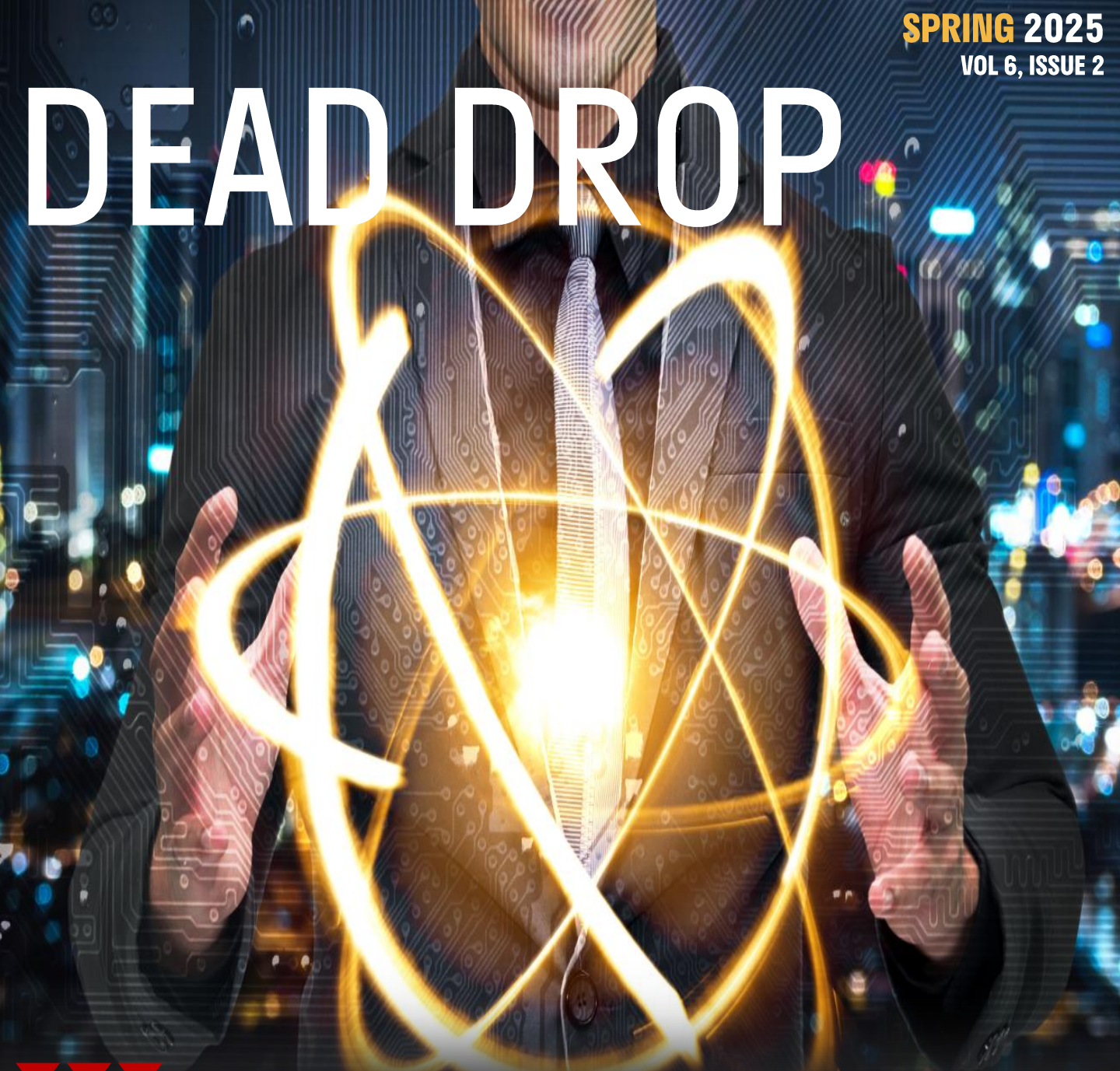
SPRING 2025
VOL 6, ISSUE 2

DEAD DROP



Quantum Sensing: Advancements in Remote Sensing for Intelligence

Deep Dive: Bioterrorism + Synthetic Biology

Spring / Summer 2025 Course Schedule and Catalog

IC Scholarships & Internships

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WHAT IS INSIDE...

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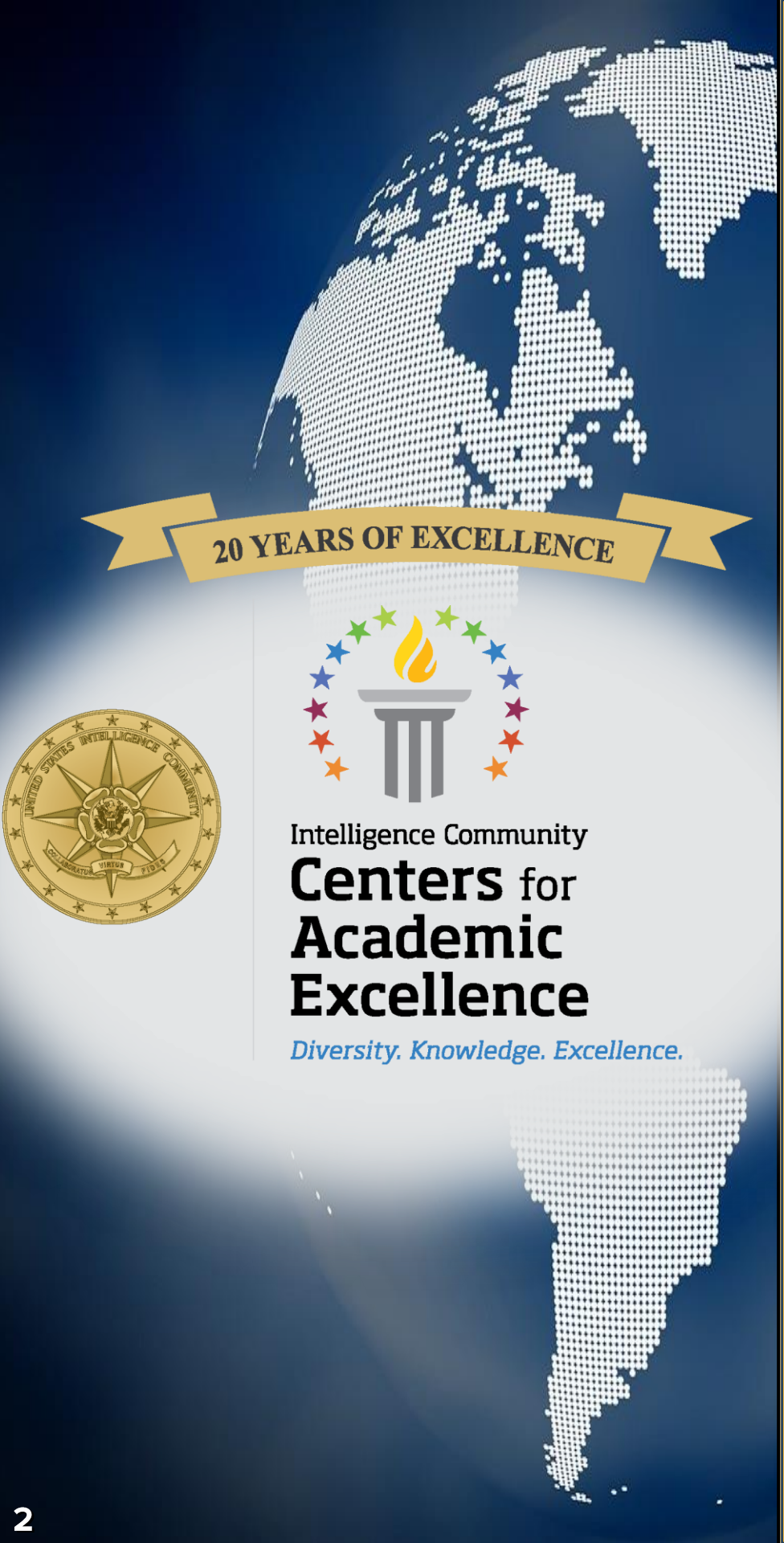

DEAD DROP

SPRING 2025 VOLUME 6 · ISSUE 2

THE UNIVERSITY OF ARIZONA
College of Applied Science and Technology
1140 Colombo Ave
Sierra Vista, AZ 85635
(520) 458-8278 (520) 626-2422 (Tucson)
azcast.arizona.edu

Facebook: @UarizonaCAST
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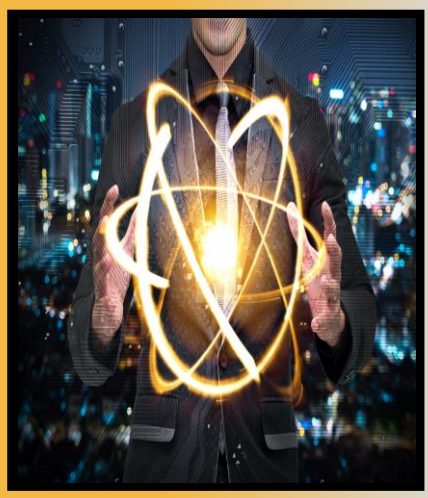
Managing Editor/Art Director:
Charles Walker

Special Thanks to Our Contributors: Craig Nazareth, Dalal Alharthi, Angela Lucero

ON THE COVER



Our Spring Edition cover displays an analyst holding a graphical depiction of an atom in honor of our lead article on quantum sensing. Quantum sensing is becoming a critical asset for precision intelligence collection and analysis, specifically for signal intelligence, where using Ryberg atoms allows collectors to analyze signals through various fields of the electromagnetic spectrum.
Photo: Adobe Stock

THE CORNER

JOB WELL DONE!

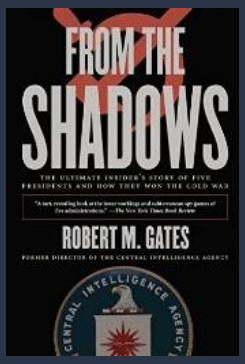
As you complete your last deliverables and projects and the ease of your summer break rolls in, your IIO faculty and staff want to take a moment to say — job well done! Every stage in your academic journey is essential, and you have successfully pushed through readings, briefings, discussions, late nights, and maybe even a few existential questions about the world. And you're still standing.

To those of you graduating this year—you made it! Congratulations! Your hard work and resilience have paid off, and you have earned your time to celebrate your accomplishments. As the geopolitical climate shifts within the intelligence community, there is a need for more thoughtful, clear-eyed individuals who can cut through the chaff and help make sense of what's happening. And let's be real: a lot is going on.

As you know, the world is shifting right before our eyes—socially, geopolitically, and technologically. The lines between domestic and global issues are blurred, and definitions of "threat" keep evolving. That means the job of an intelligence analyst is becoming more complex and more essential than ever. You are not just gathering and analyzing facts. You provide assessment and truth to important issues in a world that increasingly does not want to hear or understand. Nonetheless, be proud of the work, for many of you already work within the intelligence community while pursuing your educational goals in IIO.

If you're looking for something to spark your brain while you're on break, here are three reads we think you'll love:

1. Robert M. Gates, From the Shadows: The Ultimate Insider's Story of Five Presidents and How They Won the Cold War (2007). As former CIA Director, Gates offers his account of the CIA's handling of events during the Cold War.



2. John Keegan, Intelligence in War: The value--and limitations--of what the military can learn about the enemy (2004). John Keegan illustrates that military intelligence gathering is a valuable yet complicated asset, especially when paired with force.

3. Allen W. Dulles, The Craft of Intelligence: America's Legendary Spy Master on the Fundamentals of Intelligence Gathering for a Free World (2006). Dulles provides an in-depth look at intelligence work since the end of the Cold War.

Whatever your summer looks like, take the time to relax, recharge, and focus for the new academic year.

CAST Class of 2025 Convocation Ceremony
Wednesday, May 14th , 2pm
Centennial Hall
Contact: Beth Grimes
Email: CASTGraduation@arizona.edu
Phone: 520-621-8219
More Information

University of Arizona Class of 2025 Commencement Ceremony
Friday, May 16th, 7pm
Arizona Stadium
More Information

University of Arizona Community Convocations & Ceremonies
More Information

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OWEN SIRRS

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3/25/2025	China Geopolitics
4/1/2025	Belt-and-Road Initiative
4/8/2025	Taiwan Besieged
4/15/2025	China, Russia, and Ukraine
4/22/2025	Chinese Views of the United States
4/29/2025	South China Sea Disputes
5/6/2025	An Introduction to the Chinese Communist Party
5/13/2025	Chinese Strategic Weapons

BIO

Owen Sirrs has been an Adjunct Professor at the University of Montana's Defense Critical and Culture Program since 2008, where he has taught regional security issues to the U.S. Army's Special Forces and the National Intelligence community. He previously served as senior Intelligence Officer at the Defense Intelligence Agency in Washington, DC and specialized in the Middle East. He is the author of several books on low-intensity conflict, including Iran's Qods Force (2022). He is a graduate of Georgetown University (1993), the U.S. Naval War College (2002), and the U.S. National Intelligence University (2002). He is currently pursuing his Doctorate in War Studies at Kings College London.

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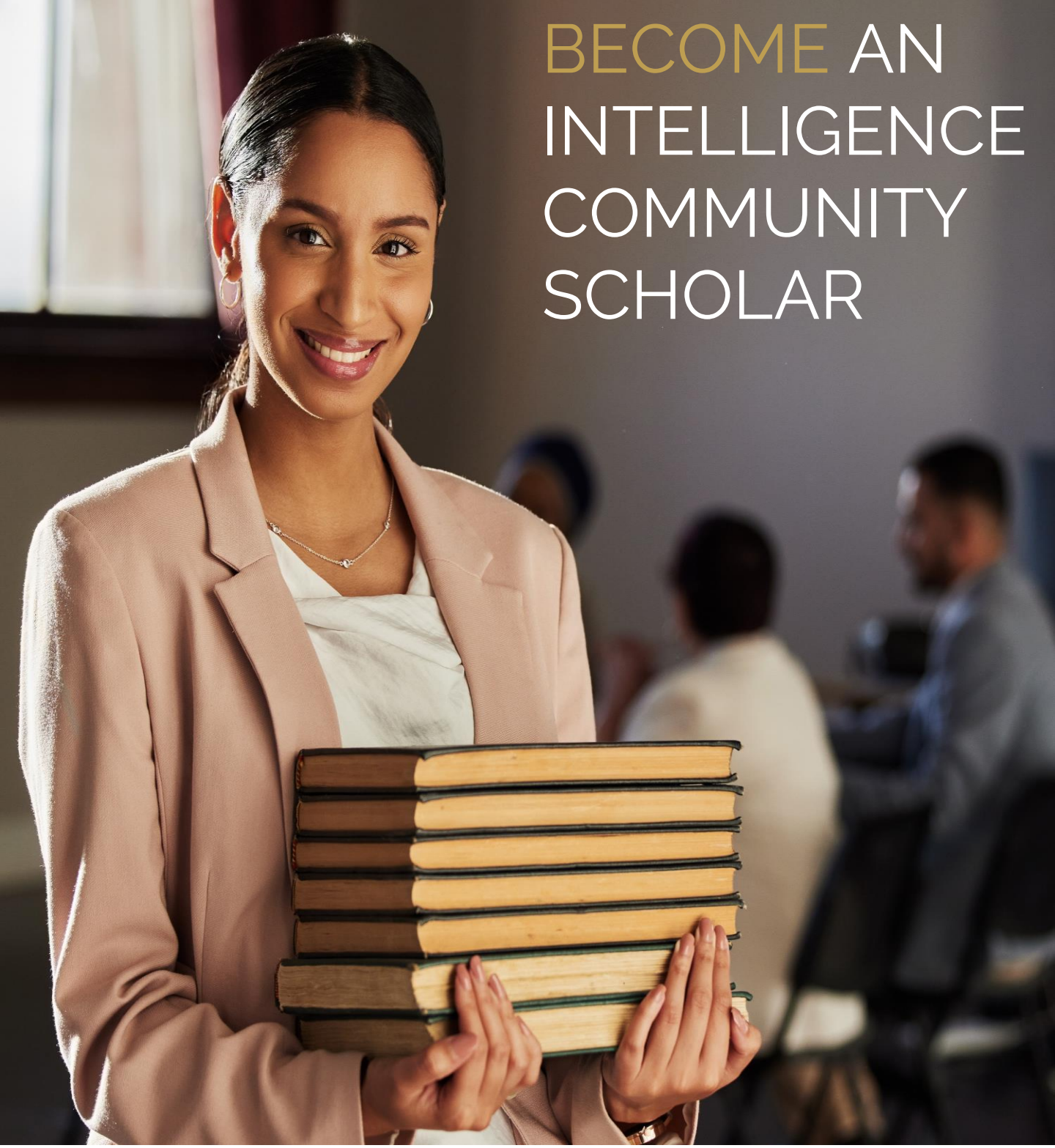

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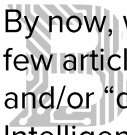
Quantum Sensing: Advancements in Remote Sensing for Intelligence

BY CRAIG NAZARETH, BLANCA BARRIENTES & BILLY ZSAMBOK

We are grateful for contributions from Professor Billy Zsambok, Geospatial Intelligence subject matter expert, Master Sergeant Randall Aki, US Army Special Operations and Signals Intelligence subject matter expert, and Blanca Barrientes, student researcher. Randall and Blanca are pursuing their undergraduate degree in Intelligence and Information operations with the College of Applied Science and Technology.



By now, we're sure you have stumbled upon a few articles with the words "quantum computing" and/or "quantum sensing." Just as Artificial Intelligence and Machine Learning have taken the world by storm, so has quantum applied research. The word 'quantum' refers to advanced technologies relying on quantum mechanics, which are ushering in a paradigm shift in computing, communications, and sensing, enabling exponentially fast calculations and extremely precise measurements at the atomic level.

Quantum sensing is not new by any means, since the technology to discern atomic-level fluctuations among particles makes atomic clocks used in navigation, sensors for underground fault detection systems, and brain imaging devices provide the precision detection and measurement needed (Soller, 2024, link). Researchers are building on the last several decades' work to push this technology further to develop industrial capacity applications at lower cost and greater deployability, especially for U.S. national security. Quantum sensing is on course to drastically improve remote sensing, especially within the Signals Intelligence (SIGINT), Measurement and Signature Intelligence (MASINT), and Geospatial Intelligence (GEOINT) fields.

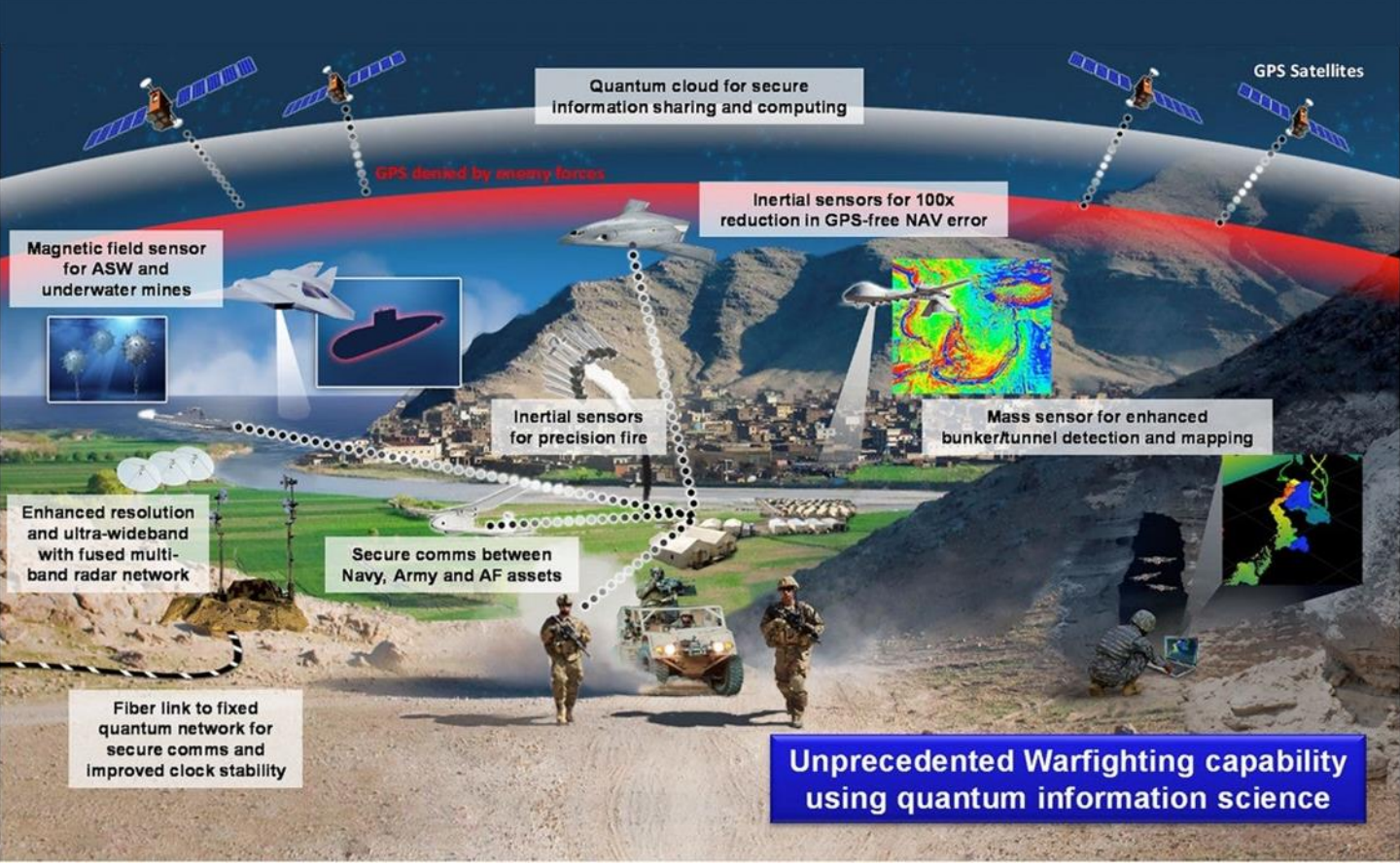
Quantum sensing differs from quantum computing because quantum computers require specialized computing environments and quantum chips to function. Quantum sensors do not necessarily require quantum chips or absolute zero computing temperatures. They can use classical computers, hence their applicability in navigation, sensing, and imaging today. Also, although many stakeholders report leaps in technological development, quantum computing is still nascent but nearly shattering the classical computing world.

Quantum sensing involves specialized techniques for measuring fluctuations or changes at the atomic level. Whereas classical sensors we use today on drones and satellites detect masses of particles and cannot differentiate change at the atomic level, Quantum sensors deliver considerable improvements in measurement precision. We will explore this later by discussing the single-source disciplines, SIGINT, GEOINT, and MASINT.

Information collection supports various customers of intelligence who use a host of human and machine sensors to understand the world and address [national] security needs. They deploy sensors across the globe to answer intelligence requirements. Human collectors manage human sources to penetrate illicit networks and locales to answer these requirements. Machine sensors "…detect and respond to some type of input from the physical environment " (Nibib.gov, 2022, link) and, in essence, greatly expand the available sensing capabilities of humans to discern even the most minuscule changes and anomalies in the environment and any data collected.

But how does all this apply to single-source intelligence collection disciplines like SIGINT, GEOINT, and MASINT? It all has to do with precise measurements. Each of these disciplines employs sophisticated sensors that collect information and process and exploit that information into data that can be disseminated as single-source intelligence or incorporated into multi-intelligence or all-source intelligence products. Information collection for intelligence purposes involves digital sensing techniques that rely on accurate data capture and precise measurement.

Intelligence sensors measure various phenomena, such as pressure, frequency, and fluctuations of gravity, electric, and magnetic fields. These measurements allow the sensor to detect, discriminate, classify, characterize, and identify a mission-relevant object or event distinct from the surrounding noise or less relevant aspects.



Depiction of warfighting capabilities of quantum sensing applications across various intelligence disciplines. Source: U.S. Army (Public Domain)

'Detection' refers to the sensor's ability to mark any subtle change in the environment or target area for intelligence value. For example, an acoustic sensor detects audio frequency and wavelength changes due to its sensitivity to audio signals (infrasound, sound, and ultrasound, for example). A seismic sensor, or seismometer, detects changes in seismic energy created from natural and manmade geophysical disturbances (in the air, land, and sea). These sensors require further measurements to understand what caused the change or disturbance. For example, underground nuclear detonations, volcanic eruptions, surface explosions, and undersea earthquakes emit geophysical energy that can be detected with geophysical sensors. However, the disturbance still requires refinement to gain greater clarity.

Discrimination is possible as the sensor collects more detailed measurements and builds a data profile, resulting in a reference signature for each object or event.

'Discrimination' refers to the ability of a sensing system to differentiate an object from other objects or the background noise. For example, GEOINT imaging sensors, called imaging spectrometers, use multi-spectral and hyper-spectral sensors to enhance spectral detail based on infrared, visible, and ultraviolet light energy measurements. So, instead of an image based on the visible spectrum only, a multi-spectral sensor may produce tens of bands in other wavelengths, providing additional detail outside human sensing capability. This aids in discriminating manmade from natural objects based on the composition of gases, chemicals, and water within and surrounding objects or areas.

'Classification', and 'characterization' are necessary evolutions for recognition and target refinement, resulting in the labeling and categorization of like data, objects, activities, or events based on characteristic phenomena

the sensors collect. For example, the previously mentioned geospatial sensors perform "...image classification, [which is] the process of categorizing and labeling pixels or groups of pixels in satellite or aerial images based on their spectral values" (O'donahue, n.d., link). In classical RF intercept for SIGINT, receivers, transceivers, spectrum analyzers, and associated antennas and tools detect, discriminate, and characterize RF communications based on analog or digital waves' frequency, wavelength, and phase measurements. This data creates a signature for further target development for analog and digital decoding, demodulation, decryption, and electronic situational awareness.

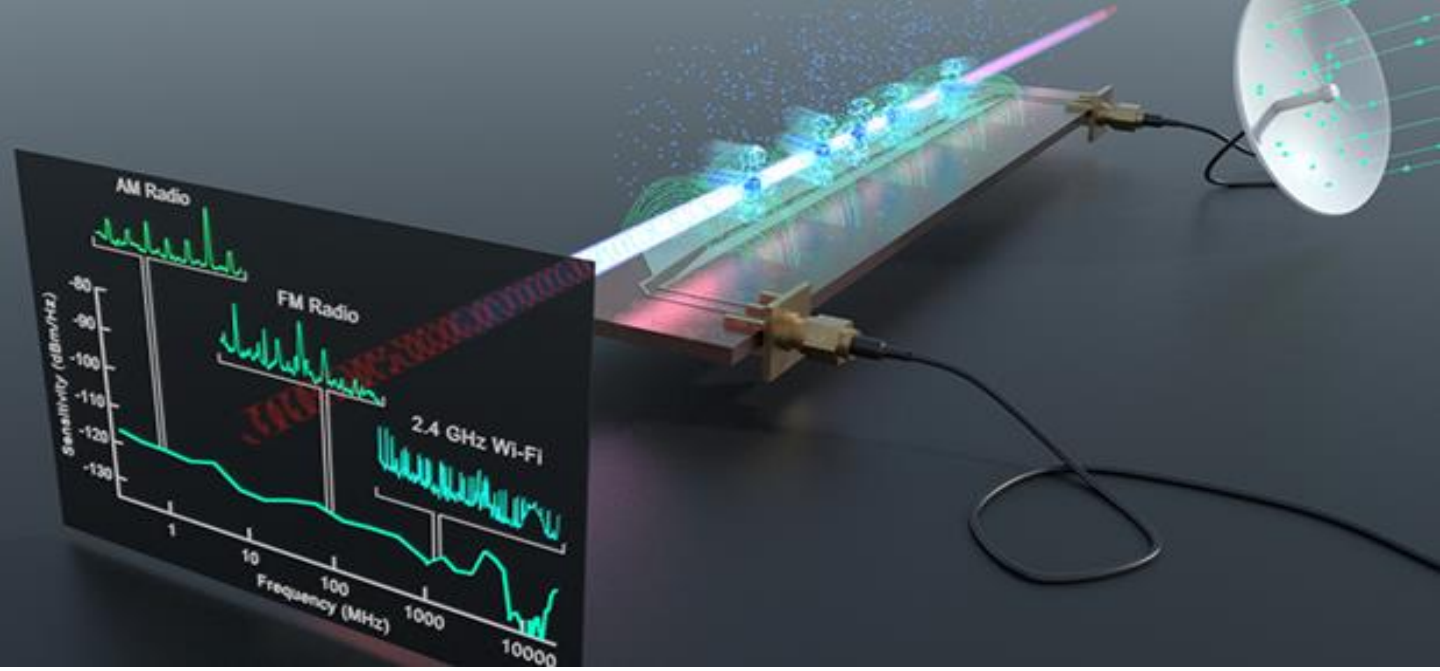
Target signature development goes hand in hand with our understanding of phenomena. The study of unique phenomena relating to specific objects or events is called phenomenology. Phenomenology informs sensor development since each sensor must be designed and calibrated to detect and measure specific phenomena relating to a mission-relevant object or event. So, as we discussed above, spectrometers can detect and develop spectra signatures through rigorous sensor design. We refer to this as sensor-to-target matching. The engineering and planning behind sensor matching is an incredibly important task since even slight adjustments in sensor sensitivity based on build quality and calibration can impact measurement accuracy and error susceptibility. The sensor's ability to accurately and rapidly detect and measure the appropriate phenomena is vital to generating useful signatures of these objects or events.

Signals Intelligence (SIGINT)

Classical Radio Frequency (RF) systems like those used for SIGINT and Electronic Warfare (EW) require various antennas to receive and transmit electromagnetic energy through radio frequency waves. Although thousands of bands of RF energy exist from 0 Hertz through 300 Gigahertz, practical communications occur within the 3 Kilohertz to 300 Gigahertz frequency range due to various constraints. For wireless communications, RF systems convert analog signals propagating through the air into digital signals that can be processed with minimal interference. SIGINT sensors measure inbound RF waves to pinpoint which frequencies are used across the RF spectrum in any region. They then use specific antennas and digital tools to identify and isolate signals of interest for further intelligence exploitation, spectrum management support, and EW operations.

The Army Research Laboratory proclaimed they were the first in the world to develop a quantum spectrum analyzer capable of "...[sampling] the radio-frequency spectrum—from zero frequency up to 20 GHz—and detect AM and FM radio, Bluetooth, Wi-Fi, and other communication signals" without the need of various sized antennas or specialized filters (Army Research Laboratory, 2021, link). This is a leap forward in capability since classical spectrum analyzers only detect specific RF spectrum regions based on the antenna type and other technical parameters. No classical RF receivers can sense such a wide range of frequencies, especially in extremely low-frequency bands, which are too high-frequency bands, without using an antenna several kilometers in size for much lower frequencies or an antenna designed to intercept microwave frequencies.

Army Research Laboratory public affairs state this in no uncertain terms: "Such wide spectral coverage by a single antenna is impossible with a traditional receiver system and would require multiple systems of individual antennas, amplifiers, and other components" (ARL PAO, 2020 link). This quantum receiver "...uses highly excited, super-sensitive atoms--known as Rydberg atoms--to detect communications signals...Quantum mechanics allows us to know the sensor calibration and ultimate performance to a very high degree, and it's identical for every sensor" (Meyer, 2020, link). This is a game changer for SIGINT and EW since this quantum technology reduces the electronic and physical footprint and affords rapid scalability in a small package, allowing



Depiction of SIGINT quantum sensing using Ryberg atoms to collect various radio frequencies
Source: DARPA (Public Domain)

more widespread clandestine SIGINT intercept and insight into EW effects.

Geospatial Intelligence (GEOINT)

According to the Director of the National Geospatial-Intelligence Agency (NGA), "GEOINT consists of imagery, imagery intelligence (IMINT), and geospatial information" (NGA, GEOINT Pub 1, p.3, link). We will focus on spectral imaging to understand the difference between classical geospatial intelligence sensors and quantum sensors, considering the benefits of quantum imaging over classical imaging.

A significant problem with traditional or classical spectral imaging is noise, which negatively impacts the quality of the spectral and spatial data used to produce the imagery. Another problem is the high cost and equipment size. According to research in the Journal of Light: Science and Applications, researchers point out that quantum infrared hyperspectral imaging circumvents the need for costly and bulky traditional spectral sensors while delivering outperformance in single-pixel resolution. (Meng, Gao, Wang, Li, Wang, Zhao & Sun, 2024, link).

In classical "...passive imaging, the source of energy is either emitted energy or reflected solar energy consisting of millions of light photons, depending on the frequency and wavelength of the energy" (Zsambok, 2025). Hugo Defienne, presenting on quantum imaging in 2021, states that quantum imaging sensors can collect "quantum properties" of the classical energy source, to include the detection of single photons, "entangled photons", or "squeezed light" (Defienne, 2021, link). Defienne says that the quantum sensors go beyond the limits of classical imaging due to this photonic level sensing to provide much better spatial resolution and improved signal-to-noise ratio of the data. These findings are reiterated in other ground-breaking experiments, to include the paper titled *Quantum Imaging of Biological Organisms Through Spatial and Polarization Entanglement,* catalogued in the National Library of Medicine (Zhang, He, Tong, Garrett, Cao, & Wang, 2024, link) Thus, quantum imaging continues to have tremendous potential for GEOINT, especially in spectral imagery production.

Measurement and Signature Intelligence (MASINT)

MASINT's ability to analyze various physical phenomena makes it indispensable in modern intelligence collection. From tracking advanced military technologies to identifying chemical and biological threats, MASINT plays a crucial role in national security and defense operations. The sensors are ubiquitous, with applications across a broad field, including air, land, sea, space, early warning, missile defense, counter-denial and deception, and forensics. For example, radar sensors associated with MASINT include the 120-foot-tall Cobra Dane ground-based phased array L-band radar at Shemya, Alaska (U.S. Air Force, n.d., link). Smaller ground-based seismic-acoustic sensors or infrasonic sensor stations used by military forces in austere locations intercept sound waves.

MASINT sensors measure observable and unpreventable phenomena, like infrasonic waves generated from the flight of a ballistic missile, unintended or unpreventable electromagnetic emissions (think RF leakage from cables or lightning strikes), geophysical anomalies (sources of infrasound and seismic interactions, for example, or magnetic or gravimetric disturbances), and material compositions (like fissile material and chemical precursors for narcotics and weapons), making it essential for national security.

Recent advancements in quantum sensing introduce new possibilities for intelligence gathering by leveraging quantum mechanics to achieve unprecedented precision in detecting extremely weak magnetic fields, gravitational anomalies, and subatomic interactions. These advancements also provide an extremely valuable performance capability for radar operations.

MASINT radars detect, locate, track, and capture images of projectiles and aerial platforms to support early warning, missile defense, and air and space situational awareness. They commonly measure these targets' range, azimuth, and elevation according to Keysight Technologies (link). However, classical radar transmissions can be targeted and jammed by EW systems. According to a 2024 article by Jeff Shephard in *Sensor Tips*, classical EW jamming systems cannot jam quantum radar transmissions due to their inability to match the quantum characteristics of the quantum radar's signal. He states that "the [quantum radar] system can operate robustly even in the presence of jamming signals." (Shephard, 2024, link)

Quantum Sensor Performance and Specialized Techniques

Quantum sensors offer improved performance over classical sensors due to several main factors. Whereas classical sensors "...suffer from drift, [which is the result of errors] that accumulate due to inherent imperfections and noise within the manufacture of the device," (Wan, 2022, link), quantum sensors mitigate these errors since they are not engineered to use similar mechanical parts as classical sensors. Another benefit is their sensitivity in detecting changes in the quantum states of particles. Quantum sensors deliver significant sensor sensitivity improvement for detecting and monitoring environmental changes (we mentioned changes in electric, magnetic, and gravimetric fields earlier) based on minute changes in atomic phenomena. Another great benefit from sensor sensitivity is the level of accuracy achievable and sustainable based on the specialized techniques used in quantum sensing. (Wan, 2022, link)

Research into quantum mechanics, in general, has led to applied research into specialized quantum sensing techniques that exploit the wave-particle duality of light and atomic phenomena such as electron spin, atomic structure, and the quantization of energy. A McKinsey & Company report (Accessed March 20, 2025, link) highlights several technological advancements based on these fundamentals of quantum mechanics in the chart below. Note that "NV" stands for the Nitrogen-Vacancy

center in diamonds, caused by a defect in the atomic structure of the diamond (Riordan, 2022, link), where a nitrogen atom has replaced a carbon atom and is coupled with a carbon atom and one vacant space (no atom present). This natural occurrence results in the slight color variation and fluorescence of diamonds.

Fluorescing lasers through the diamond's atomic structure allows exceptional precision in measuring electromagnetic energy and gases. This technique is similar to that used in the aforementioned quantum RF spectrum analyzer example, supporting SIGINT.

Ultimately, these specialized techniques will only evolve as research uncovers new applications for more precise measurement, presenting tremendous opportunities across the single-source intelligence collection disciplines of SIGINT, GEOINT, and MASINT. As the quantum race continues, the race to develop quantum sensors and quantum countermeasures to intelligence collection and electronic warfare will only grow in intensity, so intelligence professionals must assess how the various stakeholders—from state to non-state actors—are beginning to adapt these technologies to improve their warfighting capability and peace-time dual-use research and development, which could undermine U.S. national security in the near future.

Several quantum-sensing technologies are well suited to a range of commercial applications.

Overview of quantum-sensing technologies, nonexhaustive

Technology	Implementation type	System description	Measured properties
Solid-state spins	NV[1] center in diamonds	Spin of one electron localized in an insulator defect	Magnetic field, electric field, temperature, pressure, rotation
Neutral atoms	Atomic vapor	Atoms in the vapor cell sense changes in the environment	Magnetic field, rotation, temperature, electric field, frequency, acceleration, rotation
	Cold cloud	Laser-cooled atoms sense changes in the environment	
Superconducting circuits	SQUIDs[2]	Difference in Cooper pairs between two islands of a Josephson tunnel junction	Magnetic field, electric field
Trapped ions[3]	Single atoms	Mapping of motional amplitude to spin as sensor for electromagnetic fields	Magnetic field, electric field

Quantum sensing: Poised to realize immense potential in many sectors (2025)
Source: Soller, H. McKinsey & Company Digital

SOLVE THIS CRYPTOGRAM

"FNTVBUI BP LOU TL TAU, BU BP T DTEBU."

- Aristotle

"T N T N T T

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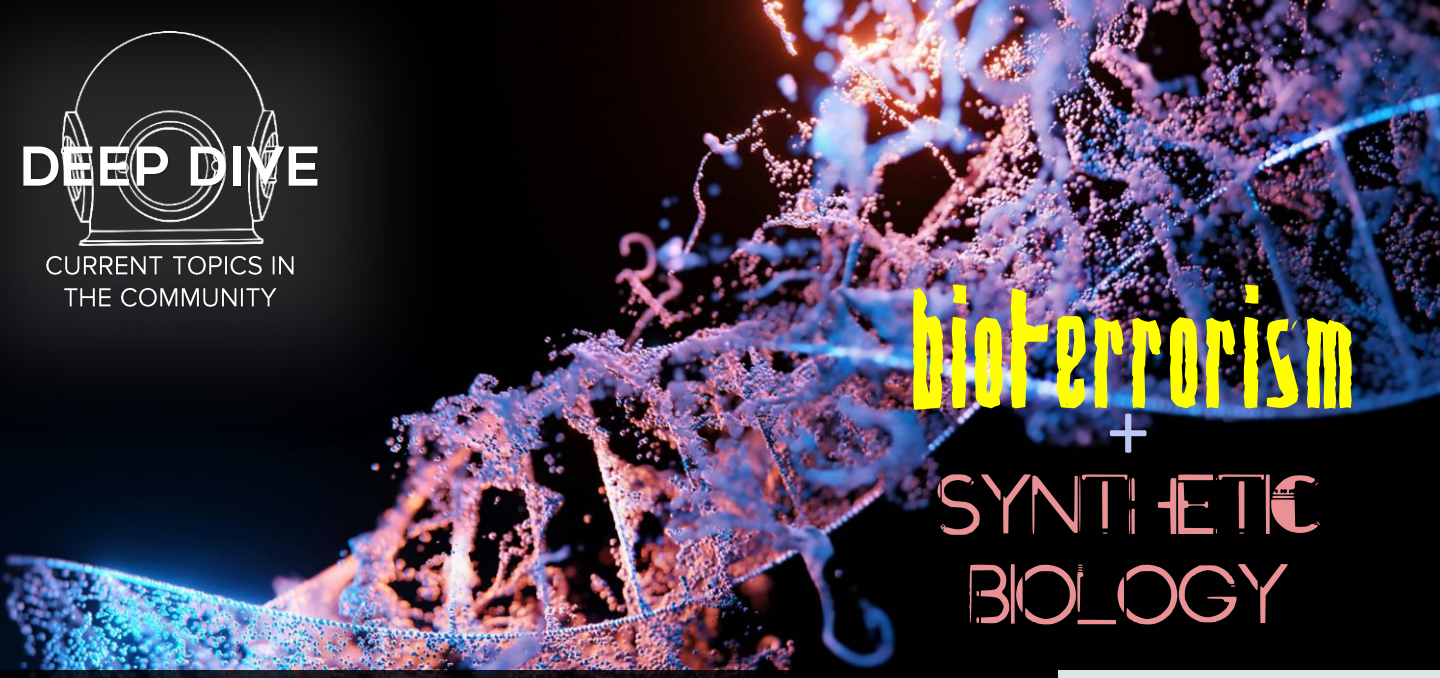
ANSWER ON PAGE 43

DEEP DIVE

CURRENT TOPICS IN THE COMMUNITY



bioterrorism + SYNTHETIC BIOLOGY

Advances in synthetic biology—the science of reengineering organisms to have new abilities and other valuable purposes —have vast potential for use in medicine and agriculture. However, they also present a severe national security risk as a method for bioterrorism.

Synthetic biotechnologies could allow avenues to create weaponized viruses or drug-resistant pathogens, making bioweapons more dangerous and challenging to detect. Unlike traditional biological warfare, synthetic biology enables the design of targeted, highly contagious, and possibly vaccine-resistant agents. This raises concerns about their potential use by rogue states or terrorist groups.

One national security implication with synthetic biological weapons is that they can be harder to detect in a sufficient amount of time to counter threats. Engineered bioweapons could spread before authorities recognize an attack, complicating containment efforts. Additionally, current biodefense measures may not be effective against synthetic pathogens, requiring new strategies for rapid response.

To counter these threats, the U.S. must strengthen biosecurity measures, including tighter regulations on synthetic biology research, enhanced intelligence collaboration, and investment in next-generation diagnostics and broad-spectrum antivirals. Artificial intelligence can also help detect and track emerging threats more effectively.

While synthetic biology's excitement holds promise for scientific progress, its misuse could pose one of the most significant security threats of the 21st century. Proactive policies and innovation in biodefense are essential to ensuring these technologies are used for good rather than destruction.

DIVE DEEPER

Tech Triumphs or Terrors: The Implications of Emerging Technologies on Bioterrorism

Synthetic Biology and Biosecurity: Challenging the "Myths"

Mitigating Risks from Gene Editing and Synthetic Biology: Global Governance Priorities

Biosecurity in the Age of AI: What's the Risk?

Synthetic biology: Recent progress, biosafety and biosecurity concerns, and possible solutions

From Biowarfare to Bioterrorism: the future of biological threats in the AI era

AI and the Evolution of Biological National Security Risks

Balancing Innovation and Biosecurity: Governing the Dual-Use Risks of AI in Synthetic Biology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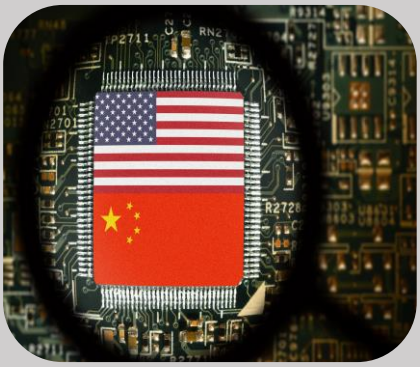
INTEL IN THE NEWS

NATO trials naval drones in Baltic Sea demo

NATO recently conducted naval drone trials in the Baltic Sea from February 17-20, aiming to enhance maritime surveillance and protect undersea infrastructure. The exercise, led by Task Force X, integrated manned and unmanned vessels in live-firing drills and tactical maneuvers. Participating forces included NATO's Standing Maritime Group 1, the Royal Danish Navy, and the German Navy. Adm. Pierre Vandier emphasized the goal of filling surveillance gaps, particularly in areas not covered by existing tracking systems like the Automatic Identification System (AIS). DefenseNews



Palantir Chief Technology Officer Declares U.S.- China AI Arms Race

Palantir's Chief Technology Officer, Shyam Sankar, described the U.S.-China AI rivalry as an "AI arms race" during a recent earnings call, emphasizing concerns over economic competition, intellectual property theft, and China's geopolitical influence through its Belt and Road Initiative. He also linked China's role in the fentanyl crisis to broader national security risks. Palantir reported a 75% increase in adjusted earnings per share and 36% revenue growth to $828 million, driven by advancements in large language models and the pursuit of artificial general intelligence, positioning the company as a leader in AI-driven national security solutions. Investor's Business Daily

U.S. Army Launches Bold New Intelligence Training at Fort Huachuca

The U.S. Army's Fort Huachuca has launched the Threat Immersion Program to enhance military intelligence training by familiarizing soldiers with adversaries' equipment and tactics. This initiative combines hands-on exposure to real and simulated enemy hardware with digital tools, such as interactive quizzes, to reinforce classroom learning. The program aims to cultivate intelligence professionals capable of instinctively identifying and countering real-world threats. ClearanceJobs.com

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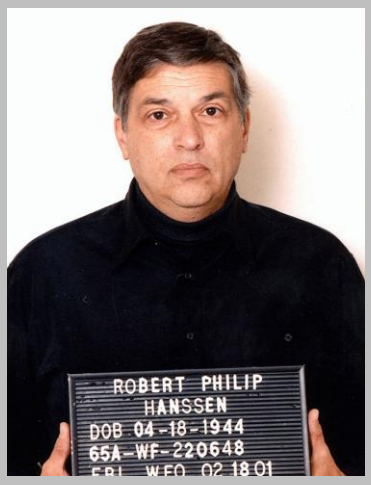
THE ARREST OF ROBERT HANSSEN

LEGACY OF A DOUBLE AGENT

On February 18, 2001, the FBI arrested Robert Hanssen, one of its veteran counterintelligence agents, for spying for the Soviet Union and later Russia for more than two decades. Hanssen used his top-secret clearance accesses to obtain highly classified information for the KGB and Russian Foreign Intelligence Service (SVR). Records indicate Hanssen traded details on surveillance programs, double agents, and nuclear strategies in exchange for over $1.4 million in cash and diamonds. The sensitive information sold to Russian adversaries led to severe security breaches, compromising numerous intelligence operations and resulting in the deaths of U.S. informants within Russia. Despite working in counterintelligence, Hanssen managed to evade detection for years by operating extremely cautiously, using dead drops, encrypted messages, and coded notes to communicate with his handlers.

Hanssen remained successful until further FBI internal investigations grew suspicions of insider threats amongst their ranks. In 2001, investigators identified Hanssen through forensic evidence linked to his espionage activities and set up surveillance on his movements. He was arrested in a suburban Virginia park while attempting to leave a classified package at a dead drop location. Facing 15 counts of espionage, Hanssen pleaded guilty in a deal to avoid the death penalty and was sentenced to life in prison without parole. His case remains one of the most damaging spy scandals in U.S. history, exposing vulnerabilities within American intelligence and leading to significant security reforms to prevent future insider threats.

Professional Photo of Robert Hanssen as Counterintelligence Analyst, FBI Archives (Public Domain)



Mugshot of Robert Hanssen; Arraigned in 2001 FBI Archives (Public Domain)

MESSAGE FROM YOUR ACADEMIC ADVISORS

Confirm Your Assigned Academic Advisor

Knowing whom you can contact for support is essential whether you're a newly admitted or continuing student. Continuing students, your academic advisor may have changed from the one you worked with in previous semesters. To check who your assigned advisor is, follow the steps below!

1. **Log into your Student Center portal on the UAccess webpage.**
2. **. Click on the Advising menu option at the top of the page and select "View Advisors," or follow the links below to find your appropriate Advisor.**

ADVISORS

CERTIFICATE ADVISORS

3. **You will see your current advisor's name, their contact information, and a link to schedule an appointment.**

Confirm Your Enrollment

Please log into your UAccess Student Center and confirm your enrollment. If you have holds, you are unsure about or questions about the courses you're enrolled in or are not currently enrolled in, reach out to your Advisor.

Please feel free to contact our main number at 520-621-8219 and email address at CASTAdvising@arizona.edu

IIO SCHEDULE & COURSE CATALOG

SPRING / SUMMER 25 SEMESTER

COURSE SCHEDULE

SPRING 2025

SEVEN WEEK - FIRST

CAT#	COURSE	PROFESSOR
BASV 314	Mathematics for Applied Sciences	Stimson, Tierra
CYBV329	Cyber Ethics	Straight, Ryan
CYBV354*	Principles of Open-Source Intelligence	Hetherington, Cynthia McCary, John
CYBV437*	Deception, Counter-Deception & Counterintelligence	Graff, Jared
CYBV450	Information Warfare	Giordano, Joseph
GPSV301	American Political Ideas	Lutes, Todd
INTV305	Introduction to IIO	Allen, Brent
INTV326	Introductory Methods of Intelligence Analysis	Phillippi, Emilee
INTV350	Intelligence Collection	Nazareth, Craig Galbraith, Lachlan
INTV353	Geospatial Intelligence	Zsambok, Billy
INTV459	Intelligence, Surveillance, and Reconnaissance Synchronization	Wisecup, Tyler

SEVEN WEEK - SECOND

CYBV351*	Signals Intelligence and Electronic Warfare	Cota, Casey
CYBV354*	Principles of Open-Source Intelligence	McCary, John
CYBV450	Information Warfare	Giordano, Joseph
INTV305	Introduction to IIO	Allen, Brent
INTV326	Introductory Methods of Intelligence Analysis	Phillippi, Emilee
INTV350	Intelligence Collection	Galbraith, Lachlan
INTV377	Psychological Operations	Longley, Carrick
INTV455	Target-Centric Analysis	Nazareth, Craig
INTV459	Intelligence, Surveillance, and Reconnaissance Synchronization	Wisecup, Tyler

15 WEEK

INTV498	Senior Capstone in IIO (Section 101)	Nazareth, Craig
INTV498	Senior Capstone in IIO (Section 103)	Nazareth, Craig

* Courses offered as electives

COURSE SCHEDULE

SUMMER 2025

SEVEN WEEK - FIRST

CAT#	COURSE	PROFESSOR
BASV314	Mathematics for Applied Sciences	Tesch, Aaron
CYBV329	Cyber Ethics (Sections 101/102)	Calhoun-Lopez, Heidi; Calhoun-Lopez, Thomas
CYBV351*	Signals Intelligence and Electronic Warfare	Cota, Casey
CYBV450	Information Warfare	Giordano, Joseph
ENGL306	Advanced Composition (Sections 102/103/104)	Reddy, Pavan; Welch, Kristen
INTV350	Intelligence Collection	Nazareth, Craig

SEVEN WEEK - SECOND

BASV314	Mathematics for Applied Sciences	Petty, Karaline; Stimson, Tierra
CYBV329	Cyber Ethics (Sections 101/102)	Kendrick, Khester; Straight, Ryan
ENGL306	Advanced Composition (Sections 101/104)	Perry-Rummel, Lauren; Walsh, Christine
INTV326	Introductory Methods of Intelligence Analysis	Nazareth, Craig

* Courses offered as electives

BASV 314

Mathematics for Applied Sciences

Spring 2025, Seven Week – First

Summer 2025, Seven Week – First & Second

This course will examine applications of probability, statistics, data analysis, hypothesis testing, apportionment, and scheduling to the applied sciences.

CYBV 329

Cyber Ethics

Spring 2025, Seven Week – First & Second

Summer 2025, Seven Week – First & Second

A sustained study of ethical issues concerning employment in the public and private sectors, including allocation of resources, corporate and social responsibility, relationships, and discrimination. This course is a designated writing emphasis course. This course emphasizes the ethical and legal standards governing information technology. New technology creates ethical challenges for individuals around the globe, which applies to most persons regardless of whether they are employed in the information technology field or a more traditional occupation.

CYBV 450

Information Warfare

Spring 2025, Seven Week – First & Second

Summer 2025, Seven Week - First

CYBV 450 will give students an in-depth overview of the tactics, techniques, procedures, and tools used to conduct and defend against Information Operation campaigns. Students will analyze case studies involving nation-state actors' online influence efforts to detect, deconstruct, and counter adversarial Information Operation campaigns.

ENGV 306

Advanced Composition

Summer 2025 – Seven Week – First & Second

This course will examine applications of probability, statistics, data analysis, hypothesis testing, apportionment, and scheduling to the applied sciences.

GPSV 301

American Political Ideas

Spring 2025, Seven Week – First

(AZ Online) This course examines American political ideas from colonial times to the present.

INTV 305

Introduction to Intelligence and Information Operations

Spring 2025, Seven Week – First & Second

Provides a broad overview of the American intelligence systems – collection, analysis, counterintelligence, and covert operations – and demonstrates how these systems work together to provide a “decision advantage” for policymakers. Students will also learn how U.S. adversaries have shifted away from directly challenging American forces and have moved to a less risky hybrid warfare model to achieve their tactical and strategic goals. Students will use a combination of research and critical thinking exercises to understand the importance of how intelligence is used to inform the decision-making process. Students will also learn to detect and guard against adversarial information operations that manipulate their sources.

INTV 326

Introductory Methods of Intelligence Analysis

Spring 2025, Seven Week – First & Second

Summer 2025, Seven Week – Second

Provides students with an introduction to Intelligence Analysis and instruction on how to research national security topics and incorporate tradecraft, including critical thinking and structured analytic techniques, to challenge judgments, identify mental mindsets, stimulate creativity, and manage uncertainty within the framework of providing sound assessments to decision-makers at the Strategic, Operational and Tactical level of war. Students will use scenario-based exercises to practice employing structured and analytical techniques to answer a decision-maker's critical information requirements.

INTV 350

Intelligence Collection

Spring 2025, Seven Week – First & Second

Summer 2025, Seven Week – First

This course provides students with an overview of the five U.S. intelligence Community recognized intelligence disciplines (Signals Intelligence (SIGINT), Human Intelligence (HUMINT), Geospatial Intelligence (GEOINT), Measurement and Signatures Intelligence (MASINT), and Open Source Intelligence (OSINT) to understand how to employ collection to answer information and intelligence requirements into the capabilities, limitations and applications of sensors, and discern the functional responsibilities between intelligence analysts, collection managers and decision makers across the national security enterprise.

INTV 459

Intelligence, Surveillance, Reconnaissance & Synchronization

Spring 2025, Seven Week - First & Second

This course provides an in-depth examination of optimizing the coordination of all available collection capabilities to support intelligence operations and the military decision-making process. Students will research and engage in practical exercises to determine optimal sensor deployment schemes and sensor-to-target mix to address different collection requirements.

INTV 498

Senior Capstone in Intelligence and Information Operations

Spring 2025, 15 Week (Sections 101 & 103)

This course provides Intelligence & Information Operations majors with a capstone experience emphasizing integrating knowledge acquired in previous classes. The course provides a culminating experience for majors involving a substantive project that demonstrates a synthesis of learning accumulated in the major, including broadly comprehensive knowledge of the discipline and its methodologies. Students are required to incorporate a field research study into their research project. This is a self-directed course where students develop and produce a senior-level research paper grounded in relevant research.

CYBV 351

Signals Intelligence and Electronic Warfare

Spring 2025, Seven Week – Second

Summer 2025, Seven Week - First

CYBV 351 is an elective course that will provide students with an in-depth look at Signals Intelligence (SIGINT) and Electronic Warfare (EW) from a strategic, operational, tactical, and technological aspect, including the role of electromagnetic energy in SIGINT and EW operations. Students will use a combination of assessments, research, and practical exercises to gain a holistic view of SIGINT and EW applications in the National Intelligence Enterprise.

CYBV 354

Principles of Open-Source Intelligence (OSINT)

Spring 2025, Seven Week – First & Second

CYBV 354 provides students with an overview of the fundamentals of Open-Source Intelligence. Students will be presented with the most effective methodologies cyber professionals, law enforcement, and other investigative personnel use to locate and analyze information on the Internet and the Dark Web. Students will use interactive exercises to become familiar with the volume of sensitive data on the Internet and how it can be exploited to develop highly detailed intelligence products.

CYBV 437

Deception, Counter-Deception & Counter-Intelligence

Spring 2025, Seven Week – First

CYBV437 will introduce students to deception, counter-deception, counterintelligence, and psychological operations. A survey will be presented on how these concepts are used in adversarial Information Operations and why they are among the most effective mechanisms to sway public opinion. Students will use interactive exercises to become familiar with detecting deception campaigns and the mitigation strategies to defend against them.

INTV 353

Introductory Methods of Geospatial Intelligence (GEOINT)

Spring 2025, Seven Week – First

This course introduces students to GEOINT operations and how intelligence professionals can incorporate tradecraft and technology to present visual depictions of critical information regarding enemy forces and terrain and provide combat operations support to decision-makers and operations planners. This course studies the electromagnetic spectrum and fundamentals of energy propagation about GEOINT systems and phenomenology. Students will be introduced to the tasking, collection, processing, exploitation, and dissemination of GEOINT systems, data, and GEOINT contributions to national security, homeland security, and strategic partnerships. This fundamental knowledge may be applied to a diverse range of constantly evolving GEOINT efforts, including support for disaster relief, force protection, and combat operations.

INTV 377

Psychological Operations

Spring 2025, Seven Week – Second

This course is an introduction to the capabilities and uses of psychological operations. Students will examine psychological operations' capabilities, limitations, history, and challenges. As part of their learning experience, students will establish when psychological operations are appropriate, how to know when they have become the target of an effort to manipulate their behavior, how to mitigate their effects, and how to plan a psychological operation against a notional target. Enrollment Requirements: Students enrolled in fully online programs only.

INTV 455

Target-Centric Analysis

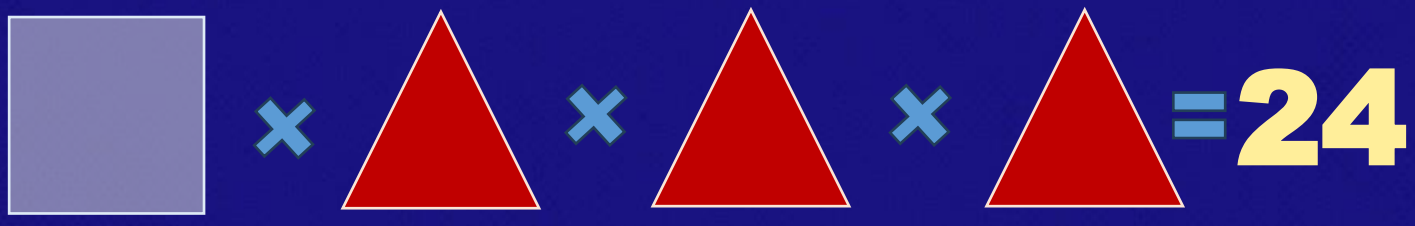
Spring 2025, Seven Week – Second

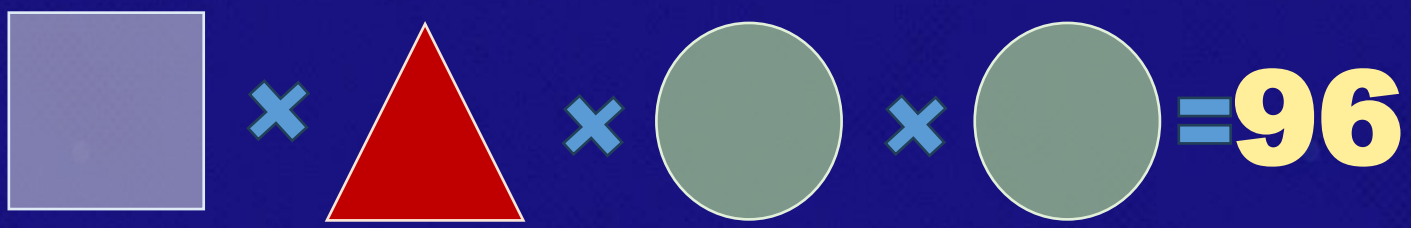
This course provides students with an in-depth analysis of the intelligence process, methodologies for evaluating data, threat modeling, and a process to evaluate the needs of the Intelligence consumer. Students will utilize practical analysis exercises to become familiar with threat modeling, the estimative process, and Intelligence reporting techniques to answer a decision maker's critical information requirements.

BRAIN GAMES

What value goes in the Question Mark?

USE YOUR LOGIC SKILLS TO SOLVE THIS TEASER





ANSWER ON PAGE 43

INTELLIGENCE CHALLENGES IN THE FACE OF RAPIDLY INTENSIFYING MULTIPOLAR THREATS

United States Intelligence Community

Internship Opportunities for Students

To learn more, visit www.IntelligenceCareers.gov/ICStudents.html or individual IC element websites linked below

NATIONAL RECONNAISSANCE OFFICE

www.nro.gov/careers/

- Application open until July 24th, 2022 with selections typically made by October
- Paid undergraduate and graduate internship programs for summer 2023

Specific programs of interest include:

- STEM
- Economics
- Political Science
- Business Administration
- Data Science
- Human Resources
- Physical Science

DEPARTMENT OF HOMELAND SECURITY

https://www.dhs.gov/homeland-security-careers/office-intelligence-and-analysis-internship-program

- Application open from July 2022 to August 2022
- Paid undergraduate and graduate internship programs for summer 2023

Specific programs of interest include:

- Intelligence Analysis
- Health/Science
- Law Enforcement
- Technology Emergency Management
- Cybersecurity
- Public Affairs Management/Support

AIR FORCE INTELLIGENCE

https://afciviliancareers.com/paq-intel/

- Applications are currently being accepted and are accepted at various times during the year.
- Paid undergraduate and graduate 3-year internship

DEFENSE INTELLIGENCE AGENCY

https://www.dia.mil/Careers-Opportunities/Students/

- Application opens and closes at various times, typically in March the year before your internship begins
- Paid undergraduate & graduate internship programs for summer 2024

Specific programs of interest include:

- Political Science
- Global Studies
- Computer Science
- Business
- Human Resources
- Law/Criminal Justice
- Natural Sciences
- Engineering
- Logistics

OFFICE OF NAVAL INTELLIGENCE

www.oni.navy.mil/Careers/Intern-Programs/

- Application open from September 2022 to October 2022
- Paid undergraduate and graduate internship programs for summer 2024

NATIONAL SECURITY AGENCY

www.intelligencecareers.gov/nsa/nsastudents

- Application open from September 2022 to October 2022
- Paid undergraduate and graduate internship programs for summer 2023

Specific programs of interest include:

- STEM
- Computer Science
- Foreign Language
- Logistics
- Cyber Security
- Intelligence Analysis
- Information Management
- Human Resources
- Strategic Communications
- Information Technology
- Research/ Development

An internship in the Intelligence Community (IC) is a great experience that can help launch your career path. Many of the opportunities highlighted here are for summer internships, but some IC elements offer internships during the academic year or that could span many years. Upon graduation and successful completion, some internships lead to non-competitive conversion to full-time employment

Intelligence Community Centers for Academic Excellence

Diversity. Knowledge. Excellence.

United States Intelligence Community

Internship Opportunities for Students

To learn more, visit www.IntelligenceCareers.gov/ICStudents.html or individual IC element websites linked below

Virtual Student Federal Service (VSFS)

https://vsfs.state.gov/apply

- Apply in July 2022 for an internship during the upcoming academic year
- VSFS is an unpaid, remote internship which requires no security clearance

The Presidential Management Fellowship (PMF)

www.pmf.gov

- The application is open from 13 September until 27 September
- Only graduate students (MA, PhD, JD, MBA, etc) who graduated between September 13, 2020, and September 13, 2022, or will graduate before August 31, 2023, may apply.
- Selected PMFs will have the opportunity to apply to positions across the federal government, including within the IC

CENTRAL INTELLIGENCE AGENCY

https://www.cia.gov/careers/student-programs/

- Applications accepted year-round for most programs: apply one year before preferred start date
- Paid undergraduate and graduate internship programs

Specific programs of interest include:

- Political Science
- STEM
- Education/Training
- Economics
- Information Management
- Data Science
- Media Analysis
- Cyber Security
- Computer Science
- Library Science
- International Relations
- Graphic Design
- Cartography
- Human Resources

DEPARTMENT OF STATE

https://careers.state.gov/interns-fellows/student-internships/

- Application opens in the fall on USA Jobs (typically opens and closes in September)
- Paid undergraduate and graduate internship for summer 2023
- Positions in many bureaus, including the Bureau of Intelligence and Research (INR)

Specific programs of interest include:

- **Student Internship Program**: opportunities to work in U.S. Embassies and Consulates throughout the world
- **Pathways Internship Program**: opportunities to explore federal careers
- Numerous Fellowship Programs
- Workforce Recruitment Program for disabled persons

NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY

https://www.intelligencecareers.gov/NGA/ngastudentprograms.html

- Application closes in September 2022
- Paid undergraduate and graduate internship programs for summer 2023
- Positions based in Virginia & Missouri

Specific programs of interest include:

- Business
- Geophysics
- Human Resources
- Earth Sciences
- Intelligence Analysis
- STEM
- Geography
- Finance
- Computer Science
- Social Sciences

FEDERAL BUREAU OF INVESTIGATION

www.fbijobs.gov/students

- Application opens in September 2022
- Paid undergraduate and graduate internship programs for summer 2023
- Internships offered in Washington DC as well as at many of the FBI's field offices across the country

Specific programs of interest include:

- Honors Internship Program
- Visiting Scientist Program

Intelligence Community Centers for Academic Excellence

Diversity. Knowledge. Excellence.

The Department of Energy

www.energy.gov/careers/student-recent-graduates

Three internship programs of interest:

- **Minority Educational Institution Student Partnership Program (MEISSPP)**- Typically apply by March for a paid internship. ***Learn More***.
- **DOE Scholars Program**- Typically apply by September for this internship with opportunities around the country as well as a stipend. ***Learn More***.
- **National Nuclear Security Administration Graduate Fellowship Program (NGFP)**- Apply by Early October 2022 for this paid opportunity. ***Learn More***.

U.S. Army Cyber Command

https://bit.ly/3nU0JEw

- Applications are currently being accepted and are accepted at various times during the year.
- Apply for paid positions over the summer or for 2-year fellowship opportunities
- Positions located at Fort Gordon, Georgia

Tips on Securing an Internship

1. Read the eligibility requirements before applying to ensure that you are eligible for the internship.
2. Write a federal resume. Work with your university career office and your IC CAE Program to understand the content required for a top-tier federal resume.
3. If an application requires a cover letter, tailor it to the position. This is your opportunity to connect your education and unique experience and skills to the position.
4. Be proactive and move quickly. Check often for internship openings as some agencies cap the number of applications they will accept.
5. A background investigation is typically required and some agencies also require a medical exam, foreign language, and/or military service.

Intelligence Community Centers for Academic Excellence

Diversity. Knowledge. Excellence.

STUDENT PROGRAMS & INTERNSHIPS

GOVERNMENT / IC - AFFILIATED

Central Intelligence Agency Student Programs
Defense Intelligence Agency Internships
Department of Defense Civilian Careers Internships
Department of Homeland Security Internship Program
Federal Bureau of Investigations Internship Program
National Security Agency Student Programs
State Department Student Internship Program
UN Refugee Agency Internships
U.S. Commission on Security and Cooperation in Europe Max Kampelman Fellowships
White House Jobs & Internships – Information and Resources

INDEPENDENT

American Enterprise Institute Internships
Boren Awards
CATO Institute Internship Program
Center for Global Development Careers and Fellowships
Center for Immigration Studies Internship Program
Center for Strategic and International Studies Internships
Council on Foreign Relations Internships
In Roads Internship Program
Migration Policy Institute Internship Program
Organization of American States Internship Program
U.S. Institute for Peace Research Program
Wilson Center Internships

Intelligence Analyst Internship

New Haven, CT or Remote

Description

Founded by a small team of intelligence analysts, SafeAbroad is a security consulting firm delivering intuitive intelligence and risk management solutions to our clients in the international education field. We have a startup mindset and thrive on the ingenuity of analytical thinkers. We are seeking candidates for the Intelligence Analyst (Intern) position to help us deliver actionable intelligence, risk, and safety reports to our clients. Intelligence analyst interns are expected to contribute 8-10 hours per week. The analyst shall perform the following duties:

- Enhance a data-driven risk framework to evaluate international safety concerns that have the ability to impact travelers abroad, particularly American students. Identify sources that publish open-source data on international risks (including but not limited to crime statistics, indicators of civil unrest/protests, infrastructure reliability, transportation safety, threat of terrorism, and sentiment towards Americans).
- Conduct country-level research and draft reports that highlight the area's primary safety risks to students abroad.
- Establish travel safety best practices, risk mitigation strategies, and incorporate new concepts into pre-departure guidance materials.
- Monitor news feeds and open sources for worldwide incidents that could potentially impact the safety of travelers.
- Administrative tasks, research projects, and other duties as assigned.

Requirements

- Minimum 3.0/4.0 overall GPA
- 15+ credits completed in a degree program related to national security, intelligence studies, international relations, regional or global studies, risk management, political science, journalism, social sciences, criminal justice, or information/data sciences
- Experience locating authoritative studies, reports, and databases published by the United Nations, World Health Organization, INTERPOL, and other international sources
- Experience researching foreign countries in-depth and preparing culturally sensitive written reports
- Strong command of analytic writing with the ability to convey complex information concisely and eloquently
- Strong internet research skills with advanced literacy of PowerPoint, Word, and Excel or GSuite
- Ability to manage multiple tasks and communicate project status reports to management

To Apply

Please send your resume to Recruitment@SafeAbroad.org with the Subject: "Intelligence Analyst Internship"

SAFEABROAD

SafeAbroad.com
Travel Risk Management for International Education

470 James Street, Suite 007
New Haven, CT 06513

The Future Leaders in Public Service Internship Program* is an exciting opportunity for students of all majors to gain professional experience in the federal government. Since 2022, the program has led highly skilled talent from across the country into government and offers students the opportunity to apply their educational training to work in a federal agency.

For program eligibility and more information, follow the link.

Fall 2025 Application Deadline:
May 2, 2025 by 11:59 pm ET

**The Partnership is monitoring the impact of the recent presidential actions on federal internship and early-career talent programs. At this time, the fall 2025 Future Leaders program proceeds as planned; applicants will be notified of any changes.*

GO GOVERNMENT

PARTNERSHIP FOR PUBLIC SERVICE

Future Leaders in Public Service Internship Program

ONLINE APPLICATION

U.S. Customs and Border Protection (CBP) Internship Program

CBP seeks high-performing University of Arizona students in the Intelligence Information and Operations (IIO) Program to seasonally support the Southern Border Intelligence Center (SBIC).

Students will assist the Executive Director in coordinating meetings, compiling deliverables, engaging with other senior leaders across the southern border, and conducting tasks as needed. This position allows selected candidate(s) to participate in intelligence planning at various strategic and operational support levels across the U.S. Government. Read more on the details on the next page.

Purpose of the Internship:

Selected applicants will have the unique opportunity to delve into intelligence. They will learn how to conduct research, form analytical conclusions, make critical judgments, and perform a variety of analytical techniques to answer key intelligence questions. The internship will provide a comprehensive understanding of the intelligence cycle, Intelligence Community Standards, and the complex border security environment.

Internship Available: Summer – Yes Fall – Yes Spring – Yes

Deadlines: To ensure your application is considered, please note that applications must be received by the first week of the previous semester. For example, if you're interested in an internship starting in the Spring semester, please submit your application within the first week of the previous Fall semester.

Agency Minimum Qualifications:

- You must be a U.S. Citizen to apply for this position
- Males born after 12/31/1959 must be registered with Selective Service
- Primary U.S. residency for at least three of the last five years
- Background Investigation: CBP is a federal law enforcement agency that requires all applicants to undergo a thorough background investigation before employment to promote the agency's core values of vigilance, service to the country, and integrity. During the screening or background investigation process, you will be asked questions regarding any felony criminal convictions or current felony charges, the use of illegal drugs (e.g., marijuana, cocaine, heroin, LSD, methamphetamines, ecstasy), and the use of non-prescribed controlled substances, including any experimentation, possession, sale, receipt, manufacture, cultivation, production, transfer, shipping, trafficking, or distribution of controlled substances. For more information, visit this link.

Agency Preferred Qualifications:

- Current University of Arizona student within good standing, with a minimum of **3.0 GPA.**
- Students in their 2nd or 3rd year of study in an Intelligence, Criminal Justice, or National Security related field

Internship Description: Unpaid (Potential to earn college units/credits)

- Providing support to senior leadership that informs and enhances their ability to make strategic decisions;
- Providing support to senior-level engagements on a variety of intelligence programs and activities;
- Assisting with the management of intra-office relationships across multiple intelligence organizations.

To Apply: Please submit a resume, school transcript, and a writing sample (2-5 pages) to lillian.abril@cbp.dhs.gov.

Expected Contact:

We will email you within 3-5 business days of receiving your application to set up an in-person interview.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THE UNIVERSITY OF ARIZONA
WiCyS
women in cybersecurity
UNIVERSITY OF ARIZONA STUDENT CHAPTER
women in CYBERSECURITY
WiCyS

CAREER RESOURCES

Industry employers, partners, contractors, and federal agencies are looking for the best candidates to fill many critical positions in the Intelligence Community. Find your new career using these trusted job search engines.

U.S. Intelligence Careers

Great resource to research jobs throughout the Intelligence Community seeking various intelligence and information analysis skills. You can also find the latest scholarships and internships offered year-round.
> **intelligencecareers.gov**

USAJOBS

Widely known and respected job search tool. Find job listings with various government sectors in and out of the Intelligence Community. In addition, this site offers the ability to draft both federal and standard resumes through its internal resume builder.
> **usajobs.gov**

Indeed

One of the most trusted job search engines in the nation! You will be able to find many job postings that serve many sectors of the intelligence industry. Indeed, also offers a resume uploader where you can store your pre-produced resume for easy application submissions.
> **indeed.com**

LinkedIn

One of the most effective ways to find employment is through your professional network. LinkedIn has become the industry standard social platform to connect professionals with industry leaders and hiring managers. Create your profile, engage and communicate with colleagues and recruiters, and plan your new future today!
> **https://www.linkedin.com**

Clearancejobs/ Clearedjobs.net

Both sites offer pathways to employment for those students that currently hold an active or current security clearance. Most jobs listed are for federal and contract positions. Create and account and search these offerings.
> **clearancejobs.com**
> **clearedjobs.net**

Puzzle Answers

Solve This Cryptogram: *Phrase: "Quality is not an act, it is a habit." -Aristotle*

Brain Games: 10

Handshake

Talent, Meet Opportunity.

Get hired. Apply for jobs and internships offered on campus, in your local area or across the nation.

Get discovered. Stand out among your peers to reach employers actively recruiting Wildcat candidates.

Get connected. Build social networks with peers for tips to land your desired job or internship.

Get involved and make an impact. Discover on-campus and virtual career-focused training events.

arizona.joinhandshake.com

login with your NetID and password

THE UNIVERSITY OF ARIZONA

check yourself!

MITIGATING OUR BIASES TO BECOME BETTER INTELLIGENCE PROFESSIONALS

ESCALATION OF COMMITMENT

As future intelligence analysts, you'll often work under pressure—tight deadlines, incomplete information, and decisions with profound implications. In this high-stakes environment, one cognitive bias that can quietly creep in and undermine your judgment is the **escalation of commitment**. Escalation of commitment happens when we continue to invest time, resources, or effort into a course of action, even when evidence suggests it's failing or flawed. Instead of re-evaluating, we double down. It's that feeling of "we've already come this far, we can't back out now."

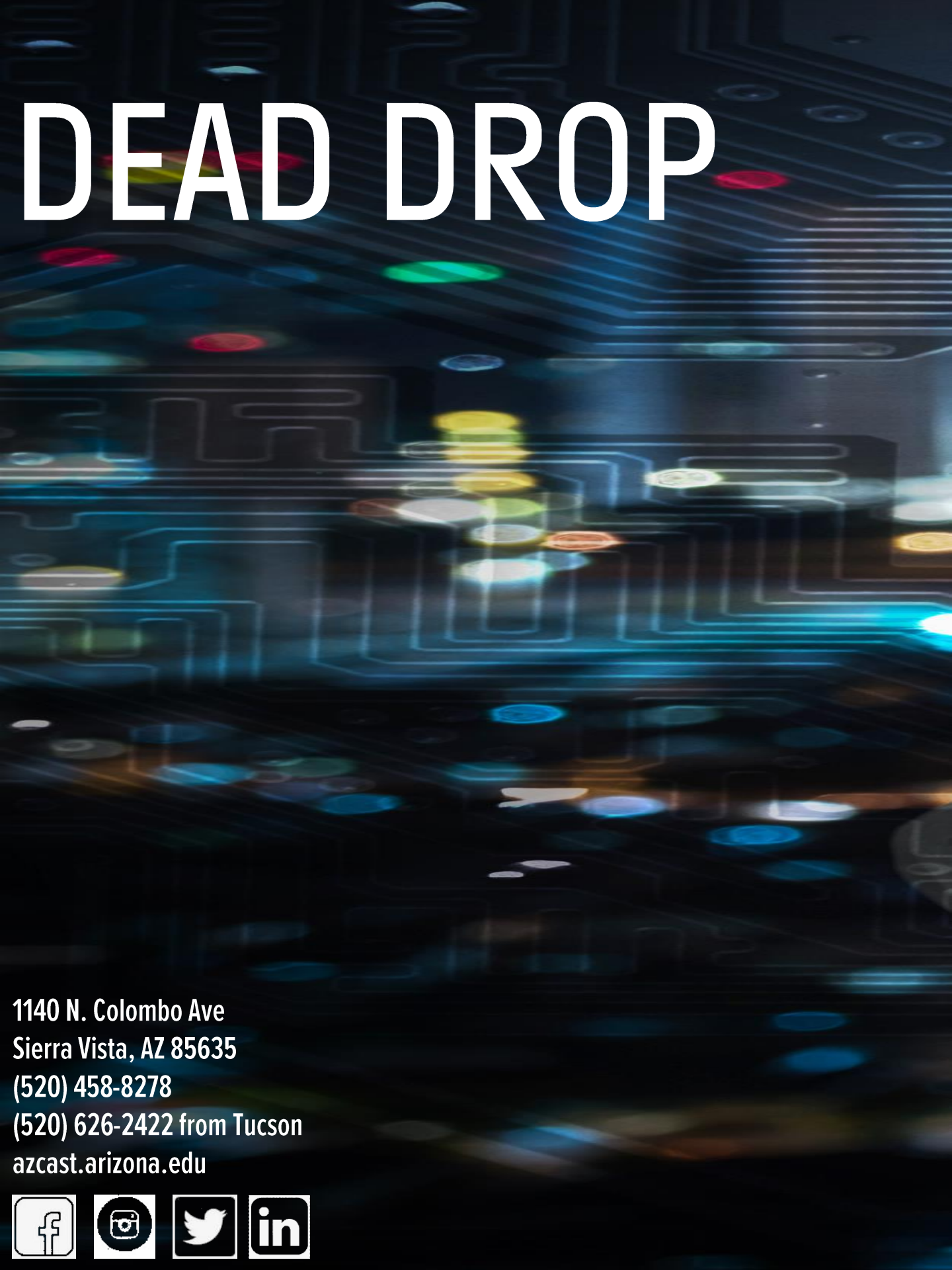
In intelligence work, this bias can lead analysts to stick with an initial assessment or hypothesis—even when new information points in another direction. You might be reluctant to challenge prior judgments or recommendations because of your invested effort or fear of looking inconsistent. This bias often stems from: 1) Emotional investment: You've poured hours into an analysis. Walking away feels like wasting all that effort; 2) Desire for consistency: Changing course might be seen as admitting you were wrong; and 3) Fear of consequences: Recommending a different path could create pushback or disrupt operational plans. But in intelligence, being "consistent" isn't the goal. Being accurate is. Escalation of Commitment clouds objective judgment, risking national security, operational success, and lives.

1. Predefine Exit Criteria - Rather than relying on gut feelings. Before investing significant time in an assessment, establish clear criteria for when to stop, reevaluate, or abandon a hypothesis. For example, "If we receive three independent reports contradicting this source, we will reassess." This creates an objective decision point

2. Encourage Red Teaming and Peer Reviews - Invite a "devil's advocate" or Red Team to challenge your assumptions and conclusions. Fresh eyes can question things you may have become too attached to. Peer reviews help expose blind spots and force you to defend or reconsider your position with evidence.

3. Normalize Course Corrections - Build a team culture where updating assessments for new evidence is a strength, not a failure. Intelligence is dynamic—revising your analysis shows professionalism and adaptability. Document and communicate changes clearly, showing why the reassessment was necessary.

DEAD DROP



1140 N. Colombo Ave
Sierra Vista, AZ 85635
(520) 458-8278
(520) 626-2422 from Tucson
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