



SCIENCE AND TECHNOLOGY ORGANIZATION  
INFORMATION SYSTEMS TECHNOLOGY PANEL



**NATO Science and Technology Organization (STO)  
Collaboration Support Office (CSO)  
Information Systems Technology (IST) Panel**

## **CALL FOR PAPERS**

**IST-208 Research Symposium (RSY) on**

### **Towards the convergence of Edge Computing, Adaptive Networking, and Information Management at the Tactical Edge**

to be held in Lillehammer, Norway, 15-16 October 2024

Note that this symposium is **physical attendance only**.

DEADLINE FOR RECEIPT OF ABSTRACT

**30 APRIL 2024**

(US Authors **16 April** - please check Annex)

This symposium is **NATO Unclassified** and open to NATO Nations, NATO Bodies and STO Enhanced Opportunity Partners (Australia, Japan, Sweden) and Austria, Singapore, Switzerland, Ukraine.



## **CSO IST Panel Office**

### **IST Panel Executive Officer**

Lt. Col. Marek DOBEK

Tel: +33 (0)1 55 61 22 80

Mobile: +33 670 61 76 89

Email: [marek.dobek@csso.nato.int](mailto:marek.dobek@csso.nato.int)

### **IST Panel Executive Assistant**

Mrs. Armelle DUTRUC

Tel: +33 (0)1 55 61 22 82

Mobile: +33 675 086 634

Email: [armelle.dutruc@csso.nato.int](mailto:armelle.dutruc@csso.nato.int)

You can also find this Call for Papers at: <https://events.sto.nato.int>

BP 25 - F-92201 Neuilly-sur-Seine Cedex - France  
Tel: +33 (0)1 55 61 22 80/82 - Fax: +33 (0)1 55 61 22 98/99 - Email: [ist@csso.nato.int](mailto:ist@csso.nato.int)

## **MOTIVATION**

Edge computing has been identified in the NATO Science & Technology Trends 2023-2043 report as an important area for research. Thus, the edge computing concept, which originated in the civilian sector, has been deemed important also for NATO. This symposium aims to bring together researchers (academic and government) as well as industry from different nations in an arena to share and exchange ideas on the convergence of edge computing, adaptive networking, and information management at the tactical edge.

## **SYMPOSIUM OBJECTIVES**

The main objectives of this two-day symposium are firstly to present state-of-the-art updates on the development and application of edge computing from academic and industry professionals and secondly to gain more insight into how these technologies can be applied to real NATO operational issues. By bringing together fundamental research, industry applications and military requirements, we aim to create new multi-disciplinary connections between experts from different areas to work together on problems of international importance.

## **WHY ATTEND THE SYMPOSIUM?**

The symposium will provide a forum for scientists, industry practitioners, and military users to present novel ideas on tactical edge computing approaches. The symposium aims to cover the entire ecosystem surrounding the tactical edge, and the application of edge computing for defense.

The symposium will contribute towards the potential exploitation of existing, new, and disruptive technologies at the tactical edge. The impact is awareness of the challenges and possibilities inherent in the edge computing paradigm, and the symposium will promote exchange of state-of-the-art knowledge on distributed computing approaches at the tactical edge, possibly leading to increased future interoperability and information superiority in coalition operations. The overall goal is to trigger a deep interest to establish follow-up activities (e.g., establish a Community of Interest) and spin off future research & technology group (RTG) activities on particularly promising edge computing aspects.

## **TECHNICAL PROGRAMME COMMITTEE**

### **Chairperson**

Frank T. JOHNSEN (Norway)

### **Panel Mentor**

Mariann HAUGE (Norway)

### **Programme Committee Members**

Emil P. ANDERSEN (Norway)

Simon P. BAKER (United Kingdom)

Kevin CHAN (USA)

Miodrag DJURICA (The Netherlands)

Anthony ISENOR (Canada)

Norman JANSEN (Germany)

Konrad WRONA (NCIA)

## **SYMPOSIUM TOPICS**

This symposium intends to provide a forum for scientists, industry practitioners, and military users to present novel ideas on the foundation, implementation, and application of edge computing at the tactical edge. Submissions must identify one or more topics (from our numbered list of 1 through 6 below) and explicitly state the military and NATO coalition relevance and impact of their work. The following list of topics and sub-topics is not exclusive but shows typical research issues that fit firmly within the intended scope of the symposium, of exploring trust and security in the context of the convergence of edge computing, adaptive networking, and information management at the tactical edge. We encourage submissions ranging from concepts, ongoing research & development, actual implementations, and lessons learned from real-world exercises and/or operations.

### **1. Reliable and secure service delivery**

- Adaptive applications and services
- Virtualization and service orchestration
- DevSecOps, microservices, fine grained scalability
- Resource and service discovery

### **2. Edge computing: Platform**

- Parallelization, performance, and federation
- Mobile nodes
- Autonomy for C4I
- AI (edge computing support for AI algorithms)
- Tactical cloud
- The tactical edge as an element of wider cloud infrastructure
- Edge computing platform and infrastructure support
- Inter-relationship between edge computing, adaptive networking, and information management

### **3. Adaptive networking to support edge computing**

- Interaction between tactical networks and edge computing orchestration
- Heterogeneous networks and policy routing
- Signature management and behavior profiling
- AI for network management

### **4. Information management**

- Interoperability and federation
- Digitalization and automation
- Storage and data-centric approaches

### **5. Military applications of edge computing**

- Lessons from real-world exercises and/or operations
- Edge computing implications for the future of C2
- Development of manned/unmanned platforms suitable for edge computing

### **6. Trust and security**

- Across the network, platform, and information
- Secure AI for network management

## **ABSTRACTS**

Abstracts submitted for the IST-208-RSY “Towards the convergence of Edge Computing, Adaptive Networking, and Information Management at the Tactical Edge” should be in the following format:

TITLE OF THE PAPER  
Name of Author/Co-Author(s)  
Company/Affiliation  
Complete address  
Correspondence email address

- Length: 200-500 words.
- Language: English.
- Classification: NATO Unclassified
- Please select one or more topics best categorizing your work to speed up the selection process
- State if this paper contribution will cover:
  - concepts,
  - research & development,
  - actual implementation, or
  - lessons learned from real-world exercises/operations
- The content of the abstract should provide:
  - Content Scope of the Contribution.
  - A short and explicit statement of the content and its relevance to the symposium.

Please send an electronic copy of the abstract to the IST Panel Office at [ist@cs0.nato.int](mailto:ist@cs0.nato.int) by **30 APRIL 2024 and no later than 16 April 2024 for US authors and US affiliated authors** (see paragraph below).

*Abstracts, Presentations, Papers and Publication Release Forms from US authors or authors affiliated to US organizations must be sent ONLY to NATO S&T Organization US National Coordinator [osd.pentagon.ousd-atl.mbx.usnatcor@mail.mil](mailto:osd.pentagon.ousd-atl.mbx.usnatcor@mail.mil)*

## **PAPERS and PRESENTATIONS**

Each paper author will be allocated 20 minutes for their presentation and an additional 5 minutes for discussion.

Papers must be written and presented in English. Papers accepted and presented at the symposium will be published in the Meeting Proceedings on the [STO website](#) after the event.

Papers should be 5 pages maximum (references excluded) using the CSO MS Word template.

*Papers need to be submitted in the STO Template with a signed STO Publication Release Form (<https://www.sto.nato.int/Pages/support-for-authors.aspx>)*

## **IMPORTANT DATES**

- |                      |  |
|----------------------|--|
| <b>16 APRIL 2024</b> | <b>ONLY USA:</b> Deadline for US authors to submit abstract to the US National Coordinator |
| <b>30 APRIL 2024</b> | Deadline for submission of abstracts   |
| <b>14 MAY 2024</b>   | Notification to authors  |
| <b>21 MAY 2024</b>   | Authors to receive <i>Instructions to Authors</i> from CSO                                 |

<b>21 MAY 2024</b>	Registration for the event opens
<b>30 JULY 2024</b>	<b>ONLY USA:</b> Deadline for US authors to submit paper to the US National Coordinator
<b>20 AUG 2024</b>	Deadline for submission of paper and presentation, and deadline for Presentation/Publication Release Form (Form 13E). All must be submitted to the IST Panel Office by email
<b>04 SEP 2024</b>	Registration for the event closes
<b>15-16 OCT 2024</b>	Symposium

### **GENERAL INFORMATION**

Authors submitting abstracts should ensure that financial support for attending the symposium will be available.

Any questions on the technical aspects or the contents of papers should be addressed to the symposium Chairperson. Questions on the administrative aspects of this symposium should be addressed to the IST Panel Office.

**SPECIAL NOTICE TO US AUTHORS  
AND  
NON-US CITIZENS AFFILIATED WITH US ORGANISATIONS**

Ref: IST-208 Research Symposium, 15-16 October 2024

**ABSTRACTS OF PAPERS FROM THE US MUST BE SENT ONLY TO THE FOLLOWING POC:**

**NATO STO US National Coordinator  
OUSD(R&E)/IO&P,  
3030 Defense Pentagon, Room 5A1082 Washington, DC  
20301-3030  
Tel: +1 (703) 614-2938  
Email: [osd.pentagon.ousd-atl.mbx.usnatcor@mail.mil](mailto:osd.pentagon.ousd-atl.mbx.usnatcor@mail.mil)**

**ALL US AUTHORS MUST SUBMIT ONE ELECTRONIC COPY TO THIS POC BY  
16 April 2024**

In addition to their abstract, all US authors must provide:

- A) A certification (can be signed by the author) that there are no proprietary or copyright limitations
- B) Internal documentation from their local public affairs or foreign disclosure office (or equivalent) that clearly shows:
  - Title of the paper or presentation
  - Level of clearance (i.e. approved for public release)
  - Name, title and organization of the approval authority
- C) Full details of authors

Note that only complete packages (abstracts + items listed above) will be accepted by the US PoC.

After review and approval, the US PoC will forward all US abstracts to the IST Panel Office, who will send them to the Programme Committee.

US authors are encouraged to address questions and concerns to the PoC as early as possible. Delays in meeting deadlines will impact the timely submission of your abstract.