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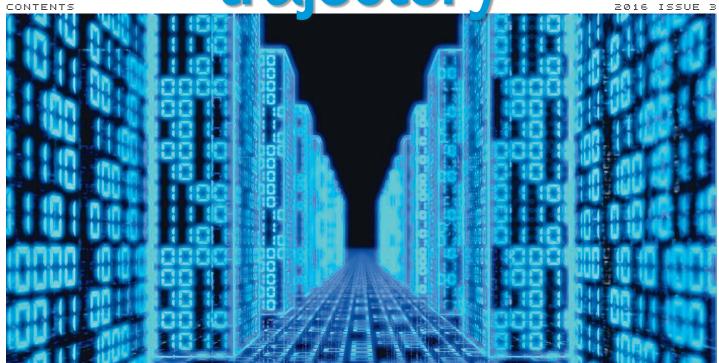
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VANTAGE POINT

A COLLECTIVE EFFORT

I recently had the opportunity to visit USGIF Strategic Partner IBM to learn more about the company's Watson cognitive system and its applicability to broader national security missions and the GEOINT Community. I sincerely appreciated experiencing Watson in action, and it made clear the Intelligence Community is simply nipping at the edges of artificial intelligence (AI).

We are challenged to discover the most efficient and effective uses of AI technologies across the expanse of our collective mission sets. On page 14, longtime *trajectory* writer Melanie D. G. Kaplan does a wonderful job of helping our readers develop a baseline for understanding AI and machine learning. Also in this issue of *trajectory*, you'll find an insightful piece by Jim Hodges regarding the work of the Intelligence Advanced Research Projects Activity.

The *trajectory* team takes pride in providing USGIF members and the GEOINT Community with unique views into myriad topics representing the breadth and depth of the tradecraft. We share these via our integrated print, web, and social media properties.



The USGIF Marketing & Communications team.

Your feedback and our analytics tell us you engage in highly individualized approaches to content consumption, and we strive to serve interesting, relevant information in a variety of formats. We are always looking for your input, and I hope you continue to share your thoughts with letters to the editor, survey responses, and via direct communication to the staff.

USGIF Vice President of Strategic Communications and Marketing Jordan Fuhr leads a team that manages all of this, providing tremendous value to our membership and the Community. Kristin Quinn is the Managing Editor of *trajectory*

responsible for all editorial content, while Shameka Jordan manages the Foundation's marketing, making sure we provide clear and consistent messaging about USGIF and its activities. Lindsay Mitchell plays an integral part, contributing to both the *trajectory* and marketing missions.

I want to acknowledge the marketing and communications department's collective role as part of our larger USGIF team, which at any given time, including interns, numbers about 16 employees. I'm proud of them and the tireless effort they expend in the true spirit of the Foundation—that the proverbial rising of the GEOINT tide would indeed raise all boats. You, our members, continue to vote with your feet. Your investments in the Foundation are humbling, and we remain focused on delivering unquestionable return on that investment.

Now in our 13th year, USGIF leadership is working closely with our Board of Directors to develop a strategic plan to set the course for the organization's next decade. The continued engagement with our members helps us remain true to your expectations, and we are poised to firmly remain the convening authority for the larger GEOINT Community.

Thanks for your ongoing support, and enjoy this issue of *trajectory*. We look forward to seeing you in our office and/or at one of our events soon.



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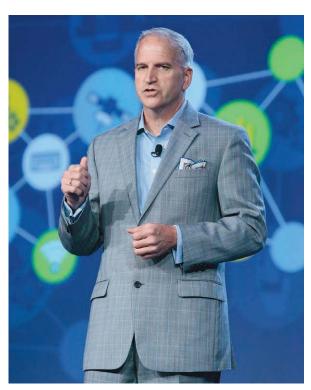
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>> HIGHLIGHTS FROM USGIF'S GEOINT 2016 SYMPOSIUM, HELD MAY 15-18 IN ORLANDO, FLA.

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NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY Director Robert Cardillo discussed the future of his agency's research efforts, workforce development, industry engagement, and more in his GEOINT 2016 keynote.

A NEW AGE OF GEOINT

Last year, during his GEOINT 2015 keynote, National Geospatial-Intelligence Agency (NGA) Director Robert Cardillo introduced a new NGA Strategy focused on four distinct pillars: people, partners, profession, and value. In his GEOINT 2016 keynote, Cardillo reiterated this strategy and announced new initiatives to promote the continuing evolution of geospatial intelligence.

"Enabling customer success is what compels [NGA] every day. We're driven forward by our fear of failing them. They—you—are our reason for being," Cardillo said, stressing the importance of NGA's GEOINT Services initiative in creating customer value. GEOINT Services, the Intelligence Community's enterprise-wide GEOINT delivery platform that spans all security domains, is on track to deliver geospatial content fully in the cloud by the end of 2017.

NGA recently replaced its Inno-Vision Directorate with the launch of NGA Research, which leverages external research expertise. NGA Research will

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soon debut a Silicon Valley branch called NGA Outpost Valley to take advantage of tech industry talent.

"[These initiatives] allow us to put more minds on tasks, bringing fresh ideas, innovative research techniques, and path-breaking science," explained Cardillo, who next pivoted to NGA's focus on its partners.

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S

Cardillo announced the agency would exchange talent with industry and academia through its new NGA Geospatial Exchange program— "eNGAge" for short. By sending internal employees out, and bringing external resources in, NGA hopes to catalyze a culture of innovation that fuels new business practices, enhances collective tradecraft knowledge, and deepens existing partner relationships.

"[The program] will offer our people immersive experiences with industry and academia—and will also allow us to welcome outside talent into NGA," explained Cardillo.

IGAPP GRAND CHALLENGE

TASC, an Engility company, announced the winner of its Innovative GEOINT App Provider Program (IGAPP) Grand Challenge 2016 at the Symposium. IGAPP, managed by TASC for the National Geospatial-Intelligence Agency (NGA), bridges application developers with government customers. Optensity Inc., along with partners PlanetRisk and Rosoka, received a \$25,000 award for its SafeTravelerGlobe app. Now available for download via NGA's app store, the app provides situational awareness to government employees traveling in high-risk areas. NGA Director Robert Cardillo presented Optensity with its award.



PICTURED FROM LEFT TO RIGHT ARE: NGA Director Robert Cardillo; Scott Zimmer of Optensity Inc.; Eileen Ratzer of PlanetRisk; Pamela Arya of Optensity Inc.; and Amanda Brownfield of Engility Corp.

hours of training and education sessions.

The GEOINT 2016 Symposium featured

BREAKING ISIL'S BRAND

The Honorable Michael D. Lumpkin is no stranger to the battlefield. A former Navy SEAL, he spent more than 20 years in active-duty military service, including the first Gulf War and multiple deployments in Iraq and Afghanistan. Those conflicts, however, are far different from the war he's currently fighting: Instead of parachuting from helicopters to fight enemies in the desert, Lumpkin is opening an internet browser to fight them on the web as director of the State Department's new Global Engagement Center (GEC).

Established in January, GEC's mission is to counter the sophisticated marketing and communication campaigns of violent extremist groups such as ISIL, also known as ISIS or Daesh. By creating and distributing alternative messaging, the State Department hopes the U.S. can curb the spread of violence and terror in the Middle East and around the world.

"Daesh/ISIL/ISIS has leveraged social media ... in order to get their message out and to recruit. Basically, they've crowdsourced terrorism," Lumpkin told Jim Sciutto, CNN's chief national security correspondent, during a fireside chat-style interview at GEOINT 2016. "We have changed our strategy to create an agile and innovative organization to combat and to focus on countering their messages and revealing their true nature. Essentially, our focus is looking at how we're going to break the brand of ISIL."



THE HONORABLE MICHAEL D. LUMPKIN of the State Department spoke with Jim Sciutto, CNN's chief national security correspondent, on stage at GEOINT 2016.



BRADFORD TOUSLEY, director of DARPA's Tactical Technology Office, discussed the agency's latest space-related projects at GEOINT Foreword.

DARPA PUSHES THE BOUNDARIES OF SPACE TECHNOLOGY

Speaking at GEOINT Foreword, Bradford Tousley, director of DARPA's Tactical Technology Office, provided updates on the agency's latest efforts to advance the state of the art for space launch, on-orbit satellite servicing, and space domain awareness.

In space launch, DARPA is focusing on the Experimental Spaceplane, or XS-1 program, an effort to field a small satellite launcher that operates more like an aircraft. XS-1 will take off and land from a runway unlike a traditional rocket. The XS-1 is expected to be able to launch 10 times in as many days at a cost of \$5 million per mission. DARPA recently completed the initial study phase of the program and is readying for a second phase that will culminate in a flight demonstration, Tousley said.

DARPA is also preparing to release another solicitation for its latest effort in space robotics, the Robotic Servicing of Geosynchronous Satellites (RSGS) program. DARPA has a long history in space robotics, but operating in geosynchronous orbit presents unique challenges resulting from the high altitude and extreme radiation environment.

In another program, dubbed Hallmark, the aim is to enable warfighters to collect and use space situational awareness data in real time, as can be done with air operations today, according to Tousley.



NATIONAL RECONNAISSANCE **OFFICE (NRO)** Director Betty Sapp announced at GEOINT 2016 NRO has contracted with SpaceX for commercial launch capabilities. by celebrity entrepreneur Elon

EMBRACING COMMERCIAL SPACE

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The National Reconnaissance Office (NRO) is taking full advantage of emerging commercial space and information technology capabilities including launch, NRO Director Betty Sapp said in her GEOINT 2016 keynote.

NRO has contracted with SpaceX for upcoming launches, Sapp said. Founded

Musk, SpaceX recently broke United Launch Alliance's (ULA) longtime monopoly on the U.S. national security launch business by winning a contract to launch an Air Force GPS satellite. ULA, a Boeing-Lockheed Martin joint venture, declined to bid on that contract.

NRO is also trying new and nontraditional acquisition approaches including its Prospector broad agency announcement, which was introduced on Facebook and Twitter, Sapp said. Prospector proposals were limited to a one-page abstracttypical proposals can be as thick as phone books-and a seven-minute video. Five of the seven awards went to new NRO partners, Sapp said.

GEOINT 2016 featured more than



speakers from government, industry, and academia.

IN MOTION | WHAT WE DO



THE HONORABLE MARTIN C. FAGA, former director of the NRO, was named the 2016 recipient of USGIF's Lifetime Achievement Award.

A LIFETIME OF DEDICATION TO TRADECRAFT

USGIF named The Honorable Martin C. Faga, former director of the National Reconnaissance Office (NRO), the 2016 recipient of the Foundation's Arthur C. Lundahl-Thomas C. Finnie Lifetime Achievement Award. Faga is the 12th individual to receive this prestigious award.

"It's hard to express how much the award means to me," Faga said. "I actually knew Arthur Lundahl—he was retired by the time I knew him, but he was very active in mentoring people in the field...To receive an award in his name is a special privilege for me."

Faga was the 10th director of NRO, where he led the declassification of NRO's existence following more than 30 years of secrecy. He revolutionized NRO support to the military, downgraded the classification of NRO products, and appointed a deputy director for military support. Faga retired in 2006 as president and chief executive officer of the MITRE Corporation. Before joining MITRE, Faga served as Assistant Secretary of the Air Force for Space from 1989 to 1993, simultaneously serving as director of NRO.

The Lundahl-Finnie award recipient is nominated and voted on by the USGIF Board of Directors. This distinguished award is named after Arthur C. Lundahl and Thomas C. Finnie, celebrating their accomplishments—in imagery analysis and mapping, respectively—and their legacies within the GEOINT Community.

USGIF GRANTS FIRST PROFESSIONAL CERTIFICATIONS

USGIF officially launched its Universal GEOINT Certification Program at GEOINT 2016. USGIF's certification program—available to U.S. and international GEOINT practitioners across industry, military, academia, and government—includes three exams: GIS and Analysis Tools, Remote Sensing and Imagery Analysis, and Geospatial Data Management. Each of the three exams

Visit usgif.org/ certification to learn more about USGIF's Universal GEOINT Certification Program.

and subsequent certifications are valuable as standalone credentials. GEOINT practitioners who earn and maintain all three USGIF certifications will be eligible to apply for USGIF's overarching Universal GEOINT Professional (UGP) designation. USGIF announced at the Symposium the six practitioners who achieved the UGP designation during the program's pilot testing phase. The first UGP recipients are Talbot Brooks, Stewart Bruce, Chris Johnson, Angel Martinez, Christopher Stahl, and Lt. Col. Michael Wood.



USGIF RECOGNIZED at GEOINT 2016 three of the first six practitioners to achieve the Foundation's Universal GEOINT Professional (UGP) designation. Pictured from left to right are: USGIF CEO Keith Masback, Stewart Bruce, Lt. Col. Michael Wood, USGIF Vice President of Professional Development Dr. Darryl Murdock, Talbot Brooks, and USGIF Chairman of the Board The Honorable Jeffrey K. Harris.

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EXTERNS FROM GETTYSBURG COLLEGE visit USGIF Organizational Member DigitalGlobe.

USGIF HOSTS GETTYSBURG COLLEGE EXTERNS

USGIF hosted three students from Gettysburg College in June to learn more about the GEOINT Community. The students took part in a GEOINT 101 course led by USGIF's Dr. Darryl Murdock, toured the National Air and Space Museum's Steven F. Udvar-Hazy Center, and visited USGIF organizational members including the Army Geospatial Center, DigitalGlobe, OGSystems, Leidos, the National Geospatial-Intelligence Agency, and VRICON.

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IN MOTION | WHAT WE DO

USGIF ACCREDITS JAMES MADISON UNIVERSITY

James Madison University in Harrisonburg, Va., became the 14th university to achieve USGIF academic accreditation. JMU students

earning a bachelor's degree in geographic science



(GS) or intelligence analysis (IA) will also be eligible for a USGIF GEOINT Certificate.

"The certificate program ensures students are familiarized with a broad set of technical and critical thinking skills, as well as provided with knowledge relevant to entering and fostering a career in the geospatial intelligence profession," said Dr. Helmut Kraenzle, professor of geographic science at JMU. "The interdisciplinary nature of our department and of the GS and IA programs will ensure a cutting-edge education for the students in the USGIF GEOINT Certificate program."



CAPT. DAVE BLAKESLEY of NGA discusses the significance of the Pacific Ocean with JROTC cadets from Oak Ridge High School in Orlando, Fla., on National Geographic's Giant Traveling Map at GEOINT 2016.

THE NEXT GENERATION OF GEOINTERS

Nearly 200 young professionals working in the GEOINT Community attended GEOINT 2016. The Symposium offered a networking event, panel discussion, and mentoring sessions intended specifically for young professionals. USGIF also hosted a Young Professionals Golden Ticket Program through which 25 individuals received complimentary Symposium registration and participated in mentoring luncheons, special exhibit hall briefings, and the USGIF Chairman's Reception.

U.S. Air Force Staff Sgt. Carlos Jimenez participated in the Golden Ticket Program for the first time.

"The mentorship opportunities provided have given me a new outlook on life," Jimenez said. "Jeff Jonas of IBM and Sue Gordon of NGA gave great career advice and insight on the importance of selfbelief and risk taking. I recommend every young professional apply for a chance to win a golden ticket to the GEOINT Symposium."

Also at the Symposium, USGIF presented National Geographic's Giant Traveling Map of the Pacific Ocean. USGIF's Young Professionals Group hosted 50 Oak Ridge High School JROTC cadets who visited the giant map. Capt. Dave Blakesley of the National Geospatial-Intelligence Agency spoke to the JROTC students about the importance of the Pacific Ocean. Ninety Orlando area fifth-grade students also visited the Symposium to explore the map and experience special tours and briefings from exhibiting organizations.

ADVANCING THE GEOINT TRADECRAFT

The USGIF Awards Program annually recognizes the exceptional work of the geospatial intelligence tradecraft's brightest minds and organizations pushing the leading edge. Award winners are nominated by their colleagues and selected by the USGIF Awards Subcommittee.

"From year to year the quantity of nominations may vary, but the number submitted this year sets an all-time record, and the competition in all the categories was fierce," said Kevin Jackson, USGIF Awards Subcommittee Chair. "However, some things do remain constant. Underneath the outstanding achievements of the individuals and teams that we honor each year at the Symposium are people of great character and commitment, each with a true sense of purpose." THE 2016 USGIF AWARDS were presented in May at the GEOINT 2016 Symposium in Orlando, Fla.



THE 2016 USGIF AWARD WINNERS ARE:

Academic Achievement Award: The Geospatial Semester, James Madison University Community Support Achievement Award: Exemplar City Inc. Government Achievement Award: iMAP Team, Santa Clara County Fire Department Industry Achievement Award: ABACO R&D Team, ABACO SpA Military Achievement Award: Gunnery Sgt. Jesus M. Bocanegra, Marine Special Operations Company, U.S. Special Operations Command

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ONLINE AND IN-DEMAND

USGIF accredits first international GEOINT program

By Lindsay Tilton Mitchell



USGIF ACADEMIC **ADVISORY BOARD** Member Dr. Rakesh Malhotra (far left) and USGIF Vice President of Professional Development Dr. Darryl Murdock (second from left) met with faculty and staff from the **NOVA Information** Management School at the Universidade de Lisboa in Lisbon. Portugal, in June.

> ARTICIPATING IN A COLLEGE COURSE with students from the other side of the world is becoming an impressive norm. NOVA Information Management School (IMS) at the Universidade de Lisboa in Lisbon, Portugal, uses this e-learning approach for its online master's degree program

NOVA IMS is USGIF's first international school to be accredited and joins 13 other USGIF-accredited collegiate GEOINT certificate programs.

in geographic information systems and science (GISy&Sc).

Created in 2000 following strong student interest, GISy&Sc is the first formal e-learning degree offered in Portugal with 115 graduates having completed the program to date. During the two-year program, students take a set of required and elective coursework in the first year, and they have the choice of writing a thesis or working in the GIS/GEOINT field and writing about their experience in the second year.

NOVA IMS is USGIF's first international school to be accredited and joins 13 other USGIF-accredited collegiate GEOINT certificate programs. Through the USGIF Academic Accreditation program, colleges and universities around the globe have the opportunity to seek accreditation for their geospatial intelligence programs and award accompanying GEOINT certificates to students who meet certain criteria. To date, more than 650 students have graduated with USGIF GEOINT Certificates.

"In past years, we have seen an interest from some students in GEOINT," said Dr. Marco Painho, NOVA IMS program coordinator. "We started paying attention to these questions and demands and observed although GEOINT regionally is very much attached to defense and security, it's also spreading to other areas of society...We are a competitive program and I believe the GEOINT certificate is a great add-on to what we are already offering."

For the GEOINT certificate, NOVA IMS students are required to complete courses in science and geographic

"For anyone interested in geographic information sciences, the master's [program at NOVA IMS] is a great opportunity to learn and grow as a GIS specialist."

—Filipe Pinto, cartographer and GIS specialist, Rio 2016 Olympics and Paralympic Organising Committee

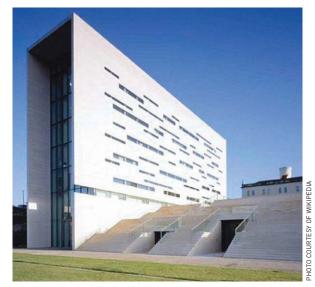
information systems, applications of geographic information systems, modeling in geographic information systems, remote sensing, and geospatial intelligence. Additionally, students select elective courses based on their personal interests in preparation for their thesis or real-world work experience in their second year. The GISy&Sc program also places an emphasis on data analytics, data mining, geostatistics, and remote sensing.

"Many of our students work in local government, civil protection, hazards, flooding, education, homeland security, forestry, archeology, health, etc. — they come from all walks of life," Painho said.

The program is designed for individuals currently working in the field and looking to enhance their skills. The online coursework offers assignments, discussions, forums, and exams. According to Painho, some students create their own online communities to better interact with other students and faculty concerning a specific topic or GEOINT application.

Filipe Pinto, a graduate of the program, works with the Rio 2016 Olympics and Paralympic Organising Committee as a cartographer and GIS specialist. He found the NOVA program to be a great opportunity for his career.

"For anyone interested in geographic information sciences, the master's [program at NOVA IMS] is a great opportunity to learn and grow as a GIS specialist," Pinto said. "In the beginning, I was afraid the e-learning system would not work well with me, but the way the



classes are set up with the study material and the support of the teachers was very helpful. I'm very proud to have been a NOVA IMS student, and this master's degree will always be an important tool and big reference in my career."

The first students to receive USGIF GEOINT Certificates from NOVA IMS will graduate in 2017. **...**

DESPITE THE STRIKING ARCHITECTURE

of the NOVA IMS Rectorate Building, most graduates of the e-learning GISy&Sc master's degree program do not frequent the campus.

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MACHINE LEARNING,

he ancient Chinese game of Go has simple rules, yet is extremely sophisticated. With a large board and few restrictions, the game is said to be a googol (10 to the hundredth power) times more complex than chess. There are more possible positions in Go than there are atoms in the universe.

The game, in which opponents take turns placing black or white stones on a board, is played largely through intuition. Players understand that moves made early in the game can shape the match dozens of plays later. Go's subtleties, patterns, and elegance have captivated players, scholars, and mathematicians for millennia.

HOW WILL THE IC HARNESS ADVANCEMENTS
IN ARTIFICIAL INTELLIGENCE?FORSTANDFORSTANDBUNCHARTER D.G. KAPLAN

> According to Google DeepMind, which created the computer program AlphaGo, Go has long been viewed as a pinnacle against which to measure artificial intelligence (AI). AlphaGo uses a form of AI called deep neural networks to mimic expert players and achieve a 99.8 percent success rate against other

"WHETHER WE CALL IT AI or machine learning, they're different methodologies to try and replicate the human thought process."

- Dr. Colleen McCue, data scientist, CACI

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d deep neural networks olayers and achieve a cess rate against other programs designed to take on Go. In October 2015, AlphaGo became the first computer program to beat a professional Go player, and in March, AlphaGo took on Go world champion Lee Sedol, beating him in four matches out of five.

Industry leaders and academics often use games as a testing ground for algorithms. In 1997, IBM supercomputer Deep Blue defeated the world chess champion, and in v's Wateon supercom-

2011, the company's Watson supercomputer beat two champions at Jeopardy. Two years ago, DeepMind algorithms learned to play dozens of Atari games.

The Intelligence Community (IC) has discussed AI for decades, and in the months after AlphaGo's success, a wave of surprise swept through the community. For many, the human-like intuition required to be successful at Go represents the progression of AI to the next level.

"Many experts thought this wouldn't happen for another 10 years," said Michael Laielli, a research and development technologist at the National Geospatial-Intelligence Agency (NGA). "We're very interested in how [Google] used deep learning in just the right way, combined with other approaches, to solve a very hard problem."

AlphaGo's victory was a wake up call for the IC—not only is machine learning advancing at a breakneck speed, it also demands changes to a long-established culture.

Experts debate the precise definitions of AI, machine learning, and deep learning as well as their relationships to one another. In 1959, Arthur Samuel defined machine learning as a field of study that gives computers the ability to learn without being explicitly programmed. Deep learning is commonly considered to be a more in-depth subset of machine learning. Regardless of terminology, experts agree these technologies promise a sea change in problem solving.

Terry Busch, chief of the Defense Intelligence Agency's (DIA) integrated analysis and methodologies division, believes machine learning and automation will allow his experts to be just that, experts, rather than data managers. Finding new ways to interrogate data will benefit the tradecraft and yield powerful results, Busch said. But he's also aware of the challenges.

"We're in about third grade," Busch said of DIA's machine learning capabilities in April at USGIF's second Data Analytics Forum in Herndon, Va. "And we need to get to graduate school—fast."

BUZZWORDS

Although proper definitions

are still being debated among experts and scholars, the following are generally accepted definitions to help understand the nuances among these increasingly common phrases.

ARTIFICIAL INTELLIGENCE: A branch of computer science focused on the development of technologies that simulate human cognition and general intelligence.

MACHINE LEARNING: A multidisciplinary approach allowing computers to adapt without the need for explicit programming, i.e., the machine may modify its own rule set to learn new rules for future problems. Machine learning includes two training methods: supervised learning, in which known events are used to create models; and unsupervised learning, in which the machine learns from naturally occurring trends, patterns, sequences, and associations. The two methods can be used alone or in parallel. A common example of a machine learning paradigm is an artificial neural network mimicking a biological one.

DEEP LEARNING: A branch of machine learning that attempts to mimic the architecture of the human brain by using multiple levels of highly connected simple models, i.e., a multilayer neural network. Deep learning systems can infer new insights from a large set of provided data or inputs.

and Predictive Analysis: Intelligence Gathering and Crime Analysis. "We use them to confirm what we know or think we know and to discover new patterns, relationships, and entities."

BIG UNDERSTANDING

It wasn't long ago that the phrase "big

data" created a deafening buzz in the

IC. Now, the focus has shifted—in a

subtle but profound way-from col-

lecting information to empowering

it. How can we derive meaning from

big data? How can we use big data to

understanding," for which intelligent

learning, they're different methodolo-

gies to try and replicate the human

thought process," explained Dr. Col-

leen "Kelly" McCue, a data scientist

at CACI and author of Data Mining

machines are essential.

change outcomes? Today's buzz is "big

"Whether we call it AI or machine



McCue said AI is particularly helpful in achieving two goals: performing tasks humans cannot (such as processing massive amounts of information); and performing tasks humans should not (such as those that are highly repetitive).

"Whether you're trying to optimize sales in your store or figure out where the bad guy will go next, trying to process that much data is not a good use of human time," McCue said.

Esri President Jack Dangermond said machine learning is about finding the needle in the haystack. He is especially fond of the phrase, "burn the haystack down." Esri's capabilities now allow users to find the proverbial needle in the haystack in minutes, not weeks—whether it's discovering incongruities, recognizing patterns, or revealing fraud. The key is integrating big data and AI into a GIS platform, which allows the user to detect links between people and places, changes in imagery, or interactions between humans, events, and locations.

"In the intel space, this may mean finding bad guys based upon their spatial data anomalies discovered out of billions of human observations," Dangermond said. "We are not as interested in big data and smart computations as we are in creating big understanding and being able to drive that understanding and insight into the actual workflows or right down to the tactical operations people making decisions."

In automating some tedious tasks typically performed by humans, such as manually scanning an image, AI frees us to think creatively, "one of the best attributes of the human brain," noted NGA's Laielli. Many in the IC say machine learning is, at the very least, a workforce multiplier—a powerful tool for finding the most valuable bits among vast amounts of data.

But to create truly intelligent machines, Laielli said, the computer must be able to connect those bits of data, think critically, and produce cohesive analysis as a result.

DEEP LEARNING

The ImageNet Large Scale Visual Recognition Challenge began in 2010

WHAT'S NEXT? Jeff Jonas on selective curiosity

1110001

Standing on the grounds of the U.S. Capitol, one hears birds, buses, and the chattering of tourists. Off in the distance is a siren, the overhead whir of a helicopter, the clanging of a construction site. In the nation's capital, these sounds are typical, and they generally don't elicit inquisitiveness. Throw the crack of a gunshot into the mix, and one instantly becomes quite curious.

This is what IBM Fellow and USGIF board member Jeff Jonas has coined "Selective Curiosity."

"You can't be curious about everything," Jonas said, noting that the out-of-the-ordinary cannot always invoke our curiosity either. "There are simply not enough free computational cycles to investigate everything."

In his lab, Jonas is developing Selective Curiosity features, in which a machine will not only determine it needs more information to reach a conclusion, but independently seek the information from sources such as Google or LexisNexis.

In a 2014 blog, Jonas wrote that his G2 Selective Curiosity tool—which he hopes to reveal later this year—"finds a maybe that would matter." In the Intelligence Community, machines routinely produce "maybes." In such situations, this new technology aims to help a machine determine what it wishes it knew (i.e., an individual's employer or home address) and figure out where it should go to find the answer.

"In big data there are millions of maybes," Jonas said. He added that tipping and cueing—which tips analysts or an algorithm toward a particular person or object in the data—is riddled with false positives. "Fixing these accuracy rates will not come from more algorithm work, it will come from more data."

But which data? Jonas said Selective Curiosity will allow the machine to figure out—and then search for—exactly the type of data it needs, yielding significantly more accurate decision-making than existing methods can deliver.

and has since become the benchmark for large-scale object recognition. Competitors in industry and academia train their algorithms using more than one million labeled images in more than 1,000 categories. During competition, their software is tasked to name unlabeled images, and in 2012 the event hit a milestone: For the first time, the winning team used deep learning to improve accuracy.

Loosely based on the brain's neural network—yet not nearly as intricate deep learning feeds off big data. Because it is designed to work like a brain, a deep learning enabled machine doesn't need to understand (or be explicitly programmed for) the universe's rules for every possible scenario. Rather, its algorithm learns. In essence, developers teach and guide the algorithm. For example: "This is a cat; go identify other cats."

Machines that learn from experience are now tasked with intuitive problems, such as recognizing speech, faces, and preferences. Considered a branch of machine learning, deep learning already touches human lives in countless ways: DeepMind helps doctors detect cases of acute kidney injury; Netflix recommends movies for you to watch;



> Microsoft's CaptionBot describes photos; Google's spam filter uses an artificial neural network to intercept 99.9 percent of unwanted emails; Facebook's Deep-Face recognizes your friends; Google and Chrysler are building driverless minivans that can recognize pedestrians; and Amazon's Alexa keeps track of your grocery list. Some say it's not long before a machine will review inbox messages, filter out the noise, and show us only the emails that require our attention.

> "You train the machine like a newborn," explained Dr. Dennis Bellafiore, who teaches in the geography department at Pennsylvania State University and studies machine learning. "But once you do, boy are they fast. And [the machine] will go beyond repetitive tasks. It will start to consider various scenarios, possibilities, and things that may be related from a geographic and temporal perspective."

Andrew Jenkins, a principal data scientist at DigitalGlobe, said perhaps one of the most significant tasks taken on by machine learning is feature extraction, which has traditionally relied on human expertise.

"What deep learning provides is an unsupervised process that allows the algorithm to learn and extract the best features—taking the human out of the loop," Jenkins said. "If you want the machine to learn to detect a car in a picture, for example, you'd give it many samples of a car, and the algorithm would pick up on features such as distinct edges, color, and shapes. Then it could see a picture of another vehicle and say, 'I have 95 percent confidence this is a car.''

Laielli said historically, visual recognition has been a hard problem for machines. "[Achieving this] has brought computers to a level arguably as good as humans on certain visual tasks."

He added, deep learning has given machines an important boost in the ability to learn from large amounts of data. Deep learning is not just hype, Laielli stressed. Academia, government, and industry are keeping an eye on how the other sectors are applying the technology, and some describe the effort to snatch up deep learning experts as a virtual arms race. NGA, for example, is paying attention to research being conducted by companies such as Uber, Facebook, Apple, and Google. The banking and finance sectors are investing heavily in this area. Advances in neuroscience continue to help humans understand how the brain works and how we learn, which in turn helps data scientists develop smarter computer programs.

Sarah Battersby, a senior research scientist at Tableau Software, said deep

learning is particularly helpful to the IC: "It would be impossible to have enough trained analysts and time to evaluate all the sensor data available," she said.

However, a well-trained machine learning system could sift through the data and then human analysts could evaluate the smaller set of more relevant data.

But these techniques are only as good as your data and training methods, Battersby added. "One should never implement a machine learning system to provide 'the answer' without evaluating the potential quality concerns of the result," she said.

Potential GEOINT applications for deep learning include crisis response management, unmanned vehicle operations, air traffic control, and industrial process control. Deep learning algorithms can keep up with events that happen in different times and places, look for objects in enormous geographic areas, or locate words in vast social media repositories. Using satellite imagery, weather analytics, and human activity, for example, deep learning can help predict famines and droughts that could lead to uprisings or make informed decisions about the best place to land a helicopter. The machine helps humans understand, reason, and learn; and the more it works, the smarter it becomes.



IBM WATSON is a technology platform that uses natural language processing and machine learning to reveal insights from large amounts of unstructured data.

MACHINES ON OUR TEAM

A critical ingredient to machine learning is providing machines with enough feedback so they know when they're right or wrong. Although experts agree humans need to stay in the loop, finding the sweet spot of human-computer balance is tricky at best. Concerns about humans being totally replaced by machines might be unfounded. Yet experts in many areas of AI still talk about the potential dangers of intelligent computers and express concern about technological singularity—when computer intelligence exceeds that of the human brain with dire consequences.

"The biggest issue for the 21st century, for individuals and organizations alike, is determining how to achieve the correct balance between humans and automation to optimize outcomes," said Richard Boyd, CEO of SZL, which offers a cognitive machine learning system by the same name.

As an example of this balance, Boyd described an object-scanning machine that is 85 percent confident in its assessment. A human follows behind, amends answers, and the machine learns. Those adopting AI look at machines as an integral team member and perceive the goal as synergy between machine processing and human attention and care.

"Whether you're trying to do calculations for space missions or work on the human genome, machines are good for some things, and humans are good at some things," Boyd said. "The combination of them working together is a powerful way to go after unstructured data—and separate the wheat from the chaff—from chatter on social media to satellite imagery."

Although machines can sometimes pick up subtleties that aren't apparent to humans, Patrick Biltgen, technical director for analytics at Vencore, emphasizes machines don't understand nuance. This is immediately clear when you upload slightly ambiguous photos into Microsoft's CaptionBot. The classic example is that a computer sees a picture of a cat—perhaps in an unusual position—and says, "I am not really confident, but I think it's a cat," whereas a 3-year-old human will know, unequivocally, that it's a feline. Computers also have a difficult time understanding deception and sarcasm, which can lead to false alarms.

"If you train a computer to recognize what an invasion looks like, it might be tripped up by a fake invasion," Biltgen said. "There's promise with AI, but the journey is very frustrating, especially with GEOINT."

He cited an example of an airborne motion sensor that was confused by the movement of trees blowing in a strong wind. That created an alert that there were 50,000 "movers" in a city—and it took a human to understand this scenario was implausible in a city with fewer than 50,000 residents.

"So you go back and tweak the algorithm," Biltgen said. "[There's often] some fairly obvious false alarm that a human should have known to correct for."

The possibilities for error are boundless: A computer can report that a large number of vehicles uncharacteristically appeared at a location where it previously hadn't seen cars. What the machine doesn't know—until a human educates it—is that it's the first Sunday of football season, and the cars are gathering in a stadium parking lot.

"This is an example of the challenge of 'normalcy," Biltgen said. "Is the empty parking lot normal or is football season every fall normal?"

In another widely cited example, motion imagery systems may be calibrated to detect loitering and U-turns, under the assumption that anyone who loiters or U-turns is up to no good. But what about loitering taxis? Or mail trucks that often turn around? Machine learning systems require extensive tuning to eliminate false alarms.

Computers also struggle when it comes to judgment—which is why Predator UAVs don't decide where to fire and robots don't sit in a jury box. A machine may discover a city in Syria has new fortifications, or it may determine that a runway has doubled in size, but it can't tell us if either was built by friend or foe. A machine—at least for now—cannot discern whether an adversary is lying.

Gabe Chang, IBM's federal CTO architect, contributed to an article on deep learning for USGIF's 2016 State of GEOINT Report. Chang said intelligence agencies still have a long road ahead before bringing the benefits of machine learning to analysts and warfighters.

"We need to find a faster way to transition from the innovative to the everyday," Chang said. He added that decision-makers, traditionally risk-averse, need to be "more willing in this cognitive world to make mistakes and learn from them."

Implementation challenges are considerable. As academia pursues ways for non-technical people to use data science tools in the workplace, industry leaders try to embed AI into the workflow in ways that are seamless, relevant, and actionable.

"If you present something that's overly complex or not timely, it's the analytic version of a tree falling in the woods," McCue said. "The end user needs to be able to understand the output, and you have to be able to analyze data in motion. You can't say, 'Just put the investigation on hold for three days while I work on these algorithms."

She added that because of the longestablished "I'll know it when I see it" culture among analysts, it's important to incorporate AI slowly.

"Some of the models are so complicated, you have to just look at the metrics and say it works," McCue said. "That's not something analysts are comfortable with right away. You can earn the trust of the analyst by incorporating a little machine learning and then building up to some of the more computationally intensive capabilities."

At USGIF's April Data Analytics Forum, Skip McCormick, a CIA data scientist, said even the best algorithms don't stand a chance without ground truth against which to measure.

"If you don't have some sort of ground truth to measure your forecast against, you have no way to know whether your algorithm is any good and no way to convince an analyst they should pay attention to it," McCormick said.

Despite the cultural and logistical challenges, McCue said deep learning in the GEOINT space is a critical next step for the IC—and the time is right.

"Enormous content and high-performance computing and algorithms have all come together. The timing is beautiful," she said. "It's game-changing." ****** A MACHINE may discover a city in Syria has new fortifications, or it may determine that a runway has doubled in size, but it can't tell us if either was built by friend or foe.

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OUANTUN LEAPS

THE INTELLIGENCE ADVANCED RESEARCH PROJECTS ACTIVITY TACKLES THE INTELLIGENCE COMMUNITY'S MOST VEXING PROBLEMS

BY JIM HODGES

THIS ION TRAP is

used by NIST under IARPA MQCO and LogiQ quantum computing programs for research such as iontransport studies as well as two-species and highfidelity quantum gates. One magnesium ion and one beryllium ion are trapped four micrometers apart near the cross-shaped opening at the center.

FTER CONDUCTING speech research in laboratories at Purdue University, the University of Maryland, and Johns Hopkins University, Dr. Mary Harper's quest to build advanced speech recognition systems led her to the Intelligence Advanced Research Projects Activity (IARPA).

"As you begin to engage larger and larger groups of researchers, which is something that we get to do here at IARPA, you can actually solve much more interesting and important problems than is possible as an individual researcher," said Harper, who leads Babel, an ambitious IARPA program that has collected speech for 26 of the world's 7,105 living languages.

Some of the languages are as well known as Cantonese and Pashto, while others, such as Zulu and Igbo, are more obscure. Harper's mission: Use data

in those languages—collected in a variety of recording conditions including cellphones in a crowded room or microphones in a reverberant room—as the foundation for technology that would enable computers to be trained in a week or less to transcribe speech in these languages to text.

Harper belongs to a cadre of program managers (PMs) that are the backbone of IARPA. The PMs are hired on three- to five-year contracts from academia, industry, national laboratories, and federal agencies to pursue high-risk solutions with the potential for high reward. Upon completion of their contract, some PMs return to their former positions, while others move on with the addition of IARPA to their resume.

At IARPA, new PMs take on programs orphaned by departing PMs while also embarking on new programs of their own—knowing the programs they launch will likely be completed by someone else. It's a cycle that keeps fresh ideas and approaches flowing through the building, located in a research park on the University of Maryland campus.

IARPA was conceived in 2006 and officially stood up in 2007 under the Office of the Director of National Intelligence to support the Intelligence Community (IC). Built on the model of its older and more commonly recognized cousin, the Defense Advanced Research Projects Agency (DARPA), IARPA has unclassified programs addressing computing, global-scale 3D modeling, biometrics, forecasting, cybersecurity, and geospatial and signals intelligence to name a few. The end goal is to successfully transition research to federal agencies for intelligence gathering and processing.

Though DARPA and IARPA serve the Defense Department and the IC, respectively, the two organizations share information to avoid redundancy. For example, Babel leverages research from and expands upon earlier DARPA research. IARPA programs seek to

"If we had a failure rate of only 10 PERCENT, I would say we're picking problems that are too easy."

– Dr. Jason Matheny, Director, IARPA

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Dr. Jason Matheny, Director, IARPA



Dr. Stacey Dixon, Deputy Director, IARPA

solve problems so complex they require substantial resources only an organization such as IARPA can offer.

"People say that in order to be successful in an IARPA program, you're looking at one or two miracles to happen," said Dr. Hakjae Kim, who is on assignment to IARPA from the National Geospatial-Intelligence Agency (NGA). Since arriving at IARPA, Kim pitched CORE3D, a global-scale 3D modeling program that would use data from several satellite sensors to add a third dimension to map features through automation—taking humans out of the loop.

IARPA programs seek to meet a longterm need of an intelligence agency or the overall IC. The requesting agency offers consulting before a program begins, representatives for the program's advisement team, and a plan to transition a viable solution into the agency for field use.

"At every opportunity, we try to make sure there's somebody who's going to benefit from this research," said IARPA

> Deputy Director Dr. Stacey Dixon, who was most recently at NGA. "[The agencies] have an opportunity to influence the types of metrics we set, so we know whatever capability we're trying to develop translates into something they actually need accomplished."

Dixon has held several positions throughout her career, including serving as a professional staff member on the U.S. House of Representatives Permanent Select Committee on Intelligence. In this role, she helped with the legislative groundwork that established IARPA.

Leading IARPA since August 2015 is Director Dr. Jason Matheny, who joined IARPA from Oxford University, where he was researching probability theory and risk assessment.

"I came [to IARPA] because I could fund 100 people who were world-class scientists and engineers who could work on those problems," said Matheny, whose first IARPA position was to manage forecasting programs, one of which supported a research effort that alerted U.S. public health officials to the West African Ebola outbreak. Matheny served in various posts on his way to the director's chair.

"I got to multiply my own research effort by a factor of 100," Matheny said. "I know some program managers who came from academia or industry labs or other government labs are here because of the ability to create an entire research community that didn't exist before."

NO PET PROGRAMS

Program managers shepherd programs from conception, through a "Proposers' Day" — a conference in which the research community weighs in on the idea, and the writing and releasing of a broad agency announcement to inform potential researchers around the globe of the IARPA opportunity.

The PM job is heady. For example, the research groups PMs manage might include Nobel Laureates or McArthur Genius Grant recipients. Cold Spring Harbor Laboratory, part of a consortium that signed a \$21 million IARPA contract in February to map the brain as part of the Machine Intelligence from Cortical Networks (MICrONS) program, led by Dr. R. Jacob Vogelstein, has eight such prize winners. MICrONS is part of a neuroscience effort that seeks to make computers think more like humans by reverse-engineering the brain's algorithms. Dr. David Wineland shared the 2012 Nobel Prize in physics partly for his IARPA research on quantum computing.

The fresh talent circulating through IARPA is, in part, the result of a saying by Matheny's predecessor, Dr. Peter Highnam, who is said to have frequently reminded PMs not to fund their "pet rocks." Highnam now directs research and development at NGA, but the term "pet rocks" lingers as a reminder to PMs that their programs can end at any time if adequate progress is not made. This is why approximately a quarter of the budget for an IARPA program is allocated to testing and evaluation—for a typical unclassified program, this is around \$2.5 million per year on "T&E," according to Matheny. The overall IARPA budget is classified, as are some of its programs.

Approximately 20 percent of IARPA programs and as many as 50 percent of its research efforts end short of a solution, Matheny estimates. Programs and research efforts are cancelled for a variety of reasons that do not always equate to failure. And cancellations aren't kept under wraps; in fact they demonstrate that IARPA is hard at work, Matheny added.

"If we had a failure rate of only 10 percent, I would say we're picking problems that are too easy," he said.

BITTERSWEET FAREWELLS

In addition to taking on existing programs, IARPA PMs are hired based upon their own pitch of a new program. PMs pitch their program ideas by answering "Heilmeier Questions," created by Inventors Hall of Fame engineer George Heilmeier. The questions ask for a clear, jargon-free explanation of the problem and its current state of solution, as well as an explanation of what IARPA can add to that state and what it would cost to do so.

Seemingly straightforward, the Heilmeier Questions often stump aspiring PMs.

"I came in and pitched an idea to the director (then Dr. Lisa Porter)," said IARPA PM Dr. David Moehring. "I think her quote was, 'It's clear you are technically competent, but you need more practice in organizing and managing milestonedriven programs like those at IARPA."

Moehring refined his Heilmeier answers, improved his pitch, and was later hired. His newest program, LogiQ, seeks a solution to the problem of encoding imperfect physical qubits into a logical qubit. Qubits—or quantum bits—are somewhat like the analog computer's bits. But qubits, the foundation of quantum computing, can greatly shorten the time needed to decipher encrypted messages, which is one reason the IC wants to leverage quantum computing. Moehring's program aims to take the IC part of the way there in five years. The U.S. government has worked on quantum computing for 20 years and IARPA has several transition partners for LogiQ.

But somebody else will reap the recognition should LogiQ's quest come to fruition. Moehring learned this lesson when he took over the Multi-Qubit Coherent Operations (MQCO) program from its original PM, Dr. Michael Mandelberg, who recruited Moehring as his replacement.

WHAT'S NEXT

The GEOINT revolution has arrived. Learn more about our investment in the future of geospatial intelligence.



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<u>SUCCESS</u> — AND FAILURE

When word of an Ebola epidemic drifted out of West Africa in 2014. much of the world averted its eyes. But the Intelligence Advanced Research Projects Activity (IARPA) and Dr. Jason Matheny, who came to IARPA as a program manager in 2011 after a long career in epidemiology, looked closer.

At the time, Matheny-now director of IARPA—led a program called Open Source Indicators (OSI). One of OSI's funded research teams, Harvard University's HealthMap, sounded an alarm to U.S. health officials, who put a relief effort in motion that included the Intelligence Community (IC) to help quell the epidemic.

"With machine learning and open-source data, social media, newsfeeds, financial market data, and web search queries, we can detect disease outbreaks weeks sooner than with other methods." Matheny said. "I spent most of my life working in public health in epidemiology. We often had disease outbreaks that we detected too late. Thousands of people would die because we detected diseases too late."

OSI is just one example of what IARPA has accomplished since it was stood up in 2007. But IARPA success stories aren't often publicized because most of the activity's generally unclassified research



DR. CHRIS BOEHNEN operates a standoff face and iris sensor to capture biometrics at a distance.

programs become classified when they transition to the IC, according to a spokesperson from the Office of the Director of National Intelligence.

However, researchers who contract with IARPA to work on unclassified programs are free to publish and develop products of their own. This is how Google obtained facial recognition research conducted for IARPA's Biometrics **Exploitation Science and Technology** (BEST) program, previously managed by Michael King, when the company acquired Carnegie Mellon University offshoot Pittsburgh Pattern Recognition.

"The government was able to get usage rights for the technology since we supported its development," said Dr. Chris Boehnen, an IARPA program manager. "It's an example

of how, even when programs end, we still support them and help our partners continue to use them."

But not all IARPA programs transition to the field unless research shows they are feasible or valuable enough to continue to completion.

The Synthetic Holographic Observation program was one that fell short of its technical goals. Intended to produce full-color 3D workstation displays that could be viewed simultaneously by multiple people without specialized lenses, the goals proved too ambitious and the program ended early. But as IARPA leadership says, technical failures only prove the activity is carrying out its intended purpose of tackling the Intelligence Community's most challenging problems.

"At the end of the program, the people would informally call it 'Dave's program,' which is nice because I did manage it longer than [Mandelberg]," Moehring said. "But it also gives me the realization that [LogiQ], which I started, will be somebody else's program someday. So be it."

This is why PMs often influence the selection of their successors. Dr. Chris Boehnen is in his first year at IARPA from Oak Ridge National Laboratory. He already knows he won't see the end of his

program, Odin, in which he seeks to teach a computer when it has been attacked by adversaries trying to thwart facial, fingerprint, and iris identification elements.

"My children have not yet reached the point of going off to college, but I expect it's like that," Boehnen said. "You're happy to see them going, happy that they're successful and doing well, but you're probably a little sad that they're not home with you any more."

It's the price PMs pay for working at IARPA, which offers opportunities to manage world-class research in support of the Intelligence Community, but tempers those offers with term limits that steer PMs away from pet rocks. That's the nature of IARPA, as is the inevitable change that comes with science and technology.

"IARPA is sort of an evolving organism," Matheny said. "Not only should our research change, our structure should change to adapt. The staff will be constantly changing, and I think that's a good thing." Ⅲ

Watch IARPA

Deputy Director

Dr. Stacey Dixon's

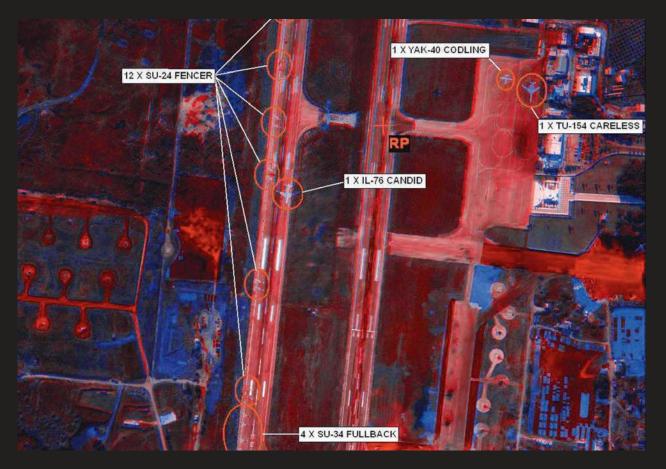
GEOINT Foreword

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WHO WE ARI



BEYOND THE 'BLEEDING EDGE'

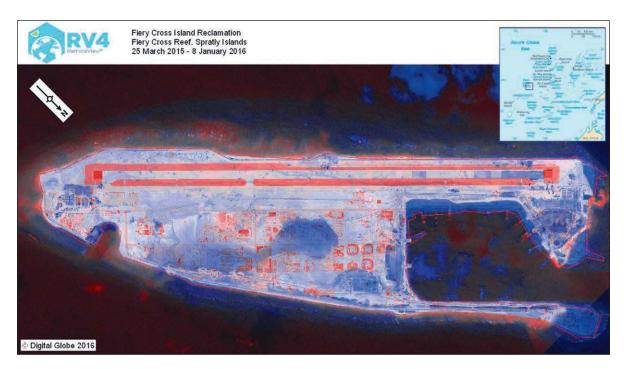
TEXTRON SYSTEMS GEOSPATIAL SOLUTIONS EVOLVES PROACTIVELY TO ANTICIPATE NEW TRENDS

■ he GEOINT tradecraft has come a long way since analysts produced hard copy exploitation on physical photographs, and few know that better than the engineers at Textron Systems Geospatial Solutions. Textron Systems' flagship image exploitation product, RemoteView, was released in 1996 and replaced the Image Data Exploitation (IDEX) II workstation as the primary image exploitation engine for intelligence analysts.

"We were part of the initiative to reduce the cost of the million-dollar-per-workstation IDEX and to put it on a desktop," said Daryl Madden, senior vice president and general manager of Textron Systems Geospatial Solutions. "RemoteView rose to the top as the premier provider in the intelligence industry, and it was really decided by the users."

Textron Systems' parent company, Textron, has a long and storied history, beginning as a small textile company in 1923 and eventually becoming the conglomerate it is today via its acquisition of transportation, aerospace, defense, and other companies in the past 60 years. Currently, Textron's business—with 35,000 employees spread across 25 countries—encompasses five main segments: Bell Helicopter, Industrial, Textron Aviation, Textron Financial, and Textron Systems. >

THESE REMOTEVIEW 4 IMAGES (previous page and below) illustrate change detection using 2-Color Multi-View. Anything new since the last time imagery was collected appears in blue; red indicates something has either departed or changed. *Image on page 23:* Bassel Al-Assad International Airfield, Jablah, al-Ladiqiyah, Syria; *image below:* Fiery Cross Reef, Spratly Islands, South China Sea.



Within each of these segments, Textron owns numerous businesses and is responsible for hundreds of products and brands, including Beechcraft, Cessna, Cushman, and Jacobsen. In 2006, Textron acquired Overwatch Systems, the developers of Remote-View, and brought them under the Textron Systems umbrella, creating the Geospatial Solutions business. Since its release in 1996, RemoteView has been enhanced regularly to meet the ever-changing needs of the geospatial intelligence landscape, both with updates to the core software as well as separate plugins and extensions.

"We reach out to our users, understand what they do, bring back feature requests, and then [include those additions] in our maintenance release that we put out once or twice a year," Madden said. "We like to say Remote-View is a product designed by analysts and implemented by engineers. Over the years we've put in hundreds of userrequested tools and features."

Keeping a software product such as RemoteView up to date for two decades is not an easy task. Textron Systems has developed strong relationships with imagery vendors so it is often among the first to receive simulated imagery to build compatibility for new image types and metadata into Remote-View, as well as to ensure the product meets National Imagery Transmission Format (NITF) standards.

"When a company or governmental organization comes along and says they want to take data and perform an algorithm on it, they don't want to go through the NITF certification, they don't want to have to read in 40 different types of geospatial data—all they want is to be able to run their analysis on the data and provide that to the user," Madden said. "So the extensibility of the RemoteView API is really valuable to them."

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"We work very closely with the image scientists at NGA as they are trying to use this new data in a—I don't even want to say 'bleeding edge' way, because it's beyond that."

 Tony Bruzzese, NGA account manager, Textron Systems Geospatial Solutions Beyond adapting its technology for new imagery sources, Textron Systems continuously responds to GEOINT Community trends.

Recent comments by National Geospatial-Intelligence Agency (NGA) Director Robert Cardillo discussing the "darkening of the skies" by small sats prompted Textron Systems to form an advance concept team. This team is developing innovative new solutions to help the Intelligence Community keep pace with the influx of imagery from next generation commercial remote sensing.

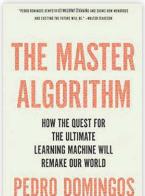
"We work very closely with the image scientists at NGA as they are trying to use this new data in a—I don't even want to say 'bleeding edge' way, because it's beyond that," said Tony Bruzzese, NGA account manager at Textron Systems Geospatial Solutions. "RemoteView is used extensively by imagery analysts all over the world to perform their daily activities. Image scientists or software engineers that are creating analysis tools for solving complex geospatial problems can utilize RemoteView as a platform to deliver these services to the enterprise."

This process demonstrates Textron Systems' focus on responding to and proactively anticipating user needs. It ensures that once the user is ready to manipulate new types of data, Textron Systems is ready as well. **W** BY ANDREW CONNER

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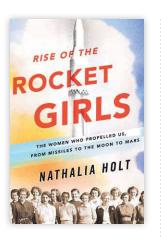
HOW THE QUEST FOR THE ULTIMATE LEARNING MACHINE WILL REMAKE OUR WORLD

By Pedro Domingos Domingos' book discusses the revolution of machine learning and what it means for the future of business, science, and society. Microsoft cofounder and philanthropist Bill Gates recently recommended this book at a conference to anyone who wants to better understand artificial intelligence.

RISE OF THE ROCKET GIRLS: THE WOMEN WHO PROPELLED US, FROM MISSILES TO THE MOON TO MARS

By Nathalia Holt This book tells the story of how NASA's Jet

Propulsion Laboratory in the 1940s and '50s recruited young women to transform rocket design. "Rocket girls" helped take the first American satellites into space and make exploration of the solar system possible. Through research and interviews, Holt's book offers a unique perspective on the role of women in rocket science.



City Maps a coloring book for adults

CITY MAPS: A COLORING BOOK FOR ADULTS

By Gretchen N. Peterson Containing more than 40 bird's-eye view maps, this book joins the trend of grown-up coloring, featuring scenes from the OpenStreetMap database. From the Arc de Triomphe in Paris to

Central Park in New York City, enjoy the relaxation of coloring while exploring some of the largest metropolitan areas in the world.

SEPTEMBER

13 GEOINTeraction Tuesday Northern Virginia

OCTOBER

3-5 GeoAcademic Week Herndon, Va.

18-19 NGA Tech Showcase West St. Louis, Mo.

NOVEMBER

12 GEOGala Tysons, Va.

14-18

GEOINT Community Week Northern Virginia

PEER INTEL

Woolpert named **Scott Cattran** president and CEO. Cattran has been with the company for nearly 17 years and most recently served as COO.

The Defense Intelligence Agency (DIA) selected **Melissa Drisko** as its next deputy director, effective in August. Drisko currently serves as DIA's lead for rank-in-person implementation. She has more than 35 years of experience in federal service.

John Goolgasian, former director of source operations for the National Geospatial-Intelligence Agency (NGA), joined OGSystems as an associate partner. In this role, Goolgasian will lead the company's geospatial analytics efforts.

John D. Johns became vice president of business development and account executive for national agencies at KEYW. Johns has more than 25 years of experience in strategic business development in international commercial, government, and intelligence markets.

The MITRE Corporation appointed Dr. Jay Schnitzer vice

president and chief technology officer. Previously, he was director of biomedical sciences at MITRE, overseeing the organization's internal health transformation research and development program.

U.S. Air Force **Maj. Gen. Linda Urrutia-Varhall**, former assistant deputy chief of staff for ISR at the Pentagon, is now director of operations for NGA. Urrutia-Varhall has served in the Air Force for 32 years and was formerly director of intelligence for U.S. Southern Command as well as a senior executive officer to Director of National Intelligence James Clapper.

USGIF announced two additions to its Board of Directors. **Carmen Medina**, founder of MedinAnalytics and co-founder of **RebelsatWork.com**, has 32 years of experience with the CIA. **Dr. L. Roger Mason Jr.**, senior vice president of national security and intelligence and chief security officer for Noblis, was previously the first assistant director of national intelligence for systems and resource analyses.



USGF MEMBERSHIP DIRECTORY



377 Omega Inc.

9701 Overlea Dr. Rockville, MD 20850 www.377omega.com 377 Omega, Inc.'s mission is to provide experienced technical professionals dedicated to our national security and intelligence programs. POC: John Stopher, President 301-537-0001, john@377omega.com Membership Level: Sustaining Partner

Abacus Technology Corporation

5404 Wisconsin Ave., Suite 1100 Chevy Chase, MD 20815 www.abacustech.com

Abacus Technology Corporation is a premier provider of IT Services for secure enterprise and cloud solutions at superb price points. Key capabilities include: Enterprise IT, Data Centers, Unified Communications, Application Services, Information Assurance/IT Security, and Networks. We have 30+ year track record of success across Federal Government Market (Defense, Intel Community, Civilian) and ~1000 employees. **POC:** Pamela Moraga, Vice President Business Development and Marketing 202-302-6149, moragap@abacustech.com **Membership Level:** Sustaining Partner



Accenture Federal Services

800 North Glebe Rd., Suite 300 Arlington, VA 22203

www.accenture.com/federal Accenture Federal Services is a U.S. company, with offices in Arlington, Va., and is a wholly owned subsidiary of Accenture LLP. Accenture's federal business serves every cabinet-level department and 30 of the largest federal organizations with clients at defense, intelligence, public safety, civilian and military health organizations. **POC:** Matt Fahle, Managing Director 571-414-5728

matthew.r.fahle@accenturefederal.com Membership Level: Strategic Partner



Adobe Systems

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www.adobe.com/government Adobe delivers the solutions government agencies use to make, manage, mobilize and measure the knowledge, information and experiences needed to achieve their objectives. From content creation and management, to secure business workflows, easy to develop forms, robust analytics, intuitive collaboration and e-learning, today's agencies rely on Adobe Digital Government solutions. **POC:** Ron King, Sr. Program Executive 571-358-4267, rking@adobe.com **Membership Level:** Strategic Partner

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tation, facilities, environmental, energy,

government. They provide a blend of

oil and gas, water, high-rise buildings and

global reach, local knowledge, innovation

and technical excellence in delivering cus-

tomized and creative solutions that meet

POC: Mike Eiden, Director of Business

Membership Level: Strategic Partner

the needs of our clients' projects.

Development, 703-579-0452

michael.eiden@aecom.com

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Business Unit: Intelligence 14595 Avion Pkwy., Suite 500 Chantilly, VA 20151

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Alaska Satellite Facility

Business Unit: University of Alaska Fairbanks 903 Koyuyuk Dr., WRRB 105 Fairbanks, AK 99775-7329 www.asf.alaska.edu

The mission of the Alaska Satellite Facility (ASF) is to make remote-sensing data accessible. ASF downlinks, processes, archives, and distributes remote-sensing data to scientific users around the world. ASF's three major components are a Satellite Tracking Ground Station, a Synthetic Aperture Radar Distributed Active Archive Center, and ASF Enterprise, which focuses on applications of remote-sensing data.

POC: Scott Arko, Deputy Director 907-474-5570, saarko@alaska.edu Membership Level: Sustaining Partner



ALQIMI National Security Inc.

Business Unit: National Security Group 9210 Corporate Blvd., Suite 150 Rockville, MD 20850 www.alqimi.com

ALQIMI National Security, Inc. helps fulfill security and intelligence objectives by providing tailored systems integration, IT, and security services focused on the customer mission/requirements; state-of-theart technology for applications software, cybersecurity, data analytics, and data exploitation solutions; and expert technical skills supported by professionals who understand the mission domain and have broad experience supporting the community. **POC**: Ricky Garris, President 240-404-7503, ricky.garris@alqimi.com **Membership Level**: Small Business Partner



Altamira Technologies Corp.

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Altamira brings a commercial mindset to solving the most complex national security problems by delivering mission application development, multi-intelligence analysis, cyber operations, and data science technologies and solutions to the national defense and intelligence communities. Altamira's culture of innovation excellence make us the next generation leader bringing technology to mission. **POC**: Dan Whalen, Vice President Business Development, 703-813-2100, daniel.whalen@altamiracorp.com **Membership Level**: Sustaining Partner



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Business Unit: American Military University

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American Military University (AMU) provides quality higher education to the nation's national security and intelligence communities. With more than 190 degree and certificate programs—including Intelligence Studies, Homeland Security, and International Relations—we prepare students for service and leadership in a diverse and global society. Learn more: www.PublicSafetyatAMU.com **POC:** Erik Kleinsmith, AVP, Strategic Partnerships, 571-358-3023 ekleinsmith@apus.edu **Membership Level:** Academic Partner

AEROSPACE

The Aerospace Corporation

2310 E. El Segundo Blvd., M1/447 El Segundo, CA 90245

www.aerospace.org

The Aerospace Corporation is the scientific and engineering arm for the nation's national security space programs. For more than 50 years, Aerospace has provided technical analysis and engineering support to virtually every national security space project, applying our expertise in systems engineering and mission assurance to ensure customer mission success. **POC**: Sabrina Steele, Executive Director, Corporate Communications 310-336-1192, Sabrina.K.Steele@aero.org **Membership Level**: Associate Partner



Analytical Graphics Inc.

220 Valley Creek Blvd Exton, PA 19341

www.agi.com

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seftimiades@agi.com Membership Level: Strategic Partner



APG Technologies LLC

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APG provides advanced software, systems, and security services for high-performance Data Management, Information Assurance, and Private Cloud Engineering. We specialize in transforming vast amounts of data into actionable information within constrained schedules and budgets. APG mission critical solutions overcome complex challenges in the midst of ever-increasing velocity, variety, and volumes of IC data. **POC:** Eric J. Amberge, Managing

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Ankura Consulting Group

Business Unit: Risk, Resiliency, and Geopolitical Advisory Practice 1220 19th St NW, Suite 700 Washington, DC 20036

www.ankuraconsultinggroup.com Ankura merges geospatial information and advanced data mining techniques to identify and analyze risks and opportunities to/ for investments and related operations. We monitor fluid geopolitical landscapes to forecast opportunities and provide early warning of events that might affect business or provide a competitive advantage to clients investing in new markets or mitigating existing operation risks. **POC**: Michelle DiGruttolo, Senior Managing Director, 571-225-9312 michelle.digruttolo@ankuraconsulting.com Membership Level: Small Business Partner

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1344 Crossman Ave. Sunnyvale, CA 94089 www.arubanetworks.com Aruba, a Hewlett Packard Enterprise company, is a leading provider of next-generation network access solutions to the U.S. government. Using NSA-approved Suite B encryption, Aruba's wired, wireless and VPN technologies provide US government agencies with secure network access at the unclassified, secret, TS/SCI and other caveated levels. **POC**: Mike Rayfield, Territory Manager 703-989-5551 mrayfield@arubanetworks.com

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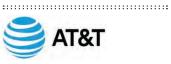
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Ball Aerospace

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Basis Technology

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Basis Technology provides software solutions for extracting meaningful intelligence from unstructured text. We help government organizations improve the accuracy of search, text mining, link analysis, and other applications through advanced linguistics. Our digital forensics team pioneers faster and cheaper techniques to extract forensic evidence, leveraging the Autopsy open source platform.

POC: Chris Biow, SVP - US Public Sector, 1-617-386-7104 cbiow@basistech.com

Membership Level: Sustaining Partner



Blue Canopy Group

Business Unit: National Security Solutions 11091 Sunset Hills Rd., Suite 777 Reston, VA 20190

www.bluecanopy.com

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Business Unit: Electronic & Information Solutions

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technologies

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POC: Mary Warmkessel, Intelligence Community Focal Point, 844-423-8687 mary.warmkessel@carahsoft.com Membership Level: Strategic Partner



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Center for Geospatial Intelligence

Business Unit: University of Missouri W1025 Lafferre Hall Columbia, MO 65211 www.geoint.missouri.edu We are an interdisciplinary university center with ongoing research in advanced processing and exploitation (feature extraction, change detection, spatial reasoning, database retrieval) of geospatial information from satellite and airborne systems. We seek opportunities to partner

with government and industry in education and R&D activities in pursuit of advanced GEOINT capabilities. **POC**: Dr. Curt Davis, Director 573-884-3789, davisch@missouri.edu **Membership Level**: Academic Partner

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Center for Southeastern Tropical Advanced Remote Sensing (CSTARS), University of Miami

11811 S.W. 168th St. Miami, FL 33177-2137 www.cstars.miami.edu CSTARS is a state-of-the-art high capability receiving and analysis facility and testbed for commercial EO and SAR satellite data. A leading provider of value-added products and operational services. Innovative research and expertise in interferometry, time-sensitive oceanic and terrestrial applications to ensure U.S. superiority in science, safety, and security. POC: Dr. Hans Graber, Executive Director, 305-421-4954 hgraber@rsmas.miami.edu Membership Level: Sustaining Partner



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850-748-7471 erin@churchillnavigation.com Membership Level: Small Business Partner

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cisco.

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Civil Applications Committee

12201 Sunrise Valley Dr., MS #562 Reston, VA 20192 www.cac.usgs.gov

The Civil Applications Committee oversees Federal civil use of national and commercial imagery systems data. The CAC provides the United States Geological Survey and other Federal civil organizations with a connection to the intelligence community as a way to further their individual missions. POC: Erika Kaufhold, Communications and Outreach Coordinator 703-648-7884, ekaufhold@usgs.gov Membership Level: Sustaining Partner

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ClearTerra

7030 Dorsey Rd., Suite 102 Hanover, MD 21076 www.clearterra.com ClearTerra specializes in geospatial software products, custom software development, technical services, consulting, and training. ClearTerra LocateXT software discovers & extracts geocoordinates, place names, and other critical information within unstructured text and places it instantly into Desktop, Server, and Cloud-based geospatial platforms. POC: Jeff Wilson, Vice President, Sales 703-403-5636, jeff.wilson@clearterra.com Membership Level: Sustaining Partner

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cloudera

Cloudera

Business Unit: Cloudera Government Solutions

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CMX Technologies, an Xator Company, provides innovative technology-based geospatial-intelligence consulting and solutions, with a proven record reflecting extremely high customer satisfaction. CMX selectively recruits and places leaders into challenging positions where their experience ensures Mission Success for our customers in the National Geospatial-Intelligence Agency and the Intelligence Community. **POC**: Ted Wrublesky, VP of Business Development, 215-990-5749 ted.wrublesky@xatorcorp.com **Membership Level**: Sustaining Partner



Commonwealth Computer Research Inc. (CCRi)

1440 Sachem Place Charlottesville, VA 22901 www.ccri.com CCRi takes on technically challenging projects that give our clients the informational leverage they need to attain new levels of speed, accuracy, and productivity. *POC*: James Conklin, Director of Strategy & Business Development 434-214-4415, jamie@ccri.com *Membership Level:* Small Business Partner

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Compass Inc.

465A Carlisle Dr. Herndon, VA 20170 www.cmpsinc.com Compass, Inc. is a Woman Owned Small Business (WOSB) providing trusted expertise focused on the Defense and Intelligence Community. We are a completely non-conflicted company employing senior program managers, acquisition professionals, architects, engineers, functional leaders, and subject matter experts who understand the missions and needs of the Warfighters. POC: Kevin Maull, Vice President Business Development, 703-707-9870, kevin.maull@cmpsinc.com Membership Level: Sustaining Partner

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CompassData

CompassData Inc.

12353 E. Easter Ave., Suite 200 Centennial, CO 80112 www.compassdatainc.com CompassData is the world's foremost supplier of GPS-based ground control survey data, maintaining the largest commercially available archive of Ground Control Points (GCP). Continuously adding to its more than 30,000 GCP, CompassData provides accurate geospatial data and collection services for clients in a partnership model.

POC: Hayden Howard, Vice President 303-627-4058

solutions@compassdatainc.com Membership Level: Sustaining Partner



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Compusult Limited

40 Bannister St. Mount Pearl, NL, Canada A1N 1W1 www.compusult.net COMPUSULT is leading supplier of open-architecture, standards-based, data management solutions providing geospatial data search, retrieval, organization, visualization and collaboration, across the enterprise and through mobile devices. For over 30 years COMPUSULT has delivered products and services to our customers through innovation, teamwork and by placing the highest priority on our clients' requirements. **POC:** Robert Thomas, Marketing Manager, 1-888-745-7914 info@compusult.net

Membership Level: Sustaining Partner



Compusult Systems Inc.

12110 Sunset Hills Rd., Suite 410 Reston, VA 20190 www.compusultsystems.com Compusult Systems Inc. (CSI) provides professional information technology services including project management, business process and system design, systems engineering, systems integration, needs analysis, customized software development, infrastructure planning and systems implementation, deployment and training. POC: Michael A. Rampino, CEO & President, 703-464-5649 info@compusultsystems.com Membership Level: Small Business Partner



Concurrent Technologies Corp.

100 CTC Dr. Johnstown, PA 15904 www.ctc.com

Concurrent Technologies Corporation (CTC) is an independent, nonprofit, applied scientific research and development professional services organization providing innovative solutions that solve data discovery, correlation, and analysis challenges. CTC supports intelligence and national security missions; develops secure and cross-domain, collaborative, cloud-based, multi-INT information environments; and makes significant advances in human-computer symbiosis and user and data personalization. POC: Randy A. Weaver, Executive Director, Advanced Intelligence Solutions Market, 814-269-6223 weaverra@ctc.com Membership Level: Sustaining Partner

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Consolidated Resource Imaging (CRI)

2943 S Wilson Ct NW Grand Rapids, MI 49534 www.cri.us.com CRI is focused on providing ISR system research and technology development, system integration and certification, test and operations, and operational expertise for Wide Area Motion Imagery (WAMI) and Multi-Spectral 2D/3D Modeling systems to include EO, IR, LIDAR, SAR, Hyper-Spectral and Multi-Spectral sensors with over 150,000 flight hours of experience (US and overseas) during the last eleven years.

POC: Rodney Norris, Business Development Manager, 616-735-2080 rodney.norris@cri.us.com Membership Level: Sustaining Partner



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Continental Mapping Consultants Inc. 121 S Bristol St

Suite 201 Sun Prairie, WI 53590

www.continentalmapping.com Continental Mapping is a leading small business provider of geospatial services to private and public clients. Project experience includes high accuracy photogrammetry, satellite imagery expertise for civil and defense applications, lidar and other remote sensing data processing, mobile and other terrestrial lidar types, land and hydrographic survey, unmanned aerial systems, and software development. POC: Ben Redding, Business Development Manager, 888-815-3327 bredding@continentalmapping.com Membership Level: Sustaining Partner



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COPT Data Center Solutions

6711 Columbia Gateway Dr., Suite 300 Columbia, MD 21046

www.coptdata.com

Corporate Office Properties Trust (COPT) (NYSE:OFC) develops, owns & operates data centers & Class A office for U.S. Government, Defense IT and enterprise data center customers. COPT's Data Center Solutions division provides industry leading, green and highly efficient data center solutions for build to suit, wholesale and customized managed collocation. **POC:** Frank Ziegler, Senior Vice President, New Business and Development, Government Services, 443-285-5680, frank.ziegler@copt.com **Membership Level:** Sustaining Partner



Courage Services Inc.

4121 Wilson Blvd., Suite 301 Arlington, VA 22203 www.courageservices.com

Www.courageservices.com Courage Services, Inc. is an industry-leading provider of open source advanced analytics, geospatial data, and technology solutions. Our innovative products ensure that our clients have a clear understanding of complex and changing global dynamics and empower them to make confident decisions and navigate risk. **POC:** Jason Patti, Vice President Operations, 571-356-9384 jason.patti@courageservices.com **Membership Level:** Associate Partner





Cray Inc.

901 Fifth Ave., Suite 1000 Seattle, WA 98164 www.cray.com

www.cray.com Cray builds innovative systems and solutions enabling customers to meet their hardest simulation, analytics and cybersecurity challenges. Leveraging years of experience developing the world's most advanced supercomputers, Cray brings you a comprehensive portfolio of high performance computing, storage, and data analytics solutions delivering

unrivaled performance, efficiency, and scalability. **POC:** Louis B. Hackerman, Account

Manager, 301-910-6416 lhackerman@cray.com

Membership Level: Sustaining Partner



Crunchy Data

146 Fairchild St., Suite 134 Daniel Island, SC 29492 www.crunchvdata.com Crunchy Data is a provider of trusted, open source PostgreSQL and PostGIS. A leading enterprise PostgreSQL vendor, Crunchy Data provides Crunchy Certified PostgreSQL, the most advanced pure open source RDBMS on the market featuring container support for cloud native architectures, fine-grained security with SELinux for high security environments, and the leading open source GeoSpatial extension. POC: Bob Laurence, 703-819-1300 bob.laurence@crunchydata.com Membership Level: Small Business Partner



CSG Solutions

214 Burgess St. Fayatteville, NC 28301 www.csg-isr.com

CSG is an emerging leader in the delivery of specialized remote sensing, ISR, and GEOINT services to government and commercial customers worldwide. Drawing on extensive SOF and IC experience, we can deliver collection operations, sensor exploitation, and GEOINT analytics with an unparalleled combination of technical acumen and operational experience.

POC: Mike Bosco, Director of Business Development, 703-447-2103 mike.bosco@csg-isr.com

Membership Level: Sustaining Partner

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CSRA

Business Unit: Defense and Intelligence Group 3170 Fairview Park Dr. Falls Church, VA 22042 www.csra.com CSRA was formed through the combination of the North American Public Sector business of CSC and SRA International. With over 50 years of experience supporting U.S.

government agencies and programs, we deliver innovative, next-generation IT solutions and professional services to help our customers modernize their legacy systems, protect their networks and assets, and improve the effectiveness and efficiency of missioncritical functions for our warfighters and our citizens.

POC: Kelley Artz, Director, NGA/DIA 571-999-3533, kelley.artz@csra.com *Membership Level*: Sustaining Partner



Cubic Global Defense

205 Van Buren, Suite 310 Herndon, VA 20170 www.cubic.com Cubic provides comprehensive Intelligence, Surveillance and Reconnaissance (ISR) capabilities for defense, intelligence and security operations and training. Our C4ISR integrated systems provide capture, assessment, exploitation and cross-domain dissemination within a network-centric environment. Backed by six decades of experience, Cubic continues to deliver innovative, secure and scalable solutions for mission success. POC: Tom Richards, Vice President Special Projects, 727-460-0168 tom.richards@cubic.com Membership Level: Sustaining Partner



D-Wave Systems

2650 E. Bay Shore Rd. Palo Alto, CA 94303 www.dwavesys.com

D-Wave is the world's first quantum computing company, whose mission is to integrate new discoveries in physics and computer science into breakthrough approaches to computation. The company's new 1000-qubit superconducting processor uses quantum mechanics to accelerate computation. D-Wave customers include NASA, Google, Lockheed Martin and Los Alamos National Laboratory.

POC: René Copeland, Director, Government Sales, 410-340-6310 rcopeland@dwavesys.com Membership Level: Sustaining Partner

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DataDirect Networks Federal

8320 Guilford Rd., Suite L Columbia, MD 21046 www.ddn.com

DDN, the performance storage leader, delivers the world's fastest, most scalable solutions for capturing and converting data into actionable intelligence by handling thousands of FMV surveillance streams, capturing data uninterrupted event during system correction, supporting peak IO of extremely large clusters, and delivering Self-Healing, autonomous cloud storage at massive scale. **POC:** Bob Merkert, VP, Federal Sales 410-352-7192, rmerkert@ddn.com **Membership Level:** Associate Partner

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DataFission Inc.

2526 Qume Dr Bldg 22 San Jose, CA 95131 www.datafission.com

DataFission is a Silicon Valley-based technology company leading the way by innovating Content Indexing, Search and Analytics systems and solutions based on its core product offering the DataHunter Search platform. DataFission allows you to find anything.

POC: Allan Torres, 952-412-2381 atorres@datafission.com Membership Level: Small Business Partner



Dell Inc.

Business Unit: Federal Government One Dell Way Round Rock, TX 78682 www.dell.com/fed Dell has a decades-long history of providing solutions and services to U.S. Department of Defense agencies that have come to rely on Dell for everything from rugged tablets and notebooks to our data center and back office and forward deployed solutions. Today, Dell is a recognized leader in providing solutions that support Department of Defense missions from data analytics, cybersecurity and mobile computing solutions to data center, cloud and a wide range of services. POC: Andy Kemp, Regional Sales Director, 571-465-0745 andy_kemp@dell.com Membership Level: Associate Partner



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Deloitte LLP

Business Unit: Federal Consulting 1919 N. Lynn St. Arlington, VA 22209

www.deloitte.com/us/intelligence With decades of industry-leading analytic and advisory experience, the Deloitte Geospatial Analytics practice helps government and commercial clients use the power of location to gain critical insights for improving their mission outcomes. Our analysts, software developers, data scientists, and strategists couple innovative data-driven approaches with geospatial solutions to deliver results-where it matters. POC: Lisa Barrow, Senior Strategic Relationship Manager, 703-929-8483 lbarrow@deloitte.com Membership Level: Sustaining Partner

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Delta State University Center for Interdisciplinary Geospatial Information Technologies

1008 W Sunflower Rd. Cleveland, MS 38733 www.gis.deltastate.edu The Delta State University GIS program now offers a Bachelor's of Applied Science in Geospatial Analysis and Intelligence. The program of study features 21 courses with focus on analytics, GIS, remote sensing, surveying, and programming/data management.DSU is an NGA Center for Academic Excellence. Out-of-state tuition is waived, start anytime. **POC:** Chris Smith, 662-846-4521 cdsmith@deltastate.edu

Membership Level: Academic Partner

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Dewberry

Business Unit: Geospatial & Technology Services 8401 Arlington Blvd. Fairfax, VA 22031

www.dewberry.com

Dewberry's Geospatial and Technologies Services is one of the largest and most advanced geospatial services providers in the world. For more than thirty years, our staff of 300+ geospatial professionals (many with clearances) have been offering progressive multi-technological solutions to clients such as USGS, FEMA, NOAA, US Army, and the NGA. **POC:** Phillip Thiel, Senior Vice President 703-849-0271, pthiel@dewberry.com **Membership Level:** Associate Partner

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Digital Reasoning

1765 Greensboro Station Pl., Suite 1200 McLean, VA 22102

www.digitalreasoning.com Digital Reasoning's cognitive computing platform, Synthesys transforms unstructured human communications into structured insights to reveal concealed risks and relationships. Combining large scale machine learning, natural language processing, and deep learning algorithms, Synthesys delivers entity, geospatial, document, and behavioral analytics to support timesensitive, critical missions. Successfully deployed on C2S with proven results in Activity Based Intelligence (ABI) and Object Based Production (OBP), Synthesys empowers analysts to quickly build profiles of objects of interest, and identify, prioritize, and assess threats. POC: Joe Dvornicky, Director, National Security Programs, 410-984-1900 joe.dvornicky@digitalreasoning.com Membership Level: Associate Partner

DigitalGlobe

DigitalGlobe

1300 West 120th Avenue Westminister, CO 80234 www.digitalglobe.com

DigitalGlobe is the world's leading provider of high-resolution Earth imagery, data, and analytics. Operating the most agile and sophisticated commercial satellite constellation in orbit, we put the world's smartest images into everyone's hands, giving them confidence to make decisions that matter. Our unmatched imagery, along with comprehensive data and actionable analytics, make us a trusted partner across dozens of industries-from defense to mining, from mapping to public safety. Customers worldwide rely on our best-in-class technology, global coverage, and 16-year time-lapse image library to provide the most exacting, mission-critical information available about our changing planet. POC: Marcy Steinke, Senior Vice President, Government Relations 703-292-5833

msteinke@digitalglobe.com Membership Level: Strategic Partner



DLT Solutions

2411 Dulles Corner Park, Suite 800 Herndon, VA 20171 www.dlt.com

DLT Solutions is a leading technology partner to the Federal intelligence community. Over the past 25 years, the company's dedication to helping government agencies make smart technology choices ensures its customers have the best options for cybersecurity, cloud, business applications and IT management solutions.

POC: Sales, 800-262-4358 sales@dlt.com Membership Level: Sustaining Partner



Dynamic Graphics Inc.

1015 Atlantic Ave. Alameda, CA 94501 www.dgi.com Dynamic Graphics, Inc. partners with our clients to solve spatial analysis problems. Over the past four decades, we have been a premier provider of geospatial solutions with our innovative, easy-to-use software and outstanding support services. DGI's CoViz 4D software is an industry leader in quantitative visualization, integration, and analysis of time-dependent data. **POC:** Jeff Feige, Business Development 202-546-4089, jeff@dgi.com **Membership Level:** Sustaining Partner

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AN ASI / TELESPAZIO COMPANY

e-GEOS

Via Tiburtina, 965 Rome, Italy 00156 www.e-geos.it e-GEOS, an ASI/Telespazio Company, is a leading international player in the Earth Observation and Geo-Spatial Information business and commercializes the COSMO-SkyMed Programme on the world-wide market. e-GEOS offers unique portfolio of application services and also direct access to satellite downlinks through ground stations and value-added and application products to a wide range of market segments. POC: Luciana Di Domenico, Head of Sales, +39 064 0694224 luciana.didomenico@e-geos.it Membership Level: Sustaining Partner



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Eagle Ray Inc.

14425 Penrose Place, Suite 110 Chantilly, VA 20151 www.eaglerayinc.com

An ISO 9000 registered, woman-owned mid-tier company, Eagle Ray delivers expertise in acquisition, program and financial management, alongside technical know-how in infrastructure modernization (including IC ITE adoption), predictive analytics and agile engineering to address our clients' most complex mission challenges.

Membership Level: Sustaining Partner



East View Geospatial

10601 Wayzata Blvd. Minneapolis, MN 55305 www.geospatial.com

Www.geospania.com East View Geospatial has served the US Government, defense contractors, foreign governments and think-tanks for over twenty years. East View offers products and solutions in support of GEOINT and OSINT including topographic and geological maps, DEMs, satellite imagery, vector data, and nautical/aeronautical charts. East View is your partner for sourcing uncommon information from extraordinary places.

POC: Rodney Buhrsmith, Business Development, 952-252-4523 rodney.buhrsmith@eastview.com Membership Level: Sustaining Partner



EMC Corp.

Business Unit: Federal 8444 Westpark Dr., Suite 300 McLean, VA 22102 www.emc.com

EMC offers key cloud infrastructure capabilities that enable our customers to drive up mission value while driving down TCO. Whether for the analyst stateside or the warfighter abroad, our solutions deliver any data, any time, any place, accessible by any authorized user. EMC: Powering the GEOINT Cloud. **POC:** Mike Veneri, Director, ISR and Cyber Programs, 571-217-0531 michael.veneri@emc.com **Membership Level:** Sustaining Partner



Envitia

Business Unit: US Office 11710 Plaza America Dr., Suite 2000 Reston, VA 20190

www.envitia.com

Envitia is a SMB with 25 years of experience helping customers make better, faster decisions through software specializing in the Discovery, Visualization, Situational Awareness, and Exploitation of Actionable Geospatial Intelligence. Envitia provides best-of-breed capability, complemented by open standards for cross-community interoperability, supplying comprehensive GEOINT solutions to domestic and international defense programs. **POC**: Robin Parrish, Business Development Manager, North America, 703-871-5255, robin.parrish@envitia.com **Membership Level**: Sustaining Partner



Esri

380 New York St. Redlands, CA 92373 www.esri.com

The market leader in geospatial technology, Esri software is used by more than 350,000 organizations worldwide including local, state, & national agencies. The ArcGIS platform provides high-performance 2D and 3D mapping and analysis in desktop, server, and hosted environments. It's a complete and open solution for managing, analyzing, and sharing data and products. Esri is transforming how organizations solve problems and make informed decisions. Implementing the ArcGIS platform leverages big data, web technologies, and integrated apps to make GIS easy to use, more accessible, and collaborative.

POC: Kyra Williams, Sales Associate 703-506-9515 x8014, kwilliams@esri.com Membership Level: Strategic Partner



Euroconsult USA

4601 N. Fairfax Dr., Suite 1200 Arlington, VA 22203

www.euroconsult-ec.com Euroconsult is the leading global consulting firm specializing in space markets. As a privately-owned, fully independent firm, we provide first-class strategic consulting, develop comprehensive research and organize executive-level annual summits and training programs for the satellite industry. With more than 30 years of experience, Euroconsult is trusted by 600 clients in over 50 countries. **POC**: Sima Fishman, Managing Director, Euroconsult USA, 703-520-6415 sima.fishman@euroconsult-na.com **Membership Level:** Sustaining Partner

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exactEarth Ltd. 60 Struck Ct.

Cambridge, Ontario, Canada N1R 8L2 www.exactearth.com

exactEarth is a data services company leading the way in delivering advanced location-based maritime vessel information critical for government authorities and commercial organizations around the world. Such high quality geo-based information delivers real value for a wide range of maritime operational applications including Vessel Monitoring, Security and Surveillance, Environmental Protection and Search and Rescue. **POC**: David Martin, Vice President Global Sales & Marketing, 519-620-5872 david.martin@exactearth.com **Membership Level:** Sustaining Partner





F5 Networks

Two Discovery Square 12012 Sunset Hills Rd., Suite 900 Reston, VA 20190 www.f5.com

F5 makes the connected world run better, helping organizations meet the demands and embrace the opportunities that come with the growth of voice, data, and video traffic, mobile workers, and applications in the data center and the cloud. With F5, federal agencies can deliver and protect their applications and services while ensuring people stay connected. **Membership Level:** Sustaining Partner



Freedom Consulting Group Inc.

9881 Broken Land Pkwy., Suite 300 Columbia, MD 21046

www.freedomconsultinggroup.com Freedom Consulting Group provides enterprise solutions for geospatial capabilities including geodatabase architecture and implementation, application development, and analyst support operations. We specialize in developing solutions for large-scale operations for the intelligence community; incorporating cutting-edge technology including cloud based computing, high availability designs and business intelligence into our system designs. POC: Rich Walker, VP-Advanced Technology Solutions, 410-290-9035 rdwalke@choosefreedomit.com Membership Level: Sustaining Partner

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Fulcrum

5870 Trinity Pkwy., Suite 400 Centreville, VA 20120 www.fulerumco.com

Fulcrum has been a recognized leader in total information technology solutions for the Federal Government for over 25 years. From health care enterprise architecture and advanced technologies, to cybersecurity and human capital management, we solve our customer's most complex operational challenges in timeand resource-constrained environments. POC: Ken Diller, Vice President of Business Development, 703-543-2788 kdiller@fulcrumco.com

Membership Level: Sustaining Partner



General Atomics Aeronautical Systems Inc. 14200 Kirkham Way

Poway, CA 92064 www.ga-asi.com

General Atomics Aeronautical Systems, Inc. (GA-ASI) is a leading manufacturer of Remotely Piloted Aircraft (RPA) systems, radars, and electro-optic and related mission system solutions, including the Predator/Gray Eagle aircraft series and the Lynx Multi-mode Radar. GA-ASI provides long-endurance, mission-capable aircraft with the integrated sensor/ data link systems required for persistent situational awareness/rapid strike. POC: Chris Pehrson, Sr. Director Strategic Development, 202-496-8229 pr-asi@ga-asi.com

Membership Level: Sustaining Partner

GENERAL DYNAMICS

General Dynamics

Business Unit: Mission Systems; Information Technology 2941 Fairview Park Dr. Falls Church, VA 22042 www.gd.com/business-groups/ information-systems-and-technology/ index.cfm

General Dynamics supports the Intelligence Community vision of Intelligence Integration by providing advanced Information Technology services and solutions that improve data management while enhancing security and reducing costs. With deep knowledge and experience in the Intelligence Community and the Geospatial Intelligence mission, we integrate the very best commercial technology and tradecraft to enhance capability and capacity. Today our geospatial intelligence command and control tools enable real-time visualization, communications, information sharing, interoperability and collaboration. The end result: consequence-driven intelligence that helps our military, intelligence and first-responder communities protect our country. General Dynamics is a market leader in business aviation; land and expeditionary combat systems; armaments and munitions; shipbuilding and marine systems; and information systems and technologies.

POC: Mike Manzo, Mission Systems; Joanna Davenport, IT, Director of GEOINT Processing and Exploitation Systems; Business Development for NGA, 703-628-3049; 703-268-7309 michael.manzo@gd-ms.com; joanna.davenport@gdit.com Membership Level: Strategic Partner



Geo Owl LLC

721 Brentwinds Ln., Suite 308 Spring Lake, NC 28390 www.geoowl.com Geo Owl is an innovative professional services organization specializing in Geospatial Intelligence Services, Enterprise level IT Networks and Satellite Communications. POC: Nicholas Smith, President 727-771-5716, nick@geoowl.com Membership Level: Small Business Partner



Geographic Services Inc.

7901 Jones Branch Dr., Suite 210 McLean, VA 22102 www.geographicservices.com Geographic Services, Inc. (GSI) is the premier provider of fully integrated geospatial, linguistic and sociocultural

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Officer, 703-287-9702 nmcgee@geographicservices.com

Membership Level: Sustaining Partner



GeoNorth LLC

561 E 36th Ave. Anchorage, AK 99503 www.geonorth.com

Established in 1994, GeoNorth is an SBA-certified 8(a) firm providing tailored geospatial solutions to government and commercial clients. Our expertise developing enterprise geospatial applications is complemented by our US-based, multi-mission Direct Receiving Station (DRS), capable of delivering timely and relevant GEOINT from all the commercial, Airbus Defense and Space satellites, including Pleiades, SPOT and TerraSAR-X.

POC: Jon Heinsius, Director of Sales 202-361-7447, jheinsius@geonorth.com Membership Level: Small Business Partner



George Mason University

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703-993-1212, astefani@gmu.edu Membership Level: Academic Partner



Geoweb3d

45 Lewis St. Binghamton, NY 13901 www.geoweb3d.com Geoweb3d produces the next generation

3D engine for GEOINT visualization, analysis, and mapping. Open, standard geospatial data including GIS, NGA, CAD, 3D Models, M&S, Web Services, LIDAR, FMV, and others are fused together in real-time with game quality graphics and pixel accurate analysis. The 3D engine is accessible as SDK or plugin ready Desktop app.

POC: Robert Holicky, President 607-372-6749, rholicky@geoweb3d.com Membership Level: Sustaining Partner

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Global Marketing Insights Inc.

Business Unit: Global Geospatial Market Research; Strategic Tactical Plans 8803 Brecksville Rd., Suite 306 Cleveland, OH 44141

www.globalinsights.com

Global Marketing Insights, Inc. (GMI) provides Geospatial Business Intelligence Expertise focused on strategic sales/ market planning and customized market research for commercial and government sectors. As authors of the USGS and NOAA international remote sensing studies that include ten-year trends data GMI possesses the largest database of global geospatial users.

POC: Shawana Johnson, GISP, President 216-525-0600, shawana@globalinsights.com Membership Level: Sustaining Partner



Grover Consulting Services

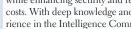
Grover Consulting Services (GCS)

P.O. Box 11702 9501 Burke Rd Burke, VA 22009

www.grovercsllc.com

Grover Consulting Services (GCS) is a veteran-owned small business dedicated to providing the Department of Defense (DoD) and Intelligence Community (IC) with high-value, agile consulting services and project management. GCS specializes and thrives in remote sensing applications and geospatial disciplines with the guiding principles of sound science and engineering, consistently meeting customer mission.

POC: Stephen Grover, Principal 703-283-9427, stephen@grovercsllc.com Membership Level: Small Business Partner





GuidePoint Security

11951 Freedom Dr., Suite 1331 Reston, VA 20190

www.guidepointsecurity.com GuidePoint Security provides customized, innovative and valuable information security solutions that enable commercial and federal organizations to more successfully achieve their security and business goals. By embracing new technologies, GuidePoint Security helps our clients recognize the threats, understand the solutions, and mitigate the risks present in their evolving IT environments. Membership Level: Sustaining Partner



H2M Group LLC

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POC: John T. Hartman, Executive Vice President, 703-509-4317

john.t.hartman@theh2mgroup.com Membership Level: Associate Partner



Harris Corporation

1025 W NASA Blvd. Melbourne, FL 32919 www.harris.com

Harris Corporation is a leading technology innovator, solving our customers' toughest mission-critical challenges by providing solutions that connect, inform and protect. From sensors and software to actionable intelligence on-demand, Harris provides our customers the geospatial information they need to analyze the environment for smarter operational and business decisions - when and where they need it. We are a proven enterprise transformation partner to the intelligence community and offer a full spectrum of capabilities such as IT services, security frameworks and network managed services. Harris supports customers in more than 125 countries, has approximately \$8 billion in annual revenue and 22,000 employees worldwide. POC: Stuart Blundell, Director, Strategy and Business Development 571-203-1575, jblundel@harris.com Membership Level: Strategic Partner

Helm Point Solutions

Taking the Right Tack

Helm Point Solutions Inc.

6760 Alexander Bell Dr., Suite 105 Columbia, MD 21046

www.helmpoint.com

Helm Point Solutions, Inc. combines expertise in cyber solutions like vulnerability research, network monitoring, information assurance, and critical infrastructure protection with physical security monitoring, access control, and workforce management. Providing engineering expertise to open-source and government-led cloud research projects has led to advancements in mission-based analytics, cloud performance at scale, and monitoring and security auditing solutions. **POC:** Geoff Martino, Technical Director

410-290-1111, info@helmpoint.com Membership Level: Small Business Partner

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Hera Systems Inc.

6389 San Ignacio Ave. San Jose, CA 95119 www.herasys.com

Hera Systems is a satellite information and analytics company collecting images of the Earth, monitoring change and empowering decisions about our planet's constantly changing features and emerging situations across the globe, in near-real time. Starting in December 2016, our 1HOPSat microsat constellation will produce multispectral imagery and video at submeter resolution. **POC**: Joe Thurgood, PhD, VP Corporate Development and Marketing 415-412-1730, joe.thurgood@herasys.com **Membership Level:** Small Business Partner



HERE

425 W. Randolph St. Chicago, IL 60606 www.company.here.com HERE, the location cloud company, enables rich, real-time location applications and experiences for consumers, vehicles, enterprises and cities. HERE is backed by a consortium of leading automotive companies. To learn more about us, including our work in the areas of connected and automated driving, visit http://360.here.com. *POC*: Cliff Allison, Senior Account Executive, 703-217-9267 cliff.allison@here.com *Membership Level*: Sustaining Partner



Hewlett Packard Enterprise

13600 EDS Dr. Herndon, VA 20171 www.hpe.com

Hewlett Packard Enterprise (HPE) is an industry leading technology company that enables customers to go further, faster. As one of the world's largest providers of IT infrastructure and over 50 years supporting intelligence community requirements, HPE brings the industry's most comprehensive portfolio, spanning the cloud to the data center to workplace applications. Our technology and services help customers around the world make IT more efficient, more productive and more secure.

POC: Brenda Brown, IC Account Relations, 703-736-3336 brenda.a.brown@hpe.com Membership Level: Strategic Partner



HHB Systems

1818 Library St., Suite 500 Reston, VA 20190 www.hhbsystems.com HHB Systems is a GEOINT information systems technology company specializing in professional management advisory services, government GEOINT systems architecture and operations, program acquisition services, systems engineering, systems and applications integration, and systems administration. Whether implementing specialized GEOINT tools, or integrating and administering entire systems, we are GEOINT experts. POC: Brent Hermansen, CEO 703-956-3006 brent.hermansen@thehhb.com

Membership Level: Sustaining Partner



HP Inc.

1501 Page Mill Rd. Palo Alto, CA 94304 www.hp.com

HP creates new possibilities for technology to have a meaningful impact on people, businesses, governments and society. With the broadest technology portfolio spanning printing, personal systems, software, services and IT infrastructure, HP delivers solutions for customers' most complex challenges in every region of the world. **POC**: David Aumiller, Enterprise Account Manager, 410-991-2783 david.aumiller@hp.com **Membership Level**: Associate Partner

HUMANGEO

The HumanGeo Group LLC

4350 N. Fairfax Dr., Suite 950 Arlington, VA 22203

www.thehumangeo.com The HumanGeo Group, LLC is headquartered in Arlington, Virginia. HumanGeo's unique capabilities include the development of big data applications and tools to synthesize, manage and exploit large data sets, big data analytics, geospatial visualization, anticipatory analysis, and real-time social media events. POC: Al DiLeonardo, CEO 202-250-1592, al@thehumangeo.com Membership Level: Sustaining Partner

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i3 ICS

6564 Loisdale Ct., Suite 1010B Springfield, VA 22150 www.i3ics.com Unique in the industry, i3 ICS is a Service Disabled Veteran-Owned Small Business (SDVOSB) specializing in Analytical Integration (AI) - the process of synchronizing new or emerging technologies into the analytical process to maximize impact and streamline operations. i3 ICS' experience and knowledge assists with both technical and practical solutions to customers' challenges. POC: Phil Oakley, President 703-313-7040, philoak@i3ics.com Membership Level: Sustaining Partner



IBM

6710 Rockledge Dr. Bethesda, MD 20817 www.ibm.com/federal IBM forges integrated intelligence. INNOVATION. IBM provides real-time analytics, cognitive solutions, cloud service expertise, and the infrastructure to support GEOINT On-Demand. With R&D investments over \$6B annually, IBM leads the world in patents - making the kind of discoveries that shape the future of government, business, academia and society. These breakthroughs are leveraged in IBM solutions to handle challenging NSG mission imperatives. IBM's industry leadership is recognized in numerous areas - Consulting and Managed Services, Analytics, where IBM has received more than 500 analytics patents, Cost-savings Methodologies, IT Workload Optimization, Application Integration, Cloud and Cloud Storage, DevOps, and Cybersecurity. POC: Gabe Chang, Federal CTO Architect, 301-803-3655, changg@us.ibm.com Membership Level: Strategic Partner



ICES

2214 Rock Hill Rd., Suite 100 Herndon, VA 20170 www.ices-inc.net

ICES provides life-cycle systems engineering and integration services and geospatial intelligence analysis. We specialize in architecture (systems, data, security), information assurance, IT asset management and accredited asset management training. We leverage expertise in agile engineering while ensuring the transformation of systems to service-oriented and cloud based capabilities are sound, secure and cost effective. POC: Steven Zameito, Vice President for Business Development, 610-306-7020

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Membership Level: Associate Partner



Image Matters LLC

201 Loudoun St. SW Leesburg, VA 20175 www.imagemattersllc.com

Image Matters specializes in innovative solutions for Object-Based Production and next generation Structured Analytics. As exemplified in our FactWeave product, we offer cloud-based solutions for knowledge-assisted analytic models and services, robust treatment of provenance and tradecraft in analytic processes, advanced search, discovery and exploration of object based intelligence, and autonomous workflow, collaboration and distribution capabilities. POC: Harry Niedzwiadek, CEO

703-669-5510 harryn@imagemattersllc.com Membership Level: Small Business Partner

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Immersive Media

1700 Main St., Suite 222 Washougal, WA 98671 www.immersivemedia.com

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Membership Level: Small Business Partner



In-Q-Tel P. O. Box 749

Arlington, VA 22216 www.iqt.org

In-Q-Tel is the not-for-profit, strategic investment organization that works to identify, adapt, and deliver innovative technology solutions to support the mission of the U.S. Intelligence Community (IC). Launched in 1999, IQT identifies and partners with companies developing cutting-edge technologies that serve the national security interests of the United States. POC: Nick Miller, Director, Intelligence Community Support, 703-248-3000 info@iqt.org

Membership Level: Sustaining Partner



Innovative Analytics & Training LLC

1455 Pennsylvania Avenue, Suite 710 Washington, DC 20004 www.innovative-analytics.com Innovative Analytics & Training, LLC (IAT), is a small business focusing on improving decisionmaking for government & commercial clients. We excel in strategy and policy development, analytic tradecraft, cyber analysis, and human capital and HR analytics. **POC:** Rick Raftery, Executive Vice President, 202-280-2045 ext. 702 rafteryr@innovative-analytics.com Membership Level: Small Business Partner



InQuisient

46290 Summerhill Place Potomac Falls, VA 20165 www.inquisient.com

InQuisient's enterprise data management platform creates order from chaos, enabling agile, user-driven data management and business transformation at the speed of your mission. This browser-based platform provides a clear chain of custody and is especially well suited for DoD and Intelligence organizations, enabling the ability to look at 'today's truth' across all operational levels.

POC: Sandy Levine, Chief Marketing Officer, 888-230-2181, sandy@inquisient.com Membership Level: Small Business Partner



Insitu Inc. 118 East Columbia River Way Bingen, WA 98605

www.insitu.com

Insitu creates customized unmanned aerial systems and information processing software solutions that provide information for superior decision making. Our platforms - ScanEagle, Integrator, and Blackjack - deliver high-quality, combat-proven ISR for both land and maritime missions. Insitu is a wholly owned subsidiary of The Boeing Company.

POC: Danny Proko, Director, National Security Operation, East Coast 949-540-0740, daniel.proko@insitu.com Membership Level: Sustaining Partner

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InTec LLC

10306 Eaton Pl., Suite 520 Fairfax, VA 22030 www.intecllc.net

InTec, LLC provides expertise in systems engineering and integration, information technology/assurance, training development, intelligence analysis, collection management, and program management support to the Federal Government. InTec is a leader in integrating big data and cloud technology. Since 2005, InTec has provided high quality multi-disciplined experts to support intelligence systems, training and operations. POC: Bruce J. Donaldson, President, 703-255-1524

brucedonaldson@intecllc.net Membership Level: Associate Partner

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Integrity Applications Incorporated

Business Unit: Analytical Services 15020 Conference Center Dr. Chantilly, VA 20151

www.integrity-apps.com Integrity Applications Incorporated (IAI) is an engineering, software services and solutions company supporting intelligence, civil, defense and other customers focusing on ISR activities. Headquartered in Virginia, IAI has offices in 13 States, providing specialized support for all aspects of engineering and acquisition. IAI SMEs guide development and validate performance for our customers, and produce innovative software applications. Our domain expertise in GEOINT ISR includes radar, EO/IR and MASINT, ground systems, geo-positioning, photogrammetry, image quality analyses, and special capabilities. POC: Barry Tilton, P.E., PMP, Chief Architect, Analytical Services 703-378-8672 x3325 btilton@integrity-apps.com Membership Level: Associate Partner



Intelligent Decisions Inc.

21445 Beaumeade Cir. Ashburn, VA 20147 www.intelligent.net Intelligent Decisions partners with clients, enabling them to reach and surpass their IT goals. ID's diversified IT solutions combine technology expertise with our employees' innovative approach to solutions. We develop, deploy and maintain the most sophisticated technology solutions on the market by combining high-end professional services and cutting-edge technology to provide an all-encompassing, end-to-end solution. POC: Michael Walsh, Senior Director for Intelligence Programs, 703-840-6038 mwalsh@intelligent.net

Membership Level: Sustaining Partner



Intergraph Government Solutions

Business Unit: Defense and Intelligence 1881 Campus Commons Dr., Suite 410 Reston, VA 20191

www.intergraphgovsolutions.com Intergraph has served the United States government for more than four decades. As a wholly owned subsidiary of Intergraph, Intergraph Government Solutions (IGS) provides geospatially-powered solutions to the U.S. government's defense, intelligence, security and civilian agencies. IGS is the exclusive provider of ERDAS Imagine, GeoMedia and other Hexagon Geospatial technologies to the US Federal government. Our wide-ranging solutions include remote sensing, photogrammetry, geospatial intelligence production, and cloud-based exploitation. IGS solutions help our customers collect, fuse and analyze geospatial intelligence, mitigate security threats, and make fast, effective decisions. POC: Rob Mott, VP for Geospatial Solutions, 703-264-5713 robert.mott@intergraphgovsolutions.com Membership Level: Strategic Partner

SC

Intergraph Services Co. (ISC)

Business Unit: Intergraph Government Solutions 301 Cochran Rd. Huntsville, AL 35824 www.intergraphgovsolutions.com ISC is one of the largest providers of Geospatial data based solely in the U.S. The data we produce supports the government marketplace in their day-to-day planning activities - whether that is a county tax official, a federal GIS manager, or the Warfighter. POC: George Jones, Business Development Manager, 256-799-6430 george.jones@intergraphgovsolutions.com Membership Level: Sustaining Partner



International Spy Museum 800 F St NW

Washington, DC 20004 www.spymuseum.org

The International Spy Museum chronicles the history of spying throughout the ages and across the globe. Without political bias, the Museum presents the facts behind the missions, tradecraft, and the spies themselves and features the largest collection of international espionagerelated artifacts open to the public. **POC**: Rebecca Diamond, Director of Development and Membership 202-654-0954, rdiamond@spymuseum.org **Membership Level:** Small Business Partner

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Iron Bow Technologies

4800 Westfields Blvd., Suite 300 Chantilly, VA 20151

www.ironbow.com

Iron Bow Technologies is an IT solutions provider that successfully transforms technology investments into business capabilities for government and industry. Our depth of technical expertise, global reach and strategic partnerships with leading OEMs positions Iron Bow to target the right solution for successful business outcome. Regardless of how your organization consumes technology, we can help you innovate.

POC: Gary Coppeler, Account Manager 240-487-1502, gary.coppeler@ironbow.com Membership Level: Sustaining Partner

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ISPA Technology

6138 Redwood Square Centre, Suite 203 Centreville, VA 20121 www.ispatechnology.com ISPA Technology is a Command, Control, Communications, Computers, Intelligence Surveillance and Reconnaissance (C41SR) company. ISPA has a decade of experience providing support to the Department of Defense and Intelligence Community. ISPA is comprised of technology applicators that specialize in supporting government organizations as they build custom applications and upgrade their infrastructures for the emerging battlefield.

POC: Michael C. Grochol, Principal 850-524-7077

grochol@ispatechnology.com Membership Level: Small Business Partner



IvySys Technologies LLC

4501 North Fairfax Dr., Suite 920 Arlington, VA 22203 www.ivvsvs.com

IvySys develops big data integration software solutions that enable existing intelligence analytics tools and large-scale databases to securely share data, while providing capabilities to automatically synchronize, disambiguate, and align entities/objects across disparate data stores. IvySys data integration solutions provide seamless intelligence software system interoperability and information sharing to facilitate object-based production in a cloud-computing environment. POC: Dr. James A. DeBardelaben President & CEO, 703-414-5665 x111 jd@ivysys.com

Membership Level: Sustaining Partner



Jacobs

11710 Plaza America Dr., Suite 600 Reston, VA 20190 www.jacobs.com

Jacobs is one of the world's largest, most diverse providers of technical and professional services to the intelligence, space and special operations communities. We focus on the crucial linkages between technology solutions and operational mission support. Jacobs provides mission critical telecommunications, enterprise IT management, end-to-end GEOINT analysis and production, cybersecurity and insider threat program management and advisory services. POC: Vincent Mihalik, 202-460-8090

vincent.mihalik@jacobs.com Membership Level: Sustaining Partner



Johns Hopkins University

Advanced Academic Programs 1717 Massachusetts Ave. NW Washington, DC 20036 www.advanced.jhu.edu/academics/ graduate-degree-programs/ geographic-information-systems

Geographic Information Systems (GIS) represent a technological breakthrough in organizing and displaying spatial informtaion to promote better decision-making by scientists, public officials, and communities facing increasingly complex demands upon their available resources. The Master of Science in GIS is designed for students looking to enter this lucrative and exciting field.

POC: Geri Miller, GIS Program Coordinator, 215-817-6241, geri.miller@jhu.edu Membership Level: Academic Partner



Juniper Networks

2251 Corporate Park Dr. Herndon, VA 20171 www.juniper.net/federal Juniper Networks offers the U.S. federal government a high-performance networking and security solutions portfolio, enabling a responsive and trusted environment to support mission-critical, geospatial programs. Delivered in partnership with leading systems integrators, Juniper solutions enable high-performance, secure networking for the entire federal enterprise, from the data center to the desktop.

POC: Allan Assel, National Security Group, Special Programs, 571-203-1700 aassel@juniper.net

Membership Level: Sustaining Partner



KaDSci LLC 7225 Whitson Dr. Springfield, VA 22153

KaDSci, LLC is a small decision science research and data analytics company with the goal of doing applied intelligence related research with an eye toward transitioning successful research to analysts and operators. Toward that end we, often in partnership with academia, have delivered research results in many areas including simulation, artificial intelligence, and forecasting. **POC:** Daniel T. Maxwell, Ph.D. President, 703-409-7828 dmaxwell@kadsci.com **Membership Level:** Sustaining Partner



Keeper Technology

21740 Beaumeade Circle, Suite 150 Ashburn, VA 20147 www.keepertech.com

Keeper Technology has a 10-year history of architecting, deploying, and supporting enterprise class data storage and data management solutions. Keeper's revolutionary keeperSAFE storage appliance solves the hard problems of managing billions of files and petabytes of data through a unique combination of open source technology, Keeper intellectual property, and tightly integrated hardware. *Membership Level:* Sustaining Partner



KEYW Corporation

7740 Milestone Pkwy., Suite 400 Hanover, MD 21076 www.keywcorp.com

KEYW provides mission-critical solutions for geospatial intelligence and cybersecurity to defense, intelligence and national security agencies. Our services and products support the collection, processing, analysis, and use of intelligence data and information in the domains of geospace and cyberspace. Our solutions are designed to respond to meet the critical needs for our customers who include the National Geospatial-Intelligence Agency (NGA), other intelligence agencies, the Department of Defense and other federal defense and law enforcement agencies. POC: Michele Cook, Executive Vice President, Business Development 571-421-8500, mcook@keywcorp.com Membership Level: Strategic Partner



Knowledge Link Inc.

2551 Dulles View Dr., Suite 305 Herndon, VA 20171 www.knowledge-link.com

Knowledge Link was incorporated in 2003. At its core Knowledge Link was established to solve the most daunting and challenging technology and service requirements. We endeavor to build strong customer relationships through an uncompromising commitment to quality and client satisfaction. Our consultants deliver innovative solutions that span the full infrastructure lifecycle.

POC: Blair Carter, Executive Director 703-827-8500, bcarter@knowledge-link.com Membership Level: Small Business Partner



Kongsberg Geospatial

411 Legget Drive, Suite 400 Ottawa, Ontario, Canada K2K 3C9 www.kongsberggeospatial.com Kongsberg Geospatial develops leading situational awareness and Command and Control software solutions that allow users of geospatial information to architect high performance, real-time, mission critical applications. The company provides a complete range of customized solutions for customers worldwide, leveraging over 25 years of experience and world class in-house software components. Kongsberg Geospatial is a subsidiary of Kongsberg Defence Systems.

POC: Christopher Ivey, Marketing Manager, 1-613-271-5500 chris.ivey@kongsberggallium.com Membership Level: Sustaining Partner



KPMG LLP

1676 International Dr. McLean, VA 22102 www.kpmg.com

KPMG is a leading professional services firm, with more than 23,000 professionals in 87 offices nationwide. KPMG's Federal Advisory practice supports the Department of Defense and Intelligence Community (IC) in addressing business and technology challenges, including financial and business transformation, cost management, shared services optimization, organizational change management, program management, and mission services enablement.

Membership Level: Sustaining Partner



WORLDWIDE MAPPING LLC

LAND INFO Worldwide Mapping LLC

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LAND INFO is a leading provider of satellite imagery and value-added remote sensing solutions such as feature extraction (buildings, roads, hydrology etc.), spectral classification/Object-Based Image Analysis (land-use/land-cover, vegetation & change detection mapping) and Digital Elevation Models. The company also offers custom mapping of economic indicators and an extensive archive of global digital map data. **POC:** Nick Hubing, President 303-790-9730, nick@landinfo.com **Membership Level:** Small Business Partner



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www.learningtree.com

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POC: Brian Green, SVP, Sales & Solution Development, 703-925-7611 brian_green@learningtree.com Membership Level: Sustaining Partner



Leidos

Business Unit: National Security Sector 11951 Freedom Dr. Reston, VA 20190

www.leidos.com

Leidos is a FORTUNE 500 science and technology solutions leader working to address some of the world's toughest challenges in national security, health and engineering. The Company's 19,000 employees support vital missions for our government and the commercial sector, develop innovative solutions to drive better outcomes and defend our Nation's digital and physical infrastructure from 'new world' threats. Headquartered in Reston, Virginia, Leidos reported annual revenues of approximately \$5.06 billion for its fiscal year ended January 30, 2015. POC: Karen Pifer, Strategic Events Manager, 703-589-5149 karen.m.pifer@leidos.com Membership Level: Strategic Partner



LexisNexis

Business Unit: LexisNexis OSINT 1150 18th Street NW, 6th Floor Washington, DC 20036 www.lexisnexis.com

LexisNexis is the leader in open source intelligence (OSINT) research with over 89,000 news and social media sources and adaptable search technology from one discreet provider. LexisNexis takes intelligence professionals straight to information that matters, without leaving a footprint. Our intelligence is available via our own proprietary platform, or via a direct feed. **POC**: Adam Dietz, Senior Government Consultant, 202-256-6794 adam.dietz@lexisnexis.com **Membership Level**: Sustaining Partner

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LGS Innovations

13665 Dulles Technology Dr., Suite 301 Herndon, VA 20171

www.lgsinnovations.com LGS Innovations delivers mission-critical communications products, R&D, and supporting services to government and commercial customers worldwide. We create advanced solutions in wireless communications, signals processing and analysis, optical networking, photonics, routing and switching, and spectrum management, driving mission success in C4ISR, cyberspace operations, and network assurance.

POC: Dustin Lowry, Business Operations Analyst, 703-394-1518 dlowry@lgsinnovations.com Membership Level: Sustaining Partner

Creators of MrSID Compression Technology

LizardTech

1008 Western Ave., Suite 200 Seattle, WA 98104 www.lizardtech.com

LizardTech creates state-of-the-art software products and solutions that enable governments and businesses to manage and distribute massive, high-resolution geospatial data such as aerial and satellite imagery and LiDAR data. LizardTech pioneered MrSID, a powerful image encoder, viewer, and file format. *Membership Level:* Sustaining Partner



Lockheed Martin

Business Unit: Space Systems Company PO Box 179 Denver, CO 80201 www.lockheedmartin.com Headquartered in Bethesda, Maryland, Lockheed Martin is a global security and aerospace company that employs approximately 125,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. Lockheed Martin is a global leader in technology for the full range of geospatial intelligence, geospatial processing and related geospatial intelligence products. Lockheed Martin's advanced systems provide the technology backbone for collecting and disseminating imagery, fusing multi-source data into a common picture, and delivering situational awareness through easy-to-use web-based services for analysts and warfighters world-wide. POC: David Messina, Business Development, 703-466-2791 david.e.messina@lmco.com Membership Level: Strategic Partner



Luciad Inc.

2200 Pennsylvania Ave. NW 4th Floor, East Tower Washington, DC 20037 www.luciad.com

At Luciad, we are passionate about geospatial software. Our innovative, principled approach and dedication to customer satisfaction have earned us a reputation for cutting-edge excellence worldwide. Luciad's real-time situational awareness geospatial software components are known for their flexibility, high performance and accuracy. Luciad software plays an invaluable role in safety-critical industries including aviation, defense, maritime, public-safety & homeland-security, and utilities & logistics.

POC: Demetreus Lancsweert, Country Manager North America, 202-507-5895 info@luciad.com

Membership Level: Sustaining Partner

Mapbox

Mapbox

1714 14th St NW Washington, DC 20009 www.mapbox.com Mapbox is a platform for building custom maps and processing geo data, relying heavily on open source tools. We power maps for organizations like Foursquare, the Financial Times, and the National Parks Services. Our team is based in Washington, DC and San Francisco. Membership Level: Sustaining Partner

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MapLarge

1201 Peachtree St NE, Ste 200 400 Colony Square Atlanta, GA 30361 www.maplarge.com MapLarge maximizes the time-to-value of GEOINT by enabling analysts to visualize and analyze geospatial Big Data in real time with High Definition resolution. The platform leverages its powerful in-memory technology and an open API-driven architecture that provides a new view of geospatial data. MapLarge improves decision-making, planning, and collaboration resulting in lasting mission outcomes.

POC: Lynwood Bishop, CEO, 1-855-MAP-LARGE lynwood@maplarge.com

Membership Level: Sustaining Partner

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MapR Technologies

350 Holger Way, Suite 109 San Jose, CA 95134 www.mapr.com

MapR enables organizations to create disruptive advantage and long-term value from their data with the industry's only Converged Data Platform, which delivers distributed processing, real-time analytics, and enterprise-grade requirements across cloud and on-premise environmentswhile leveraging the significant ongoing development in open source technologies including Spark and Hadoop. **POC:** Doug Natal, 703-674-7695 dnatal@mapr.com

Membership Level: Sustaining Partner



MarkLogic Corporation *Business Unit:* Public Sector 7950 Jones Branch Dr., Suite 200

McLean, VA 22107 www.marklogic.com

For over a decade, organizations around the world have come to rely on MarkLogic to power their innovative information applications. As the world's experts at integrating data from silos, MarkLogic's operational and transactional enterprise NoSQL database platform empowers our customers to build next generation applications on a unified, 360-degree view of their data.

POC: Kim Kok, National Security Programs, 571-389-0406 kim.kok@marklogic.com Membership Level: Sustaining Partner



MDA

13800 Commerce Pkwy. Richmond, BC, Canada V6V 2J3 www.mdacorporation.com MDA is a is a unique global communications and information company, a member of USGIF, and a leading source of actionable geospatial intelligence solutions for commercial and government organizations worldwide. Actively supporting the U.S. DoD and Intelligence Community for three decades, MDA delivers advanced geospatial systems, services, and products for government and commercial programs, employing data products from leading high-resolution satellite missions. MDA also has extensive experience in priming turnkey satellite missions, and is a leader in multi-sensor ground segments.

POC: Wendy Keyzer, Director, Marketing Communications, 604-231-2743 wendy@mdacorporation.com Membership Level: Strategic Partner



Meadowgate Technologies

Business Unit: Small Business 171 Jersey St., Bldg 3, Suite 101 Trenton, NJ 08611 www.meadowgate.us

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POC: Phil Loperfido, Director, Business Development, 267-626-9126 loperfido@meadowgate.us Membership Level: Sustaining Partner



Mellanox Federal Systems

350 Oakmead Pkwy., Suite 100 Sunnyvale, CA 94085 www.mellanoxfederal.com Mellanox Technologies is a leading supplier of end-to-end Ethernet and InfiniBand intelligent interconnect solutions and services for servers, storage, and hyper-converged infrastructure. Mellanox intelligent interconnect solutions increase data center efficiency by providing the highest throughput and lowest latency, delivering data faster to applications and unlocking system performance. POC: Dale D'Alessio, CEO 703-969-5735, dale@mellanoxfederal.com Membership Level: Sustaining Partner

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MemSQL USG 534 4th St.

San Francisco, CA 94107 www.memsql.com MemSQL is the real-time database for transactions and analytics. Our in-memory database provides for rapid ingest and simultaneous querying of data in flight. We enable our customers to have access to their data in the moment while performing analytics on constantly changing data sources. POC: Mike Kilrain, President 703-201-4480, kilrain@memsql.com Membership Level: Small Business Partner



Mercom Corporation

313 Commerce Dr. Pawleys Island, SC 29585 www.mercomcorp.com Mercom Corporation, your trusted technology advisor, combines the latest technology with highly trained professionals to deliver best in cutting edge solutions with first class customer service. POC: Betsy Chewning, Marketing and Vendor Relations Coordinator 843-979-9957 betsy.chewning@mercomcorp.com Membership Level: Sustaining Partner

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Micron Technology Inc.

8000 S. Federal Way Boise, ID 83716 www.micron.com Micron is a global leader in advanced semiconductor systems and the only U.S.-based memory provider capable of supplying the high-performance DRAM, Flash, SSDs, and multichip packages that enable innovative solutions for the most

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The MITRE Corp.

7515 Colshire Dr., MS T630 McLean, VA 22102 www.mitre.org

The MITRE Corporation is a private, independent not-for-profit organization, chartered to work solely in the public interest. It provides systems engineering, research and development, and information technology support to the government. MITRE operates federally funded research and development centers for the DoD, FAA, IRS, DHS, NIST, CMS and the U.S. Courts. POC: Catherine Pennington, Portfolio Director, National Geospatial Programs 703-983-7104, cpenning@mitre.org Membership Level: Sustaining Partner

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Monitor 360

444 Spear St., Suite 210 San Francisco, CA 94105 www.monitor-360.com Narratives are unseen forces that drive

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POC: Mary Jo Lampe, Director of Business Development, 202-412-2650 maryjo_lampe@monitor-360.com Membership Level: Small Business Partner

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MotionDSP

MotionDSP Inc.

700 Airport Blvd., Suite 270 Burlingame, CA 94010

www.motiondsp.com MotionDSP, winner of two Air Force RIF contracts, makes commercial GPUaccelerated FMV and WAMI processing software for real-time video improvement and video analytics. MotionDSP's advanced image processing algorithms comprehensively address video quality issues, provide real-time Visual Moving Target Indicator (VMTI) and tracking, and vastly improve the productivity of the FMV analyst.

POC: Sean Varah, CEO, 650-288-1164 varah@motiondsp.com





National Geospatial-Intelligence Agency (NGA)

7500 GEÕINT Dr. Springfield, VA 22150 www.nga.mil

NGA delivers world-class geospatial intelligence, or GEOINT that provides a decisive advantage to warfighters, policymakers, intelligence professionals and first responders. Both an intelligence agency and combat support agency, NGA fulfills the president's national security priorities in partnership with the U.S. Intelligence Community and the Department of Defense. NGA also is the lead federal agency for GEOINT and manages a global consortium of more than 400 commercial and government relationships. POC: Office of Corporate Communica-

tions, 571-557-5200, occe@nga.mil Membership Level: Strategic Partner



Nelson Intelligence Solutions LLC

800 Corporate Dr., Suite 301 Stafford, VA 22554

www.nelsonintelligencesolutions.com Nelson Intelligence Solutions (NIS), LLC was formed as a Service Disabled Veteran and Minority Owned Business with offices located in Stafford, Virginia and Little Rock, Arkansas. NIS's main service sector will be intelligence analysis, geospatial production, providing on-site personnel services and in the intelligence systems integration and Information Technology (IT) support.

POC: Eric W. Nelson, 703-629-8839 ewnelson@nelsonintelligencesolutions.com Membership Level: Small Business Partner



Neptune

415 8th Street SE Washington, DC 20003 www.neptuneasc.com Neptune supports leaders in both the private and public sectors with an integrated offering that includes consulting services, proprietary research, and policy and programmatic analysis. By leveraging our enterprise model, we identify risk and opportunity upstream of the competition, setting the conditions to change problems into solutions and

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NetApp

Business Unit: U.S. Public Sector 1921 Gallows Rd., Suite 600 Vienna, VA 22182 www.netapp.com

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1100 H Street, NW, Suite 700 Washington, DC 20005 www.newlighttechnologies.com NLT provides enterprise IT and GIS solutions through complete GIS system implementation services, from GIS needs assessment through system implementation, maintenance, and ongoing quality assurance/quality control. NLT has helped numerous commercial, federal, state, and local clients achieve the highest levels of return on their investments in IT and GIS technology.

POC: Ghermay Araya, 202-568-6300 sales@newlighttechnologies.com Membership Level: Small Business Partner

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New World Solutions, a SOSi Company

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www.new-world-solutions.com New World Solutions LLC – an SOS International (SOSi) company based in Reston, Virginia provides support to a wide spectrum of ground-, airborne-, and space-based ISR programs operating across a range of disciplines in the defense and intelligence communities. NWS is an award-winning company offering our customers high value technical services to meet mission needs. **POC:** Harry G. Looney, Jr., President 703-350-7906, harry.looney@sosi.com **Membership Level:** Sustaining Partner



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7075 Samuel Morse Dr., Suite 250 Columbia, MD 21046 www.nextcentury.com

Next Century is a professional services firm that provides Critical Insight Systems which utilize innovative technologies and interface mechanisms to provide users with at-a-glance insight and decision support (i.e., bringing key information to those who need it, when they need it, where they need it, and in a form that facilitates rapid and effective decision-making). **POC**: Mark A. Allen, VP, Business Development, 443-545-3135 mark.allen@nextcentury.com **Membership Level:** Sustaining Partner

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www.ntconcepts.com NT Concepts serves customers across Government with leading edge information technology solutions and comprehensive professional services. Our technical capabilities span software, system, and network engineering, and include deep expertise in big data analytics, enterprise portal, cybersecurity, and geospatial domains. Founded in 1998, we employ over 1000 professionals delivering customer-centric offerings to the Department of Defense, Intelligence Community, and Civilian agencies, supporting a multitude of efforts with direct impact to our nation's security. POC: Chris Powell, CTO, 703-752-8634 chris.powell@ntconcepts.com Membership Level: Associate Partner



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1765 Greensboro Station Pl., Suite 900 McLean, VA 22102 www.nextfederal.com NextFED is a consulting firm with a deep understanding of the National Security Mission and decades of experience and expertise. NextFED is a privately-held woman owned small business with TS/SCI access. Focus areas: Mergers and Acquisition Support; Strategic Planning and Advisory; Business Development and Capture Support; Commercialization of Dual-Use Technology. POC: Lorraine Castro, Executive Vice

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POC: Tim Pasierb, Geospatial Account Manager, 314-704-0434

timothy.pasierb@ngc.com

Membership Level: Strategic Partner



Novetta

Business Unit: Corporate Business Development 12021 Sunset Hills Rd., Suite 400 Reston, VA 20190

www.novetta.com

Novetta delivers agile big data solutions and services that deliver actionable insights. Our Identity, Cyber and Social Analytics enable government and commercial customers worldwide to quickly make data-driven decisions. We apply mission critical technology in cloud computing, geospatial analysis and visualization, entity resolution, biometrics and software and systems engineering to drive mission success.

POC: Andrea Keilholtz, Senior Director, Federal Business Development 703-885-1024, akeilholtz@novetta.com Membership Level: Associate Partner



2701 San Tomas Expy. Santa Clara, CA 95050 www.nvidia.com/defense NVIDIA (NASDAQ: NVDA) is a

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OpenWhere Inc.

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OpenWhere is harnessing the power of the world's sensors delivering insights for a smarter and safer planet. We apply cloud computing, location based services, open source technologies, and big data analytics to deliver next generation information services to government and commercial customers. Our experienced team turns sensed data into advanced analytics to support decision makers. POC: Chris Glanzmann, COO 703-935-1934 cglanzmann@openwhere.com Membership Level: Small Business Partner



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Business Unit: National Security Group 1910 Oracle Way Reston, VA 20190 www.oracle.com

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POC: Mark Tatum, Vice President, Mission Solutions, 703-364-2311 mark.tatum@oracle.com Membership Level: Strategic Partner



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Penn State University

Penn State Geospatial Intelligence Program 2217 EES Building University Park, PA 16802 www.psu.edu

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POC: Dr. Todd S. Bacastow, Professor of Practice, 814-863-0049, tsb4@psu.edu Membership Level: Academic Partner

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POC: Trisha Orndoff, Director, Federal Sales, 301-509-5161 torndoff@pentaho.com

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POC: Diana Pittman, PMP, Program Manager, 703-391-6071 dpittman@pherson.org

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Planet

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The Potomac Advocates is a leading Washington-based consulting and lobbying firm. We provide comprehensive and cost effective services to some of the world's largest corporations, small and medium sized businesses, and individuals. Our principals have served in DoD and on Congressional staffs. We identify opportunities and help you win business. POC: John Nichols, Partner/Owner 703-493-8036, john@potadv.com Membership Level: Sustaining Partner

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Business Unit: Technical Intelligence Group

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POC: Bill Bailey III, Strategic Initiatives Analyst, 256-489-8526 william.baileyIII@radiancetech.com Membership Level: Sustaining Partner





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Raytheon Co.

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SAS

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SGI

Business Unit: Federal

420 National Business Pkwy., Suite 180 Annapolis Junction, MD 20701 www.sgi.com

SGI is a global leader in high performance solutions for compute, data analytics and data management that enable customers to accelerate time to discovery, innovation, and profitability. POC: Robert Paddison, Federal Relations Manager, 301-874-5994, bobp@sgi.com Membership Level: Associate Partner

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Sierra Nevada Corp.

Business Unit: Intelligence, Surveillance, and Reconnaissance 444 Salomon Cir. Sparks, NV 89434

www.sncorp.com

SNC is a world-class prime systems integrator and electronic systems provider known for its rapid, innovative, and agile technology solutions. Fast-growing and widely diversified, SNC is a high-tech electronics, engineering, and manufacturing corporation that continues to expand its impressive portfolio of capabilities, products and services.

POC: Taco Gilbert, VP of Business Development, 303-795-0604 taco.gilbert@sncorp.com Membership Level: Sustaining Partner



Sigma Space

4600 Forbes Blvd. Lanham, MD 20706 www.sigmaspace.com Established in 1998, Sigma Space Corporation produces next-generation LiDAR, laser ranging, attitude determination, spectroscopy, and radiometry instrumentation for remote sensing. Sigma Space offers advanced science and engineering services to private and government clients, including NASA and DoD. Supporting these efforts is our world-class staff of engineers, technicians, and scientists. POC: Katie Fitzsimmons, Director of Operations, 301-552-6001 katie.fitzsimmons@sigmaspace.com Membership Level: Sustaining Partner

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Simulvze Inc.

12020 Sunrise Valley Dr., Suite 300 Reston, VA 20191

www.simulyze.com

Simulyze offers a high-end four-dimensional operational intelligence platform tailored to meet the needs of the military (operations and intelligence), commercial defense, tracking, and aerospace communities. Simulyze's technology can analyze complex events in real-time with data from multiple disparate data sources. Customized & user-friendly, Mission Insight provides comprehensive battlespace analysis and visualization. POC: Christy Gallagher, Senior Systems Engineer, 703-391-7001 x272

christy@simulyze.com Membership Level: Sustaining Partner



Skyline Software Systems Inc.

Business Unit: Defense 13873 Park Center Rd., Suite 201 Herndon, VA 20171

www.skylinesoft.com Skyline Software is a leader in 3D earth visualization, geospatial data fusion and dissemination capabilities. Skyline's TerraExplorer and SkylineGlobe applications set the standards for 3D desktop and web-based applications; allowing users to generate custom 3D globes utilizing their own data, integrated with their applications and delivered across almost any network. POC: Steve Marks, Director, Business Development, 703-378-3780 x112 smarks@skylinesoft.com Membership Level: Sustaining Partner

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Software GOVERNMENT SOLUTIONS

Software AG Government Solutions

12950 Worldgate Dr., Suite 300 Herndon, VA 20170 www.softwareaggov.com

Our integrated digital business platform removes barriers to connect data from any source. Trusted for rapid application development, process automation, IT transformation, real-time in-memory data management and analytics, our products enable GEOINT professionals to exploit new and legacy technologies to quickly solve mission critical IT challenges at massive scale. POC: Ray Falcione, Regional Vice President, 703-949-9549 ray.falcione@softwareaggov.com Membership Level: Sustaining Partner

Solers Inc.

950 North Glebe Rd., Suite 1100 Arlington, VA 22203 www.solers.com

Solers, Inc. is an innovative software development and systems integration company. CMMI Maturity Level 3 certified and Agile processes, Solers delivers high quality solutions of Enterprise Services, Net-Centric & Service Oriented Architecture, Cloud Computing, Satellite Ground Systems, Cybersecurity, Information Assurance, IdAM & Cross Domain Solutions, Data Visualization and Geospatial Applications.

POC: Trey Rhiddlehoover, Vice President 703-526-0001 trey.rhiddlehoover@solers.com

Membership Level: Associate Partner



Solvarus

Clifton, VA 20124 www.solvarus.com

Solvarus specializes in domain-specific subject matter expertise (SIGINT, GEOINT, MULTIINT), cloud services adoption, migration of legacy systems & data, management of Agile development efforts, creating & institutionalizing enterprise architectures, promoting IT interoperability & reuse, and managing large IT portfolios. We bring full development lifecycle expertise to solve mission problems. POC: Russ Wallace, President

321-961-5360, russ.wallace@solvarus.com Membership Level: Sustaining Partner



SOS International LLC

1881 Campus Commons Dr., Suite 500 Reston, VA 20190 www.sosi.com

SOS International LLC (SOSi) is a private, family-owned government services integrator. Founded in 1989, we have experience in more than 30 countries worldwide. SOSi provides intelligence, technology and project management solutions to large government and private-sector organizations. POC: James Edwards, Vice President Business Development, 703-674-5018 james.edwards@sosi.com

Membership Level: Sustaining Partner



Space Dynamics Laboratory 1965 N Research Park Way

N Logan, UT 84341

www.sdl.usu.edu

SDL provides space, air and groundbased sensors, small satellite technologies, prototype hardware and software development, concept validation studies and demonstrations, and solutions for ISR operations from data acquisition to end-user data exploitation. C4ISR solutions include data compression and transmission solutions, ground processing and display stations, screening/exploitation software, and tactical sensors for real-time data acquisition. POC: Amy Secrist, Business Development Manager, 435-713-3088 amy.secrist@sdl.usu.edu

Membership Level: Academic Partner

SPACE KNOW

Spaceknow Inc.

620 Folsom St., Unit 100 San Francisco, CA 94107 www.spaceknow.com

Spaceknow is a provider of online platforms for automatic analysis of satellite imagery. By partnering with leading satellite imagery companies, Spaceknow brings the imagery and analytics into an integrated interface for on-demand situational awareness.

POC: Pavel Machalek, CEO 415-349-1576, pavel@spaceknow.com Membership Level: Small Business Partner

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Spatial Networks Inc.

360 Central Ave., Suite 200 St. Petersburg, FL 33701 www.spatialnetworks.com Spatial Networks is a geospatial technology solution provider specializing in data acquisition, analysis, visualization, human-geography & management with emphasis on emerging & post-conflict regions. Our products and services amplify GEOINT for CONUS & OCONUS requirements. We operate a strategic global footprint & respond with an on-demand tempo.

POC: Anthony Quartararo, CEO 727-216-2893, ajq3@spatialnetworks.com Membership Level: Sustaining Partner





Spectra Logic

6285 Lookout Rd. Boulder, CO 80301 www.spectralogic.com Spectra Logic develops deep storage

solutions that solve the problem of long term storage for business and technology professionals dealing with exponential data growth. Spectra enables affordable, multi-decade data storage and access by creating new methods of managing information in all forms of deep storageincluding archive, backup, cold storage, private cloud and public cloud. POC: Glenn Saxman, Director, Federal Sales, 703-407-8800

glenns@spectralogic.com Membership Level: Sustaining Partner



SRC Inc.

7502 Round Pond Rd. North Syracuse, NY 13212 www.srcinc.com SRC, Inc. formerly Syracuse Research Corporation, is a not-for-profit research and development company with almost 60 years of experience in defense, environment and intelligence. As a not-for-profit, our value and integrity isn't measured by investors, but by the satisfaction level of the customers we serve and success of the missions we support. POC: John (Jack) Lo Secco, Assistant Vice President, 315-452-8998 jlosecco@srcinc.com Membership Level: Sustaining Partner

SRI International

SRI International

201 Washington Rd. Princeton, NJ 08540 www.sri.com

Silicon Valley-based SRI International, a nonprofit research and development organization, performs sponsored R&D for governments, businesses, and foundations. SRI is known for world-changing innovations in computing, health and pharmaceuticals, materials, sensing, energy, education, national defense, and more. POC: Ron Krakower, Director 609-734-2493, ron.krakower@sri.com Membership Level: Sustaining Partner

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Stellar Solutions Inc.

14425 Penrose Pl., Suite 400 Chantilly, VA 20151 www.stellarsolutions.com Stellar Solutions is an engineering services business providing top-tiered technical expertise and problem-solving skills to significant national and international aerospace programs. The company has distinguished itself by satisfying customers' critical needs on diverse projects, including defense-related intelligence projects, international telecommuni-



cations satellites, commercial imagery satellites and NASA's earth science and planetary missions.

POC: Pat Logsdon, Vice President Intelligence Programs, 703-657-2738 plogsdon@stellarsolutions.com

Membership Level: Sustaining Partner



Surrey Satellite Technology US LLC

345 Inverness Dr South, Suite 100 Englewood, CO 80112 www.surreysatellite.com Surrey Satellite is the world's leading small satellite innovator with over 30 years of experience and 47 successful missions to date. For decades, Surrey has been changing the economics of space by providing cost-effective, full mission solutions through continual advancements in small satellite technology, applications, and services. POC: Carol Thorpe, Marketing Communications Manager, 720-256-2594 cthorpe@surreysatellite.com

Membership Level: Sustaining Partner

TASC An Engility Company

TASC, an Engility Company

4801 Stonecroft Blvd. Chantilly, VA 20151 www.tasc.com TASC, an Engility Co

TASC, an Engility Company provides advanced systems engineering, integration and decision-support services to Space agencies and the Intelligence Community. TASC combines strategic thinking with precise analytics to solve complex problems of national importance. TASC's far-reaching perspective on space systems, geospatial intelligence, intelligence operations and other specialized domains allows us to develop national security solutions that extend beyond organizational boundaries. For more information and career opportunities, visit our website at www.tasc.com. POC: Andrew Boyd, VP, Client Account 703-449-3054

andrew.boyd@engilitycorp.com *Membership Level:* Strategic Partner



teKnoluxion 641 S Street NW Washington, DC 20001 www.teknoluxion.com teKnoluxion is a service-disabled veteran owned small business (SDVOSB) that specializes in providing innovative solutions to our customers. Our team of senior engineers and program managers are specialists in operations, enterprise management, web development, virtualization, cloud computing, large-scale transitions, SAFe, software and hardware integration support, and innovative data visualizations with Tableau.





Teledvne Optech

Business Unit: Defense & Security Solutions 150 Lucius Gordon Dr. West Henrietta, NY 14586 www.teledyneoptech.com Teledyne Optech is a world leader in the development, manufacture and support of advanced lidar and imaging instruments. Teledyne Optech's success is a direct result of many partnerships with Defense & Security customers; and now with the diverse businesses of Teledyne Technologies, remains committed to meeting the evolving needs for ISR capabilities. POC: Barry A. Cross, Sales Manager, Defense & Security Solutions 585-427-8422 x4204 barry.cross@teledyneoptech.com

Membership Level: Sustaining Partner



Tenax Aerospace

600 Crescent Blvd., Suite B Ridgeland, MS 39157 www.tenaxaerospace.com Tenax Aerospace provides special mission leased aircraft to the US Government and commercial partners. Our key areas of focus are LiDAR aerial mapping; ISR enabled aircraft; aerial firefighters, C2 and specialized executive lift. Our capital position, former senior executive members of the US Government as Board Members set us apart from the competition. POC: Jason Dean, Vice President of Business Development, 601-664-8858 jdean@tenaxaerospace.com Membership Level: Sustaining Partner



Terra Bella

1600 Amphitheatre Parkway Mountain View, CA 94043 www.google.com/terrabella Terra Bella empowers global businesses to make better decisions with timely, high fidelity imagery and infinite analytics. By combining the power of web technologies and a constellation of high-resolution imaging satellites, Terra Bella is generating a unique data source describing daily global activity with timely, accessible, sub-meter imagery and HD video. **POC:** Andy Hock, Product Manager, Analytics **Membership Level:** Associate Partner

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TerraGo Technologies

45610 Woodland Rd., Suite 350 Sterling, VA 20166

www.terragotech.com Founded in 2005, TerraGo invented the industry's most widely adopted geospatial collaboration technology with its innovative GeoPDF products and is revolutionizing field data collection with its TerraGo Edge mobile platform. TerraGo's customers include the world's leading defense and intelligence departments, along with over 1,500 global customers based in over 70 countries and all 50 US states.

Membership Level: Sustaining Partner



Terran Orbital

15265 Alton Pkwy., Suite 200 Irvine, CA 92618 www.terranorbital.com

Terran Orbital is the leading provider of nanosatellite defense solutions, offering turnkey, concept-to-operations services for government customers. Nanosatellite solutions – including design and build, testing, launch integration and flight – make space-based research and utilization more accessible and cost efficient than ever by leveraging unparalleled industry knowledge with state-of-the-art technology. **POC:** Emily Krasch, Office Manager 949-753-1020, info@tyvak.com **Membership Level:** Small Business Partner



Tesla Government Inc.

8614 Westwood Center Dr., Suite 310 Vienna, VA 22182

www.teslagovernment.com Tesla Government develops and manages collaboration platforms for government and industry that include curation staff who organize the information topically, temporally, and geospatially. Our products are built using open source components and are designed to integrate open-source and proprietary data streams, providing users with visualizations that provide easy navigation.

POC: Fred Hassani, Founder 301-219-2901, fred@teslagov.com Membership Level: Small Business Partner

TEXTRON Systems

Textron Systems

Business Unit: Geospatial Solutions 21660 Ridgetop Circle, Suite 110 Sterling, VA 20166

www.textronsystems.com

Textron Systems Geospatial Solutions delivers scalable and innovative software solutions that enable GEOINT analysts to produce timely and relevant geospatial information to support mission critical operations. Its analytic, visualization and data management technologies provide user-focused interfaces, optimized workflows and precise positioning to deliver actionable intelligence from imagery sources and sensors. Textron Systems time-tested and mission-proven tools for imagery exploitation (RemoteView), 3D analysis (3D Pro), full motion video exploitation (V-TRAC), feature extraction (Feature Analyst), LIDAR exploitation (LIDAR Analyst), Geospatial Data Management (GeoCatalog), Web-based Geospatial Image Exploitation Capability (RVcloud), and other GEOINT applications provide a core set of capabilities in support of NGA and the Intelligence Community. POC: Kevin Opitz, Sales Operations Manager, 406-829-5274

kopitz@textronsystems.com Membership Level: Strategic Partner

thinklogical.

Thinklogical

100 Washington St. Milford, CT 06460 www.thinklogical.com Thinklogical manufactures secure video distribution systems (VDS) and KVM, video, audio, and computer peripheral extension and switching products for C4ISR, command and control, visualization, simulation and training. Thinklogical products enable multi-domain isolation in secure visual computing environments and are IA-accredited to the Common Criteria EAL4, DISA JITC UCR APL, NATO NIAPC Evaluation Scheme: GREEN and TEMPEST Level B. POC: Keith Johnson, Vice President U.S. Federal, 203-647-8700

info@thinklogical.com Membership Level: Sustaining Partner



TomTom North America Inc.

Business Unit: Geospatial 11 Lafayette St. Lebanon, NH 03766 www.tomtom.com/geospatial TomTom North America Inc. is a leading provider of global map and traffic content. TomTom offers global map coverage with navigable maps for 135 countries. POC: John Auble, Director of Government Programs, 603-643-0330 john.auble@tomtom.com Membership Level: Sustaining Partner



TransVoyant

5845 Richmond Hwy., Suite 600 Alexandria, VA 22303

www.transvoyant.com TransVoyant puts the power of global live data and advanced analytics into the hands of decision makers for the first time in order to deliver better future outcomes. TransVoyant provides timely and actionable information on globally occurring real-time and predicted events through the use of continuous risk mitigation and opportunity assessment technologies and professional services.

POC: Jim Clautice, Vice President 703-778-3500

jim.clautice@transvoyant.com Membership Level: Sustaining Partner

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TREDENT

Trident Systems Inc.

Business Unit: Assured Collaboration Systems 10201 Fairfax Blvd., Suite 300 Fairfax, VA 22030

www.tridsys.com

Trident Systems delivers innovative affordable technology solutions for critical government and commercial needs. Founded in 1985, Trident continues to harness technology and provide leading-edge solutions to the DoD, Intelligence Community, and a broad spectrum of government and industry partners. Trident develops products in three primary areas: Integrated C4I systems, Radar Systems, and Assured Collaboration Systems.

POC: Dave Britton, Vice President, Business Director, 703-963-7942 britton@tridsvs.com

Membership Level: Small Business Partner



Trinity Global Consulting LLC

5285 Shawnee Rd., Suite 315 Alexandria, VA 22312 www.triglocon.com

Trinity Global Consulting, LLC (TGC) is a Virginia Certified DMBE, Verified Service-Disabled Veteran-Owned Small Business (SDVOSB) professional services firm. TGC's principals bring decades of combined experience successfully providing and managing a broad range of professional support services and solutions for the US Government (DoD & Federal) and Intelligence Community (IC) customers.

POC: Marilyn Rivera, Executive Vice President, Strategic Communications & Marketing, 703-868-7810 marilyn.rivera@triglocon.com Membership Level: Sustaining Partner



Trusted Knowledge **Options Inc.**

2795 Luna Ct., Suite 100 Punta Gorda, FL 33950 www.tkoptions.com

Trusted Knowledge Options, Inc. is a veteran-owned small business with personnel in Virginia, New Mexico, Colorado, Florida, Washington DC, Tennessee and Washington State. For 11 years, TKO has provided cleared, experienced engineers and program managers to critical IC and DoD acquisition, program management, systems engineering, integration, and research efforts.

703-508-3126, tjones@tkoptions.com Membership Level: Small Business Partner





TVAR Solutions

1320 Old Chain Bridge Rd., Suite 445 McLean, VA 22101

www.tvarsolutions.com TVAR Solutions is a value-added reseller that can design, deploy, and manage effective infrastructure, from data centers to cloud. Our senior technical advisors, experienced engineers, and proven performance ensure a fully functional, dynamic, and secure enterprise. For over 10 years we've been streamlining the acquisition of IT products and services to our Federal Government. POC: Stacey Meyer, Sr. Account Executive, 571-235-6157 smeyer@tvarsolutions.com

Membership Level: Sustaining Partner



United States Army Geospatial Center

7701 Telegraph Rd. Alexandria, VA 22315 www.agc.army.mil

To coordinate, integrate and synchronize geospatial information requirements and standards across the Army and within the Army Geospatial Enterprise framework; develop and field geospatial-enterprise enabled systems and capabilities to the Army and the Department of Defense; and to provide geospatial engineering support to operating and generating forces - ultimately enabling geospatial information dominance.

POC: Joseph F. Fontanella, Director 703-428-6600

Joseph.F.Fontanella@usace.army.mil Membership Level: Sustaining Partner

USCDornsife

Dana and David Dornsife College of Letters, Arts and Sciences Spatial Sciences Institute

University of Southern California Spatial Sciences Institute

Dana and David Dornsife College of Letters, Arts, and Sciences 3616 Trousdale Pkwy., AHF B55 Los Angeles, CA 90089-0374 www.spatial.usc.edu The USC Spatial Sciences Institute is dedicated to the science of "where" and to the power and importance of spatial thinking. Our faculty, staff, students, and alumni collaborate with researchers, businesses, non-profits, NGOs, and other entities to analyze, model, and visualize location-based data to inform decision-making for human well-being. POC: Susan H. Kamei, Associate Director, 213-740-1375 kamei@dornsife.usc.edu

Membership Level: Academic Partner



Ursa Space Systems Inc.

314 E State St., Suite 200

Ithaca, NY 14850 www.ursaspace.com

Ursa is a US-based company founded by veterans of the satellite, radar, and software/data security industries. Ursa is releasing an application in 2016 which provides geospatial information derived from satellite based synthetic aperture radar (SAR) imagery. This will be followed by launch of Ursa designed and owned SAR satellites which will provide hourly revisit times. POC: Alec Mitchell, 856-630-2804

alec@ursaspace.com

Membership Level: Small Business Partner



UrtheCast

33-1055 Canada Place Vancouver, BC, Canada V6C 0C3 www.urthecast.com

With a diverse sensor suite – Deimos-2. Iris, Theia, and Deimos-1-and a powerful, open-API Platform, UrtheCast provides space-based imagery and video at multiple resolutions to address diverse and complex requirements. UrtheCast's 16-satellite OptiSAT and 8-satellite UrtheDaily Constellations, both under development, will provide high-resolution, high-revisit imagery and worldwide coverage. POC: Lyne Rainville, Director of Marketing, 604-669-1788 lrainville@urthecast.com Membership Level: Sustaining Partner



Vencore

15052 Conference Center Dr. Chantilly, VA 20151 www.vencore.com

Vencore is a proven information solutions, engineering and analytics company that helps our customers across Government solve their most complex challenges. For more than 40 years, we have designed, developed and delivered mission-critical solutions as our customers' trusted partner. Our innovations in cyber security, data analysis and technology, and our focus on research, ensure Vencore remains ahead of the ever-changing demands in the market. Vencore has 4,800 employees and is based in Chantilly, VA.

POC: Kent Matlick, Intelligence Group 703-460-3623, kent.l.matlick@vencore.com Membership Level: Strategic Partner



ViaSat

6155 El Camino Real Carlsbad, CA 92009 www.viasat.com

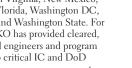
Through innovative satellite, wireless, and cybersecurity systems and services, ViaSat enables fast, secure, and efficient communications to any location. Worldwide mobile broadband service for ISR/C2; UHF to Ka high-capacity satcom; Man-portable broadband satcom terminals; Link 16 and tactical data links; Hard drive encryption, secure networks, secure wireless/smartphone, real-time cybersecurity visualization. POC: Bill Menter, Director of Intelligence Solutions, 760-476-2523 bill.menter@viasat.com Membership Level: Sustaining Partner

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Video Inform

Business Unit: Visual Profiler 100 Jabotinsky St., P.O. 3331 Petach Tikva, Israel 49130 www.video-inform.com VIDEO INFORM Visual Profiler, a cognitive computer vision search engine for automatic target acquisition on aerial & satellite imagery. This software solution is designed for operational geospatial intelligence and airborne ISR missions. Visual Profiler makes your imagery more valuable & copes with the growing of information overload and is field-proven. POC: Yoram Sagher, CEO yorams@video-inform.com Membership Level: Small Business Partner



POC: Tammy Jones, President



ViON Corporation

196 Van Buren St., Suite 300 Herndon, VA 20170 www.vion.com

ViON Corporation is committed to innovation - and to the success of your organization. Founded in 1980, ViON has grown from a small product reseller into a leading systems integrator delivering customized solutions and best of breed offerings from the world's premier OEMs to large public and private organizations.

POC: Evan Laufer, Vice President, Federal Sales, 571-353-6087 evan.laufer@vion.com Membership Level: Sustaining Partner

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Voyager Search

111 E State St., Suite 204 Redlands, CA 92373 www.voyagersearch.com Voyager Search enables enterprises and government agencies to catalog any data and find it within a single search interface. The company can index 1,800+ different formats - map data, imagery, PDFs, databases, Excel files, Word documents, videos - and seamlessly access those files from the cloud, databases, content management systems, or a server.

POC: Brian Goldin, CEO

909-730-6698, brian@voyagersearch.com Membership Level: Small Business Partner



Vricon

8280 Greensboro Dr., Suite 850 McLean, VA 22102 www.vricon.com

Vricon has a mission: To build The Globe in 3D. We are revolutionizing GEOINT tradecraft with 3D analytics and 3D data models that depict the world the way it really is. Our products are sensor agnostic, commercially available, and accurate at any point on Earth. That's right - anywhere. POC: Craig Brower, Vice President 703-283-4588, craig.brower@vricon.com Membership Level: Associate Partner

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Westway Development Services LLC

23950 Craftsman Road Calabasas, CA 91302

www.westwaydevelopmentservices.com Westway Development Services (WDS) promotes acquisition competition within the security market by providing rapid access to turn-key accredited secure facilities and communication infrastructures with all-inclusive security, IT, and facilities support services and building amenities to support start government programs, small businesses and established firms.

POC: Daniel Kressley, Director of Operations, 703-624-6923 dkressley@westwaydevelopment.com Membership Level: Sustaining Partner

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WISER

1427 Kensington Square Court Murfreesboro, TN 37130 www.wiserco.com Wiser is a technology services firm offering geospatial and intelligence solutions, information solutions, and civil solution services. Technology is essential to everything we do, and we serve our clients by combining technology and expertise to develop innovative solutions that deliver quality results and aid in critical decision-making. Membership Level: Sustaining Partner

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Woolpert

4454 Idea Center Blvd. Dayton, OH 45430 www.woolpert.com Woolpert is a leader in the collection, processing, exploitation, dissemination, and storage of geospatial data to advance situational awareness. Our capabilities include airborne/terrestrial collection of LiDAR/EO/IR data, creation of GEOINT products, data analysis, research & development, system integration/engineering and UAS data collection and processing. We offer comprehensive end-to-end GEOINT solutions. POC: Tim Hale, Project Manager 937-531-1668, tim.hale@woolpert.com Membership Level: Associate Partner

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World Wide Technology Inc.

701 Fee Fee Rd. Maryland Heights, MO 63043 www.wwt.com

World Wide Technology, Inc. (WWT) is an award-winning Systems Integrator that provides innovative technology products, services and supply chain solutions to customers and suppliers around the globe. WWT brings an innovative and proven approach to how organizations evaluate, architect and implement technology. Membership Level: Sustaining Partner



Zodiac Data Systems -Zodiac Aerospace

Business Unit: Space & Communications 11800 Amber Park Dr., Suite 140 Alpharetta, GA 30009 www.zodiacaerospace.com/en/ products-services/aircraft-systems/datasystems

Zodiac Data Systems a high technology company that designs, manufactures and supplies a broad range of products and solutions for airborne & ground telemetry, mission video and flight test recorders, satellite command control, data collection from observation satellites and, products and solutions for satellite communications QoS monitoring. POC: Michele Switalski, Business Development Manager, 1-470-365-8466 michele.switalski@zdsus.com

Membership Level: Sustaining Partner

