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**NORTH ATLANTIC TREATY ORGANISATION
ORGANISATION DU TRAITÉ DE L'ATLANTIQUE NORD**



**NATO Chief Scientist
NATO HQ, 1110 Brussels
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**Supreme Allied Commander, Transformation
Norfolk, Virginia 23551-2490
United States of America**

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TO: See Distribution

SUBJECT: **CALLING NOTICE FOR THE 14TH NATO OPERATIONS RESEARCH
AND ANALYSIS CONFERENCE**

DATE: 1 September 2020

1. On behalf of the Headquarters Supreme Allied Commander Transformation and the Science and Technology Organization, we are pleased to announce the opening of registration for the 14th NATO Operations Research and Analysis (OR&A) Conference to be held virtually from 5 to 6 October 2020.

2. As part of the continuous development of a NATO OR&A Community of Interest, the event builds on previous conferences and workshops, bringing together the analysis community from NATO commands and agencies, national defence analysis and research organisations, centres of excellence, academia, and industry. It is our goal to provide an exciting programme with plenty of opportunities for discussion and debate.

3. The 2020 theme is **“Emerging and Disruptive Technology”**. The conference will kick off with a number of keynote addresses and continue in seven streams:

- a. Emerging and Disruptive Technology;
- b. Cyber;
- c. Autonomy;
- d. Strategic Analysis;
- e. Artificial Intelligence and Machine Learning;
- f. Big Data/Advanced Analytics;
- g. Wargaming and Combat Modelling.

4. Registration for the conference will be completed through the following link on the STO events site: <https://events.sto.nato.int/index.php/upcoming-events/event-list/event/17-sy/219-nato-operations-research-and-analysis-conference-2020>. Note that although the conference is a virtual event, all participants are required to register in order to be approved for attendance. Registration will close on 28 September, 1700 CEST.

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5. Registrants may login with their credentials if they have an existing account on the STO events site. First time users must submit a request for an STO account.
6. At the time of registration, attendees will be afforded an opportunity to sign up to participate in various mentorship opportunities with our keynote speakers and networking sessions.
7. The conference will run for two half days starting at 1230 on Monday 5 October 2020 and ending at 1800 on Tuesday 6 October 2020 (all times in Central European Summer Time (CEST)). A preliminary conference programme is attached to this calling notice.
8. Additional information (to include connection details for all virtual sessions) will be made available (password protected) through the STO events site after registration is validated. There is no conference fee to attend the conference. The presentations will be published at the same location (password protected) one week prior to the conference and only accessible to participants to the conference.
9. Should there be any questions, our point of contact for registration is Mr Jeroen Groenevelt, STO Collaborative Support Office (CSO), Jeroen.Groenevelt@cs0.nato.int, +33 1 55 61 22 77. For questions concerning the programme or presentations, our point of contact is LTC Pierre Han, ACT, pierre.han@act.nato.int +1 757 747 3732.
10. Please submit any question to our POCs above or to the Programme Committee Chairs: Mrs Sue Collins, sue.collins@act.nato.int, +1 757 747 3121 and Mr Dale Reding, dale.reding@hq.nato.int, +32 (0)2 707 5987.



Dr Bryan Wells
NATO Chief Scientist
Chairman NATO Science & Technology Board
NATO HQ



BGEN Poul Primdahl, Danish Army
Assistant Chief of Staff, Requirements
HQ Supreme Allied Commander
Transformation

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ENCLOSURE:

1. 14th NATO OPERATIONS RESEARCH AND ANALYSIS CONFERENCE
PROGRAMME

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1 GE NL CORPS COS
EUROCORPS COS
NRDC ESP COS
NRDC GRC COS
RRC-FR COS
MNC NE COS
COE Analysis and Simulation for Air Operations
COE Civil-Military Cooperation
COE Cold Weather Operations
COE Combined Joint Operations from the Sea
COE Command and Control
COE Cooperative Cyber Defence

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COE Counter-Improvised Explosive Devices
COE Counter Intelligence
COE Crisis Management and Disaster Response
COE Defence Against Terrorism
COE Energy Security
COE Explosive Ordnance Disposal
COE Human Intelligence
COE Joint Air Power
COE Joint Chemical, Biological, Radiological and Nuclear Defence
COE Military Engineering
COE Military Medicine
COE Military Police
COE Modelling and Simulation
COE Mountain Warfare
COE Naval Mine Warfare
COE Operations in Confined and Shallow Waters
COE Stability Policing
COE Strategic Communications

Internal:

Action:

COS
DCOS SPP, CD, RM, JFD
ACOS REQ, CAP, SPP, JFD, SACT SEE

Information:

List I, II, III, IV, V, VI and VII

14th NATO OPERATIONS RESEARCH AND ANALYSIS CONFERENCE
5-6 October, Virtual Meetings
Programme
(All Times are CEST, GMT+2)

Time	Day 1, Monday 5 October
1200-1230	Arrival and Setup (Virtual Room will open at 1200)
1230-1245	Conference opening + conference rules (plenary) <ul style="list-style-type: none">• Mr Dale REDING, Conference Co-Chair, NATO STO Office of the Chief Scientist• Ms Sue COLLINS, Conference Co-Chair, NATO Allied Command Transformation
1245-1300	Opening remarks (plenary) <ul style="list-style-type: none">• Dr. Bryan WELLS, NATO Chief Scientist• Mr. Mircea GEOANĂ, NATO Deputy Secretary General (TBC)
1300-1400	Keynote 1: Professor Dame Angela MCLEAN - Chief Scientific Adviser for the Ministry of Defence UK (plenary) (TBC)
1400-1430	Break
1430-1600	Stream – Emerging and Disruptive Technology #1 – Lead Mr Dale REDING (NATO STO) <ol style="list-style-type: none">1) Through the Curtain: Methods to Boost the Impact of your EDT Analysis – Ms Louise HOEHL2) What Does Resilience-Building to Emerging and Disruptive Technologies Actually Look Like? – Ms Kulani ABENDROTH-DIAS3) Emerging and Disruptive Technology and Small Military Power - Dr Jakub FUCIK
	Stream – Cyber #1 – Lead Mr Jan FRELIN (SWE) <ol style="list-style-type: none">1) A Cybersecurity Investment Portfolio of Security Safeguards for Military and Nonmilitary Cases – Dr Bartosz SAWIK2) Cyber Risk to Mission: Assessment Methodology - Dr David ALBERTS3) A three-stage machine learning cybersecurity solution for public entities – Mr Stanisław SAGANOWSKI
	Stream – Autonomy #1 – Lead Mr Andy BELL (NATO MCC) <ol style="list-style-type: none">1) The Sky is Falling Down: Unmanned Aerial Vehicles as Emerging & Disruptive Technology Threat Assessment – Mr Evangelos MANTAS2) Towards Augmenting Maritime Surveillance Capabilities via Deployments of Unmanned Aircrafts and Autonomous Underwater Vehicles - Dr Andrej MIHAILOVIC

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	3) How Can Autonomous Systems Save Money in a Military Context? An Operational Analysis Journey through a System of Systems Perspective - Professor Martin PARR
1600-1630	Break
1630-1800	Stream – Strategic Analysis #1 – Lead Ms Sylvie MARTEL (NATO NCIA) 1) Piercing the Fog: What price innovation in NATO Capability Development? – LTC (Rtd) Bruce PENNELL 2) Towards a dynamic theory of hybrid conflict: An exploration with system archetypes – Mr Bas KEIJSER 3) Studies by the Center for Strategic and Budgetary Assessments (CSBA) – Dr Chris BASSLER
	Stream – Big Data / Advanced Analytics #1 - Lead LTC Juan DOMINGUEZ (ESP) 1) Strategic Analytics for NATO Supply Chain Operations – Dr Greg PARLIER 2) Recent Developments in NATO's Survey Programme in Afghanistan - How Technology and Data Science can Improve Survey Based Support to Operations – Mr Nicholas LABSVIRS 3) Making best use of survey data for operational analysis: Pattern analysis using supervised machine learning – Mr Joris WESTERVELD
	Stream – Artificial Intelligence / Machine Learning #1 – Lead Dr Ana Barros (NLD) 1) Application of AI and In-memory Computing for Extracting Vessel Movement Patterns from Historical Data - Dr Milena STRÓŻYNA 2) Internal Consistency, Alignment, and Traceability in a Body of Documents: Exploring Applications of Natural Language Processing to NATO Texts – Dr Philip ELES 3) Hierarchical reinforcement learning (HRL) to alleviate some of the resource burden on human in the loop wargaming – Mr Edward POTTRILL
1800-1900	Keynote 2: VADM (ret'd) Mathias “Mat” WINTER (plenary)
1900-2000	Networking Opportunities

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Tuesday	Day 2, Tuesday, 6 October
1100-1200	Networking Opportunities
1200-1230	Arrival and Setup Time (Virtual Room will open at 1200)
1230-1245	Admin & Recap (Programme Committee Chairs)
1245-1300	Opening day 2 (plenary) – BGEN Poul PRIMDAHL, ACOS Requirements Division, NATO Allied Command Transformation
1300-1400	Keynote 3: BGEN Ilrnàrs A. LEJINS, ACOS Joint Force Development – NATO Allied Command Operations (plenary)
1400-1430	Break
1430-1600	Stream – Emerging and Disruptive Technology #2 – Lead Prof. Dick DECKRO (USA) 1) Assessing the impact of emerging technologies on Canadian Army – Dr Alain AUGER 2) Cybersecurity in the Electrical Power and Energy System: Armour against Cyber & Privacy Attacks & Data Breaches – Mr Ensar ŞEKER 3) Technology Wargaming: Experiencing future technologies combining multiple approaches - Dr Pascal VAN OVERLOOP
	Stream – Big Data / Advanced Analytics #2 - Lead Ms Jackie EATON (NATO JALLC) 1) A data science approach to Lessons Learned: unlocking hidden value in NATO Exercise Big Data – Ms Mihaela RACOVITA 2) Distributed Gaming at the EDGE - Explorations and Experiences - Dr Murray DIXSON 3) Concept for benchmarking in combat simulation for CoA-Analysis - Dr Hermine REICHAU
	Stream – Artificial Intelligence / Machine Learning #2 – Lead Dr. Janis BERZINS (LVA) 1) LASSO: a state-of-the-art AI platform for information extraction from pdf documents and for linking information to user profiles – Dr Tim LAMBALLAIS 2) AI FELIX, a Quest for Innovation in Artificial Intelligence in NATO – Mr Arnau PONS 3) TNO Communication Analysis Dashboard: A suite of tools for automated analysis of media and communications to improve real-time situational understanding - Dr. Tom POWELL
1600-1630	Break
1630-1800	Stream – Emerging and Disruptive Technology #3 – Lead Ms Sue COLLINS (NATO ACT) 1) Use of agent-based modeling and data farming for the army ISR capability assessment – Ms Maude AMYOT-BOURGEOIS 2) The use of FATE for illuminating disruptions - Dr Gitanjali ADLAKHA-HUTCHEON 3) High-uncertainty technologies - Dr David HOLLAND SMITH
	Stream – Big Data / Advanced Analytics #3 - Lead Dr Sigurd GLAERUM (NOR) 1) Emerging technologies, Disinformation, and Decision-making: a Conceptual and Historical Analysis – Dr Simona SOARE 2) Data Science in Intelligence: Rethinking Intelligence Processes in the Information Age – CAPT Tess HORLINGS 3) Dealing with Complexity in Assessing Defence and Security-Related Capacity Building – Dr Valentin POPONETE
	Stream – Wargaming and Combat Modeling #1 – Lead Dr Ben TAYLOR (CAN) 1) Wargaming with Monte-Carlo Tree Search – Mr Christoffer LIMÉR 2) OA Support and Wargaming at the Operational Level: Applied tools, best practices, and lessons learned - Dr Pascal VAN OVERLOOP

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	3) Experimental Wargaming and Emerging Military Capabilities in the NATO Context – Dr Kiran LAKKARAJU
1800-1815	Conference closure (plenary)