Threat Mitigation Group, which is focused on the development and integration of military explosive hazard detection technologies. Seconded to Director General R&D Program in Nov 2022 he is currently Program Manager for Counter Explosive Threat and, more recently, Land Autonomy.

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Mr. Jack Collier

Head, Autonomous Systems Operations Ground Group, DRDC Suffield



Jack is a Defence Scientist at DRDC Suffield Research Centre, where he is the Head of the Autonomous Systems Operations Ground Group. His research focuses on Human-Robot interaction, and Mapping and Navigation in GPS-Denied environments. Recently, he has been exploring the use of Convolutional Neural Networks for gesture and voice control. Mr. Collier received a Bachelor's degree in Electronic Systems Engineering (2002) from the University of Regina and a Master's degree in Mechanical Engineering (2009) from the University of Calgary. He has been working for DRDC since 2002.

Dr. Aren Hunter

Head, Maritime Command Team Support Group, DRDC Atlantic



Aren holds a Ph.D. in cognitive psychology since 2011 and brings over a decade of expertise to her role as the Head of the Maritime Command Team Support Group at DRDC Atlantic Research Centre. Her career is dedicated to addressing human factors problems for the Canadian Armed Forces, particularly the Royal Canadian Navy (RCN). Joining DRDC marked a pivotal moment for Aren, applying her academic insights to practical challenges. Immersed in the RCN's field settings, from submarines to aircraft, she gained crucial hands-on experience, cultivating a profound understanding of military complexities and empathy for those navigating these environments.

Dr. Geoffrey Ho

Head, Human-Technology Interaction, DRDC Toronto



Dr. Ho received his PhD in Psychology from the University of Calgary, completing a dissertation on the topic of trust in automation. He has over 20 years of research and professional experience in the field of Human Factors and Cognitive Psychology. He is currently a Defence Scientist in the Human Technology Interaction Group at DRDC Toronto Research Centre. He has authored and co-authored several scientific publications and reports and has applied this knowledge to a wide array of domains including surface transportation, medicine, process control, home and building controls, and military applications. At DRDC, he has focused on the operational use of automated and autonomous systems, including unmanned systems, data fusion for tracking targets, blue force tracking devices, and intelligent missile defence systems.

Dr. Wenbi Wang

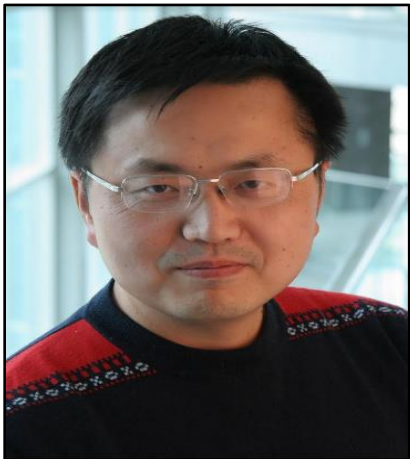
Defence Scientist, DRDC Toronto



Dr. Wang is a defence scientist from DRDC which is the Canadian national leader in defence science and technology. He has been a member of the Human Effectiveness section at the Toronto Research Centre since 2003. He received his Ph.D. in Mechanical and Industrial Engineering with specialization in Human Factors from the University of Toronto. His current research focuses on computational human performance modelling and human-autonomy teaming, including the development of modelling and simulation technologies to address human systems integration challenges in military applications.

Dr. Scott Fang

Defence Scientist, DRDC Toronto



Dr. Scott Fang received his Ph.D. degree in electrical engineering from Memorial University of Newfoundland, Canada in 2018. He is currently a Defence Scientist at DRDC Toronto Research Center. His research interests include modeling and simulation and experimentation in areas of human-autonomy teaming (HAT), and related team trust, team training, team collaboration and team effectiveness, as well as decision support in command and control (C2) for HAT and human-swarm teaming systems.

Dr. Shadi Ghajar-Khosravi

Head, Intelligent, Influence and Collaboration Section, DRDC Toronto

Dr. Shadi Ghajar-Khosravi is a scientist at DRDC Toronto Research Centre. She has a PhD in Mechanical and Industrial Engineering (human factors) from the University of Toronto, and a Masters of Information Systems from the Faculty of Information at the University of Toronto. Her research interests include social network analysis, information systems design and analysis, human-centered design, and more recently explainable artificial intelligence.

Dr. Daniel Lafond

Human Factors and Cognitive Engineering Thales Research and Technology Canada



Daniel is a Human Factors and Cognitive Engineering expert at Thales Research and Technology Canada with over 20 years of experience in basic and applied research in cognitive science. His main R&D areas of expertise include judgment and decision-making, cognitive assistants, team cognition and computational modeling of human decision processes. His work aims to advance decision support systems for tactical coordinators in naval air defence and in maritime patrol contexts. He has also collaborated on sonar operator cognitive modeling and assistance using AI-based solutions. He was previously a visiting fellow at DRDC – Valcartier Research Centre (2008-2012). He holds a PhD in experimental psychology from Laval University (2007)

where he received the gold medal of the Governor General of Canada and the Best Doctoral Thesis award of the Faculty.

Keynote Speech on May 16th

Internet Outages during Times of Conflicts

Professor Ljiljana Trajković

Simon Fraser University, Canada



Professor Ljiljana Trajković received the Dipl. Ing. degree from University of Pristina, Yugoslavia, the M.Sc. degrees in electrical engineering and computer engineering from Syracuse University, Syracuse, NY, and the Ph.D. degree in electrical engineering from University of California at Los Angeles. She is currently a professor in the School of Engineering Science at Simon Fraser University, Canada. Her research interests include communication networks and dynamical systems. Dr. Trajković served as IEEE Division X Delegate/Director, President of the IEEE Systems, Man, and Cybernetics Society, and President of the IEEE Circuits and Systems Society. She was General Co-Chair of SMC 2020, SMC 2016, and HPSR 2014, Technical Program Co-Chair of ISCAS 2005, and Technical Program Chair and Vice General Co-Chair of ISCAS 2004. Dr. Trajković is a fellow of the IEEE and serves as Editor-in-Chief of the IEEE Transactions on Human-Machine Systems. She also served as Associate Editor-in-Chief of the IEEE Open Journal of Systems Engineering. She was a Distinguished Lecturer of the IEEE Circuits and System Society and a Distinguished Lecturer of the IEEE Systems, Man, and Cybernetics Society.

Keynote Speech on May 17th

The Good, The Bad & The Ugly of Self-Driving Cars

Professor Missy Cummings

George Mason University, the United States



Professor Mary (Missy) Cummings received her B.S. in Mathematics from the US Naval Academy in 1988, her M.S. in Space Systems Engineering from the Naval Postgraduate School in 1994, and her Ph.D. in Systems Engineering from the University of Virginia in 2004.

Professor Cummings was a naval officer, a military pilot from 1988-1999, and one of the U.S. Navy's first female fighter pilots. Currently, she is a Professor in the George

Mason University College of Engineering and Computing and the Director of the Mason Autonomy and Robotics Center (MARC). She is an American Institute of Aeronautics and Astronautics (AIAA) Fellow, and recently served as the senior safety advisor to the National Highway Traffic Safety Administration (NHTSA). Her research interests include the application of artificial intelligence (AI) in safety-critical systems, assured autonomy, human-systems engineering, and the ethical and social impact of technology. A specific area of her research is autonomous vehicle performance and the systems-level impacts these autonomous cars and trucks have on the larger transportation ecosystem. She offers five lessons learned in attempting to regulate autonomous vehicles, and demonstrate how these extend to other forms of AI, especially generative AI.