SCIENCE AND TECHNOLOGY ORGANISATION
SPECIALISTS' MEETING

on "ARTIFICIAL INTELLIGENCE FOR MILITARY MULTISENSOR FUSION ENGINES NATO-SET-262

organized by the
Sensors and Electronics Technology Panel
MSE Focus group

to be held in

Budapest, Hungary from the 05th to 06th November 2018

This Specialists' Meeting is up to **NATO UNCLASSIFIED**

open to AUS,CHE,FIN,SWE

Latest Enrolment Date
19 October 2018

Enrol on-line at https://events.sto.nato.int

All presentations and discussions will be held in English.

No conference fee for presenters and participants

INTRODUCTION

General Information

A Specialists' Meeting aims at promoting exchange of state-of-the-art knowledge among an audience of specialists on an important scientific topic to enhance the capability of the NATO S&T community to respond adequately to the NATO requirements.

Attendance at STO specialist meetings is by invitation only from STO National Delegates and from SET Panel Members and will be restricted to citizens from NATO-Member Nations.

The authors will be invited by the Programme Committee that will select papers, based on submitted abstracts that are considered suitable for presentation at the Meeting. The papers and presentations will be delivered only in English.

The audience will include experts from NATO and partner countries The respective National Coordinators will validate the participation.

S&T Organization in NATO

Science & Technology (S&T) in the NATO context is defined as the selective and rigorous generation and application of state-of-the-art, validated knowledge for defence and security purposes. S&T activities embrace scientific research, technology development, transition, application and field-testing, experimentation and a range of related scientific activities that include systems engineering, operational research and analysis, synthesis, integration and validation of knowledge derived through the scientific method.

The mission of the NATO STO is to help position the Nations' and NATO's S&T investments as a strategic enabler of the knowledge and technology advantage for the defence and security posture of NATO Nations and partner Nations, by:

o Conducting and promoting S&T activities that augment and leverage the capabilities and programmes of the Alliance, of the NATO Nations and the partner Nations, in support of NATO's objectives;

o Contributing to NATO's ability to enable and influence security- and defence-related capability development and threat mitigation in NATO Nations and partner Nations, in accordance with NATO policies;

o Supporting decision-making in the NATO Nations and NATO.

The Sensors & Electronics Technology Panel

The Sensors and Electronics Technology (SET) Panel is one of the seven Panels under the STB.

The mission of SET Panel is to foster co-operative research, the exchange of information and the advancement of science and technology among the NATO Nations in the field of sensors and electronics for defence and security. The SET Panel addresses electronic technologies as well as passive and active sensors as they pertain to Reconnaissance, Surveillance and Target Acquisition (RSTA), Electronic Warfare (EW), communications and navigation, and the enhancement of sensor capabilities through multi-sensor integration and fusion.

SET-262 INFORMATION

Background

In NATO missions, vast amounts of sensor data and context knowledge are available for supporting situational awareness. Recent advances in methods for Artificial Intelligence AI make powerful Multisensor Fusion Engines possible that are already and will be even more so the backbones of NATO's situational awareness capabilities. Such engines provide militarily relevant information from heterogeneous multi-functional multiple sensors on multiple distributed and moving platforms. In a sense, this RSM is a sensor-focused counterpart of IST-160 RSM on "Big Data and Artificial Intelligence for Military Decision Making", held on May 30 – June 1, 2018 in Bordeaux, FRA.

Objectives

The RSM encourages and will present invited papers that contribute to AI-empowered Multisensor Fusion Engines. In a systems-of-systems point of view, such engines are to be seamlessly embedded into overarching C5(J)ISR systems, have to profit from advanced communications links, have to be cyber-safe and classically jamming resistant, to be integrated intimately into manned-unmanned teaming, and, last but not least, to be embedded into intuitively designed human-machine interfaces.

AI-empowered Multisensor Fusion Engines are expected to have disruptive effects on various aspects in military situational awareness and decision-making. Encouraged are papers on sensor focused AI methodologies and aspects related to systems design issues taken from: probabilistic reasoning over time, statistical decision making, big/tall/sparse data in multiple sensor data fusion for tracking, classification, anomaly detection, Bayesian and machine learning methods, knowledge-representation, multiple hypothesis and logical analysis, sensor and resources management, examples from military applications. Deliverables are proceedings collecting invited papers and presentation slides.

Topics to be covered:

While clear emphasis placed on military applications, the RSM will discuss latest civilian research results as well. Sensor-focused artificial intelligence covers methods such as deep multiple hypothesis analysis, distributed decision-making, machine / deep learning for extracting object, situation and mission features. Nevertheless, there are uniquely military aspects. Moreover, contributions are encouraged discussing methods for guaranteeing sensor data integrity and security-related aspects of Multisensor Fusion Engines. Besides methods inspired by classical Electronic Warfare issues, this comprises "malicious" sensors as well as navigation and cyber warfare. Since tomorrow's military Multisensor Fusion Engines will be inherently adaptive to scenario and mission requirements and will exploit external knowledge bases massively, cognitive sensing belongs to the topics to be covered.

SET-262 Chair and Co-Chair

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PRELIMINARY SCHEDULE

13 July 2018 – Deadline for abstract submission (US)
27 July 2018 – Deadline for all abstract submission
10 August 2018 – Notification of authors
16 September 2018 – US papers and form 13 submission
22 October 2018 – All papers and form 13 submission

PRELIMINARY INFORMATION TO AUTHORS

All authors that wish to be invited for presenting at the meeting need to send an abstract as described below.

The authors selected by the Programme Committee will receive the Instruction for Authors package from SET Panel office concerning the details of the paper/presentation, publication, etc.

Please note that the authors of papers selected for presentation will not be financially supported by this organization. You are fully responsible for your own hotel and travel.

Each speaker will normally have 20 minutes for presentation and 5 minutes for discussions.

ABSTRACTS

All abstracts of papers must be submitted by the deadline set in the preliminary schedule.

Non-US authors must send the abstract by e-mail as PDF to both:

- o   SET- 262, Chair, Prof. Dr. W.KOCH, wolfgang.koch@fkie.fraunhofer.de

- o   SET Panel Assistant- ewelina.glinska-lewis@cso.nato.int

US authors and non US Citizen affiliated with US organization please see Note below.

The abstracts (length :200-500 words) should contain the following information:

- SET-262 Specialist Meeting **on "Artificial Intelligence for Military Multisensor Fusion Engines"**
- TITLE OF ABSTRACT/PAPER
- Name of Author/Co-Author(s) Company/Affiliation, complete mailing addressees, telephone, Fax and e-mail addresses
- CONTENT - scope of the contribution, relevance to the meeting, rationale, conclusions

NOTE

SPECIAL NOTICE FOR US AUTHORS AND NON US CITIZENS AFFILIATED WITH US ORGANIZATIONS

Abstracts of Papers from the U.S. must be sent ONLY to the following POC:

 NATO CSO US National Coordinator OASD(R&E)/International Technology Programs - 4800 Mark Center Drive Alexandria VA 22350-3600

Country: United States

Phone: +1-571-372-6538/9Fax: +1 571-372-6471

EMail: osd.pentagon.ousd-atl.mbx.usnatcor@mail.mil

All US Authors must include the following statement in a covering letter:

- The work described in this abstract is cleared for presentation to NATO audiences
- The abstract is technically correct
- If work is sponsored by a government agency, identify the organization and attest that the organization is aware of submission
- The abstract is NATO Unclassified; and
- The abstract does not violate any proprietary rights.

requirements, U.S. authors are encouraged to contact the US POC as early as possible. Delays in meeting POC deadlines will impact the timely submission of your abstract.

NOTE: 1. Only complete packages (abstract plus all items listed above) will be accepted by the US P.O.C.
2. After review and approval, the US POC will forward all US abstracts with the Details of Authors Form to the SET Panel Assistant. All US abstracts must be received directly from the US POC. US abstracts will not be accepted directly from authors