New center anticipates the future of U.S. national security

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The Center for Anticipatory Intelligence looks across all disciplines to spot threats posed by emerging technologies. The new Center for Anticipatory Intelligence certificate program crosses the boundaries of disciplines to create modern-day Renaissance women and men. The students are learning how to spot the unintended consequences of emerging and possibly disruptive technology, even in agriculture, as explained to the class by one of its members.

"Emerging technologies ... have the potential to cure diseases and modify human performance, but without common ethical standards and shared interests to govern these developments, they have the potential to pose significant threats to U.S. interests and security."


“What question are we not asking?”

— Jeannie Johnson (Jan. 30, 2019)

The answer was largely contained in the report Congress received from the 9-11 Commission: U.S. intelligence was guilty of a failure of imagination.

“We do not believe leaders understood the gravity of the threat,” the report stated.

Nearly 20 years later, America is much savvier about global threats to our way of life. Disastrously, the risks are multiplying at a rate matched only by our inability to keep up. The intelligence specialists whose job it is to keep us safe are keeping a constant watch on their 12 o’clock, whether that’s Syria, Nigeria, or Utah County.

But consider that other great American specialist: the baseball catcher. A catcher’s job is to stop balls. They can be fast or foul, slider or sinker, but all are whizzing from one point.

But, hey! Isn’t that rotten fruit incoming from behind you in the stands!

Following 9-11, the United States’ intelligence community began to shift its focus to the skill that distinguishes the successful hitter: recognition of the oncoming pitch. Intelligence pros call this “anticipatory intelligence” or, as political scientist Jeannie Johnson puts it, knowing the right questions to ask. In the just-released 2019 National Intelligence Strategy, anticipatory intelligence is our country’s second most crucial objective. (The first is strategic intelligence — that is, understanding the enemy.)

Americans love emerging and novel technologies, particularly during a pre-holiday sale. But it’s this chaotic, fickle and untested landscape that presents the United States with the deadliest hazards, says Briana Bowen, program manager for a new interdisciplinary center in the College of Humanities and Social Sciences.

A specialist can focus on the abilities of a given technology. But, she adds, it takes a cross-trained generalist to puzzle out a technology’s unintended consequences, especially when that tool is in the hands of creative and ruthless adversaries.

The mission of the Center for Anticipatory Intelligence is to nurture specialists who are also geniuses of generality. The concept, says Bowen, begins with a student in one field — history, say, or engineering or biology — who is cross-trained in other disciplines and understands the anatomy of security threats. As a professional, that individual will have the ability to see potential threats and national vulnerabilities hidden in chat rooms, headlines, fads or behavior.
“If someone doesn’t think about all the ways a technology could potentially be used for the wrong purposes,” Bowen said, “in 10 years we’re going to all be staring at the TV screen, saying ‘Oh, my gosh! How did nobody see that coming?’"

Jeannie Johnson, an associate professor of Political Science and one of the leaders of the Center for Anticipatory Intelligence, introduces USU statistics Professor Adele Cutler, an expert in data mining. Students in the CAI training program meet weekly to hear from professionals in security-related industries.

CAI? Don’t you mean the CIA?

Although officially housed in the College of Humanities and Social Sciences, the Center for Anticipatory Intelligence (CAI) draws its faculty from across the USU campus. The concept, though, came from a trio of intelligence professionals who now serve as its leadership team. Johnson, an associate professor of Political Science, is a former intelligence officer with the Central Intelligence Agency. Bowen, a native of Mendon who was named a Harry S Truman Scholar while an undergraduate at USU, was a leader in the Oxford University Strategic Studies Group while earning her master’s there. Matthew Berrett came to USU’s Space Dynamics Laboratory after a career with the CIA, most recently as a CIA Assistant Director and chief of the Global Issues Mission Center. Johnson and Berrett are from North Ogden.

The CAI, open to undergrad and graduate students, offers a minor in Anticipatory Intelligence for undergraduates campus-wide. Classes for the first cohort of students, numbering about 20, began fall 2018. Among that 20 are future political scientists, young mathematicians and statisticians, electrical engineers, an art historian, a soil scientist and others studying international statecraft. Some of them hope for careers within the intelligence community, others in academia or the private sector.

For all of them, though, the year-long program clarifies the “big strategic picture,” said Berrett.

“We want to give them a level of sophistication and grasp of the way the world works that nobody else sitting in a meeting at some company is going to have — a sense of the data science as well as geopolitics,” he said. “Most of the time you’re going to get one or the other — not both in the same package.”

The concept of a national security-focused academic center isn’t unusual, said Berrett. The CAI leadership team visited such programs as Georgetown University’s Center on National Security and the Law as well as The Bush School of Government and Public Service, housed at Texas A&M University.

“This digital space we live in, the internet, allows for very radical groups to exist in like-minded forums. When we all were just reduced to face-to-face communications, you might have someone harboring a nasty thought, but they had a much harder time finding other people who harbored the same radical, nasty thought. The internet allows people to flock together.”

— Jeannie Johnson

The aspect of the CAI, though, that makes it “the only one of its kind in the nation,” said Berrett, is its spotlight on cross-training and anticipatory intelligence. “None of the others have incorporated the technology trends that are upon us,” he said.

In the years before he left the CIA, Berrett managed the agency’s Global Issues Missions Center, which “covered everything from international trade and finance to international counter-narcotics efforts to emerging, disruptive technology,” he said. “It gave me a really broad perspective on a lot of things — geopolitics, international crime and drugs, international trade, and finance and technology.”

Uncovering those threats is the job of the CIA. The CAI, though, seeks to build a new perspective, bringing multiple disparate threads together to identify, and unlock, unforeseen consequences, Johnson explains. A CAI graduate “will be the professional in the room who can make sense of an emerging threat from multiple dimensions.”

Adds Berrett, “We’re bringing all those pieces together to arm our students with a level of sophistication about how the world actually works that they can’t get anywhere else.”
Matt Berrett, a former assistant director of the CIA where he managed its Global Issues Missions Center, is one of three leaders of the new cross-campus program. He is now director of analytics for USU’s Space Dynamics Laboratory.

**Hazards ahead: What are the threats?**

On a Friday afternoon in a large amphitheater-style classroom, some 20 students are intently forward-facing, posing questions to statistician and USU math professor Adele Cutler. To prepare for the lecture, they’ve already read a book about today’s topic: a subset of artificial intelligence called machine learning.

Machine learning is the science of creating computers to make independent decisions without being specifically programmed, particularly in sorting through huge amounts of data to arrive at probable conclusions.

With enough data, for instance, a computer can helpfully answer the question you ask of Amazon Echo. Meanwhile, in China, a system of 200 million surveillance cameras are compiling facial recognition data to track its 1.4 billion people.

And that internet that draws us in for hours to chat on Facebook? Radical and criminal outliers are chatting as well, said Johnson. “The internet allows people to flock together,” she said. “And studies show they radicalize more quickly because they create an internal echo chamber.”

Technology is like the proverbial two-edged sword. Undoubtedly, it’s rescued uncounted lives, wiped out common diseases, and allowed your grandma to spy on your Facebook page.

“The complexity of the world is such that if you’re sitting in a room at a strategic decision-making moment — I don’t care if it’s CIA or some company in Logan — if you don’t have breadth of disciplines in the room, you’re already in serious trouble because you don’t know the questions to ask.”

— Matt Berrett

At the same time, though, “no one in the room is looking at the unintended consequences,” says Johnson.

“Facebook never intended to be a political platform. Twitter never intended to assist revolutions,” she said. “Certainly Facebook didn’t intend to be a tool used by foreign adversaries to meddle in U.S. elections. But it was.”

### Diversity in disciplines — why that’s important

America is rightly proud of such brilliant scientists as those peering at nanometers, a billion of which would equal a meter. But the CAI wants its students to be what Bowen calls, “the Renaissance woman and man of the 21st century.”

Her point is that anticipatory intelligence is intrinsically a multi-disciplinary enterprise; that is, we need people who understand the technical specifics of an emerging technology, as well as the humanists and social scientists who understand what it means for human existence.

Or, to paraphrase Dr. Ian Malcolm, the chaos theorist in “Jurassic Park”: Scientists are so preoccupied with whether or not they can, they don’t stop to think if they should.

Berrett himself approached the concept of the new center with one question: Who, exactly, will be asking the right questions about the fallout of new technologies? He’s come to believe these individuals must be social scientists and humanists. He worries, though, that social scientists won’t be thinking about the ramifications of big data or dehumanizing algorithms or even doorbell cameras that can be hacked (smart doorbells cost less than $100 on Amazon).

“The answers are in the brains of those in the humanities,” he said. “But their minds won’t be tuned into it if they don’t know a technology’s technical capabilities and its implications for human behavior.”

### Resilient citizens, resilient communities

The United States will invariably face attacks, deadly deeds or other calamities. No nation or community can be perfectly prepared for every potential crisis. What city planner in Atlanta last year, for instance, would have anticipated a mega ransom-ware attack that crippled all city services for a month?
The question, said Johnson, then becomes: How do we cope? U.S. intelligence agencies aren't addressing the vital question of preparing Americans to rebound after disasters. So part of the CAI’s mission is to teach what Johnson describes as “resilience.”

There’s a way to build “resilient systems, resilient individuals, resilient communities, resilient corporations, resilient public institutions,” she said.

Berrett, Johnson and Bowen have already set in motion plans to expand such solutions into the community. The three are creating a course that can be used as continuing education credit for law enforcement, security professionals, and community leaders. Their first client is the Utah National Guard.

“We’re piloting this innovative, nontraditional approach to education and outreach to specific constituencies,” said Johnson.

Bowen says future clients could be mayors and city emergency services that would benefit from understanding trends that may affect their jurisdictions. “The questions we grapple with are the questions that we hope those communities are thinking about,” she said.

The CAI is expanding its footprint via a partnership with Utah Valley University, which offers Utah’s only degree program (both major and minor) devoted to issues of national security. With a stronger team of multiple players, said Johnson, “we are basically saying to the State Legislature, ‘Hey look, you’ve got two of your universities cooperating to build this really robust, innovative program. We need funding!’ That’s our goal.”

Additional funding, said Johnson, would allow CAI to expand its outreach to more communities, consolidate a larger dedicated faculty base from multiple disciplines and establish a procedure to apply for and accept research grants.

“We make it clear to our students that we know, embrace and celebrate the opportunities for human progress that come with emergent technology. Our job is not to say, ‘Everything in the future is horrible.’ Our job is to identify any unintended consequences.”
— Briana Bowen

A change requiring a seismic shift

Seatbelt up, Americans. Bowen explains that the United States has now, in 2019, reached a rocky precipice where only “a seismic shift” can prepare us to identify and anticipate the slings and arrows aimed our way.

The consoling news is that the United States has already withstood such a shift. And, adds Bowen, “we survived and thrived.”

At the turn of the 20th century, the automobile was introduced, and Americans fell in love. Many of them probably even looked up from the wheel to notice that “a gigantic technological revolution” had just occurred, said Bowen.

The happy jalopy was never created to “have an evil intent,” said Bowen. But criminals quickly found their own use for the car — escaping over state lines. The national crisis was so great that in 1908 the U.S. government created the Federal Bureau of Investigation to fight interstate crime.

“That was so forward thinking at that point in time,” said Bowen. “It was this slap-dash, knee-jerk reaction to the pace of technology changing the world of law enforcement so radically that we had to establish a brand-new institution.

“That same moment,” she adds, “is happening right now.”

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