



2018 INNOVATORS' SHOWCASE

WHERE TECHNOLOGY FURTHERS NATIONAL SECURITY

CALL FOR

ABSTRACTS

PRESENTED BY



WHAT

The Intelligence and National Security Alliance (INSA), Intelligence and National Security Foundation (INSF), and its partner organizations invite members of the academic and private sectors to submit abstracts on independent research and development projects that may have national security applications. Areas of interest include:

- ▶ INTERNET OF THINGS (IOT)
- ▶ THE EVOLVING THEATER OF SPACE
- ▶ ARTIFICIAL INTELLIGENCE, AUTOMATION & AUGMENTATION
- ▶ DATA INTELLIGENCE, VISUALIZATION & THE CLOUD
- ▶ MULTI-MISSION SOLUTIONS
- ▶ OTHER GAME-CHANGING IDEAS

Abstracts should be one-page, unclassified, and nonproprietary. See reverse side for more information about the areas of interest and submission requirements.

WHY

Up to 24 abstracts will be selected by INSA's Technology and Innovation Council for inclusion at the 2018 Innovators' Showcase. Presenters will have the opportunity to brief leading government S&T members, whose mission and application needs may provide future funding opportunities. There is no additional cost to present.

More than 70 government scientists and technologists participated in the 2017 Innovators' Showcase, providing constructive feedback to presenters.

Past Showcase observers have included representatives from the Office of the Director of National Intelligence (ODNI) and other Department of Defense and Intelligence Community elements.

All abstracts, regardless of selection, will be made available to government audiences via the ODNI's R-SPACE.

WHEN

Abstracts must be submitted no later than **Wednesday, March 14, 2018**.

Invitations to present at the Showcase will be delivered in **mid-April**.

Presentations will be held at the Innovators' Showcase on **Thursday, May 10, 2018** in **McLean, VA**.

QUESTIONS?

Contact INSA at (703) 224-4672 or send inquiries to showcase@INSAonline.org.

PARTNER ORGANIZATIONS



INTERNET OF THINGS (IOT)

Sensing Technologies

Innovations that create new and novel capabilities to sense presence, geolocation, changes in atmospheric conditions, human attributes for identity management, systemic activity changes in inertia/movement, presence and location of energy (RF, nuclear, photonic), and presence of matter (molecular, biological, chemical, etc.).

Communications Technologies

Architectures, techniques and protocols to enable the conveyance of information amidst a variety of platforms. Consider multi-path and multi-medium communications to enable the delivery of centralized and localized cloud services (e.g., localized or distributed Cloud or FogComputing) and communicating in RF-denied environments.

THE EVOLVING THEATER OF SPACE

SmallSat Opportunities & Threats

Innovations that make use of the growing field of miniature satellites. Consider technologies useful to ensure reliable communications between SmallSats and the ground, intra-constellation communications, situational awareness in space (tracking increasingly small objects both from space and from the ground).

Propulsion Technologies

Novel techniques to propel SmallSat vehicles for attitudinal and orbital adjustments.

ARTIFICIAL INTELLIGENCE, AUTOMATION & AUGMENTATION (AAA)

Machine Learning

Innovations in theory or practice for generating machine learning models that are robust to concept drift or adversarial attack.

Natural Language Processing

Innovative approaches and applications enabling interactions between computer and human languages, particularly digital means to authoritatively and responsively process large natural language corpora.

Computer Vision

Unique digital applications of automatic extraction, analysis, and understanding of mission-value information from a single image or a sequence of images.

Multimodal Learning

Innovative theory or applications that support the simultaneous exploitation of multiple modalities of data to include images, audio and natural language.

Augmentation

Theory or applications that demonstrate significant, measurable improvement in performance for human-machine teams compared to machine or human-only approaches.

DATA INTELLIGENCE, VISUALIZATION & THE CLOUD

Pattern Recognition

Innovations enabling the autonomous discovery of patterns existing in collected data. The data can be imagery, sensory data, communications data, or other large and/or real-time data.

Data Visualization

Innovation that enables a user to visualize collected, stored or real-time data. Uses will be to facilitate data synthezation through visualization or to enable augmented reality through autonomous fusion of disparate data.

Data & Application Integrity

Innovations that enable or ensure data and application integrity and help to establish trust in applications, collected and real-time data. Consider advancements in Block Chain and other distributed registry approaches.

Adapting Commercial Cloud Solutions for Government

Technologies and advancements that enable the employment of commercial cloud architectures and services in tactical and air-gapped environments (i.e., when an internet connection is not possible).

High-performance Computing

Technologies that enable high-performance computing through the utilization of disparate and discrete compute platforms that participate in a private or detached cloud environment.

MULTI-MISSION SOLUTIONS

Adaptive Communications & Sensing

Innovations that enable both sensing and communications to occur in a single integrated platform. Consider advancements in optical communications and sensing (i.e., LASERCOM and LIDAR), RF communications and sensing (i.e., cellular, mmWave or RF communications and RADAR).

Adaptive Multi-medium & Multi-path

Innovations that enable communications to occur using both conventional commercial means and private unobservable communications through the use of entity and path obfuscation.

Interferometry

Innovations in the field of interferometrics to enable the identification, geolocation and interpretation of environmental conditions in the RF and optical domains. Uses for these innovations may include spectroscopy, RF interference monitoring and mitigation.

OTHER GAME CHANGING IDEAS

If you have innovative research that you believe is germane to helping sustain U.S. technological advantage or has the potential to enable a cost-imposing strategy on adversaries of the United States and its allied nations, you may submit an abstract.

ABSTRACT REQUIREMENTS

Submit a **cover letter, unclassified research project abstract, and biographical sketch** to showcase@INSAonline.org no later than **Wednesday, March 14, 2018**.

THE COVER LETTER

Include name, address, phone number and email address of the principal investigator (PI) and, as appropriate, the Co-PI.

Identify your sponsoring corporation/institution, specific IR&D or investment project, and relevant Showcase topic of interest (listed above).

THE ABSTRACT

INSA members may submit an abstract at no cost as a benefit of membership.

Members of partner organizations and academic institutions may submit abstracts at no cost.

Others may submit an abstract for a fee of \$300.

Abstracts are limited to one page. They should be in 12-point (or larger) font, and lead with the title of the project, a brief discussion of the national security challenge, desired outcome(s), and the project's specific aims or hypothesis(es). Include a concise overview of the research design

including methods, schedule, and progress to date.

We also recommend including plans for data analysis and/or future research areas and ongoing related research (internal or external to submitting organization).

Please be sure to include project size, duration and progress information. Submissions must be unclassified and cannot contain any proprietary information.

THE BIOGRAPHICAL SKETCH

No more than one-page background on the PI and any co-PIs.