

# CALL FOR PAPERS

## 1st International Conference on Autonomous Intelligent Cyber-defence Agents (AICA 2021) VIRTUAL EVENT

### Important Dates:

Deadline for Papers Submissions (**extended**): **15 January 2021**

Notification of acceptance (**extended**): **15 February 2021**

AICA 2021 Conference: March 15-16 2021

Faced with future hugely complex networks, systems and infrastructures on one hand, and with the anticipated huge growth of safety-critical autonomous systems on the other hand, human operators will not be in a position to monitor the cybersecurity of these assets and will not be able anymore to respond to cyber-attacks at the speed, scale and level of complexity needed. For instance, on the battleground, when Intelligent Things fight Intelligent Things in the future, Autonomous Intelligent Malware (AIM) will seek to disable our defence platforms, networks and command and control systems. Our complex networks and systems and/or autonomous military systems and infrastructures will not work without embedding trustworthy autonomous cyber-defence technology that will fight autonomous intelligent malware and other forms of cyber-attacks at speed and scale. Autonomous intelligent cyber-defence Agents - AICA agents - will be a key enabler of our future military networks, devices and combat doctrines. And the AICA technology will be dual also as it will defend also civil networks and systems (IoT, SDN, 5G, Autonomous vehicles, ...). AICA 2021 will be the first AICA conference. It will present the state of the art in Autonomous Cyber Defence. It will allow to discuss issues, gaps and challenges. Its conclusions will feed future research and contribute to creating a wider AICA research & technology community.

### TOPICS

Participants are invited to submit papers on all aspects of AICA including, but not limited to:

- How should AICA agents make decisions in a complex environment and what types of decisions could those be?
- What should the structure of background knowledge and knowledge bases be that are used by AICA agents for making decisions and learning?
- How will such agents work and operate when confronted with malware agents, which can themselves be also autonomous and intelligent while possibly working in swarms?
- How should agents collaborate with one another to enhance their understanding of the cyber battlefield and to share/enhance their own resilience as well as their fighting and learning capacities?
- How will AICA agents and multi agent systems be attacked by adversaries?
- How will AICA agents anticipate, repel, and be resilient in the presence of attacks by adversaries?
- How should we make an AICA single or multi agent system resilient to attacks that will target them?
- What are the appropriate models of trust for AICA agents?
- How will agents learn with limited memory and computing resources?
- How will agents dynamically form and engage in heterogeneous teams?
- How will AICA systems interact with humans?
- How should an underlying AICA architecture and infrastructure support the above goals?
- What are the ethical, legal, rules of engagements and societal implications of AICA agents and similar but offense-oriented technologies?
- What are the possible military/intelligence applications of AICA agents?
- Matrices, measurements and methods to evaluate AICA agents

### PAPER SUBMISSION

Authors are invited to submit research papers describing novel research advances related to all aspects of AICAs written in English, of up to 10 pages, following the Springer-Verlag Lecture Notes in Artificial Intelligence format guidelines. Authors can download the Latex (recommended) or Word templates available at [Springer's web site](#). Accepted papers will be posted electronically on the conference web site. The organisers plan to publish an edited book devoted to the topic of Autonomous Intelligent cyber-

defence Agents after the conference. Authors of accepted papers will be encouraged to extend and submit their paper for inclusion in the edited volume. Submissions should be made electronically in PDF format via the electronic submission system of the AICA 2021 conference [<http://www.easychar.org/cfp/AICA2021>]. At least one author of each published paper must register for the conference.

#### CONFIRMED KEYNOTE SPEAKERS:

Colonel Christian Soules, Air Force IT/Coms/Cyber General, France  
V.S. Subrahmanian, Dartmouth College, USA  
Dr. Paul Theron, Thales, Cyb'Air Research Chair, France

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#### CONTACT POINTS

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