NITRD News Brief

We are pleased to continue NITRD's News Brief that offers insight into the activities NITRD's member agencies are conducting to achieve the Nation's priorities through the lens of the public-facing news sources. These are divided into networking and information technology topics that have been identified as of great importance for improving Americans' daily lives.

For ease of access, under NITRD's logo, the title of each section is listed as a link to that section. The titles of the articles under the section's heading are links that provide immediate access to the news article listed. We hope you find this informative and helpful in your daily activities.

Do you know someone who would like to receive NITRD's weekly news brief? They can email NITRD's IT aficionados at nco@nitrd.gov and voilà they will receive the news brief with the cool technology articles each week!

Cybersecurity Awareness Month

Cybersecurity Awareness Month 2022: Recognizing & Reporting Phishing

...This blog will officially wrap up our 2022 Cybersecurity Awareness Month blog series — today we have a special interview from Marian Merritt, deputy director, lead for industry engagement for the National Initiative for Cybersecurity Education (NICE)! Marian will be discussing the importance of recognizing and reporting phishing incidents in detail. A phishing attack is an attempt to fool an individual into sharing private information or taking an action that gives criminals access to your accounts, your computer, login credentials or even your network...
National Institute of Standards and Technology - Oct 24, 2022

See Yourself in Cyber: Navy Observes Cybersecurity Awareness Month

...The Navy will observe Cybersecurity Awareness Month this October, joining government and private industry to raise awareness about online security. The Navy is adopting the National Cybersecurity Alliance's Cybersecurity Awareness Month theme of "See Yourself in Cyber," demonstrating that while cybersecurity may seem like a complex subject, ultimately, it's really all about people. Information and resources will be provided to help educate partners and the public, ensuring all individuals and organizations make smart decisions whether on the job, at home or at school – now and in the future. The Navy is increasingly reliant on technology and cyberspace to conduct its missions and protect the United States. Unlike traditional combat, a cyber attack has the ability to reach multiple areas of destruction in very little time due to the nature of communications systems. A successful cyber intrusion of the Navy's network can jeopardize systems and data that affect nearly every aspect of the Navy's mission. A larger cyber footprint, coupled with technological advances among adversaries, has increased the Navy's risk for potential cyber intrusions...
Department of the Navy Chief Information Officer - Oct 24, 2022

FBI Springfield Reminds the Public: Vigilance is Key to Guarding Against Cyber Attacks

...The Federal Bureau of Investigation (FBI) Springfield Field Office is marking Cybersecurity Awareness Month this October by reminding the public to take extra precautions to protect against online attacks and scams. The FBI has over 1,000 cyber personnel distributed throughout the United States, responding to intrusions that affect not only U.S. critical infrastructure and big-name corporations, but also small businesses, our schools, and local government services. Our response supports victims and allows us to learn how our adversaries operate and who they might target next. However, Internet crimes and cyber intrusions are constantly evolving and while the FBI is laser-focused at staying ahead of the trends, there are steps the public can take to avoid becoming a victim...
Federal Bureau of Investigation - Oct 20, 2022

SRS Contractor Named Cybersecurity Awareness Month Champion

...As a 2022 National Cybersecurity Alliance Cybersecurity Awareness Month Champion, Savannah River Mission Completion (SRMC) is committed to cybersecurity protection and best practices. Cybersecurity is a critical component of DOE missions. This year, the Cybersecurity Awareness Month focus areas are four fundamental cybersecurity best practices: enabling multi-factor authentication, using strong passwords and a password manager, updating software, and recognizing and reporting phishing. SRMC Cybersecurity Analyst Christopher Walker said the SRMC cyber team works closely with information technology and cyber professionals across SRS, defending business systems, as well as industrial control systems from all angles...
Department of Energy - Oct 25, 2022

HPC

Teaching Computers to Read 'Industry Lingo' — Technical vs. Natural Language Processing

...Technical jargon, slang or industry lingo has largely developed as a shorthand method to convey complex or very specific ideas and directives using a minimal amount of effort. People generally are very good at learning and translating context and intent with comparatively little additional information. Computers, however, are not. NIST is very interested in these kinds of highly contextual coded languages. NIST researchers work in the area of technical language processing (TLP) — the act of using computers for capturing, understanding and translating jargon for other users. These can be direct actions like controlling a robot, but also computers to be able to communicate the ideas they capture back to another person. Natural language processing (NLP) is a formal area of study that takes communications by humans and transforms that information into something more suitable for computer use and analysis. In broad terms, this is performed by restructuring the communication into a form that allows it to be compared to "concepts" or ideas that the computer has previously learned. But where NLP focuses on the most common uses for words, TLP focuses on the less common uses, or meanings that can change based on context. ... Beyond our own research, NIST is linking academic and industrial communities to help advance the development and use of TLP technologies. We helped found and continue to support an active TLP Community of Interest where everyone from researchers to users to even just the curious can come and actively participate in research and conversations on the subject...
National Institute of Standards and Technology - Oct 26, 2022

NOAA's Supercomputers Enable More Detailed Forecast for U.S. Winter Outlook: Warmer, drier South with ongoing La Nina

...This year La Niña returns for the third consecutive winter, driving warmer-than-average temperatures for the Southwest and along the Gulf Coast and eastern seaboard, according to NOAA's U.S. Winter Outlook released today by the Climate Prediction Center — a division of the National Weather Service. "The hardworking forecasters at NOAA's Climate Prediction Center produce timely and accurate seasonal outlooks and short-term forecasts year-round," said Michael Farrar, Ph.D., director of the National Centers for Environmental Prediction. "NOAA's new supercomputers are enabling us to develop even better, more detailed forecast capabilities, which we'll be rolling out in the coming years." ...
National Oceanic and Atmospheric Administration - Oct 20, 2022

Argonne lays the groundwork for its next-generation supercomputer

...Occupying the space of two professional basketball courts and weighing 600 tons, the massive Aurora exascale supercomputer is taking shape at the U.S. Department of Energy's (DOE) Argonne National Laboratory. Built by Intel and Hewlett Packard Enterprise, Aurora will be theoretically capable of delivering more than two exaflops of computing power. That means it should be able to do more than 2 billion billion calculations per second, making Aurora one of the fastest supercomputers in the world. Aurora will be one of the nation's first exascale computers. Its high computing speed and artificial intelligence capabilities will enable science that is impossible today. Because Aurora is a liquid-cooled system, Argonne had to upgrade its cooling capacity to pump 44,000 gallons of water through a complex loop of pipes that connects to cooling towers, chillers, heat exchangers, a filtration system and other components. While there are always challenges associated with construction work at this scale, many Aurora facility upgrades were carried out during the COVID-19 pandemic, creating some unforeseen issues related to contractor access and supply chain disruptions. The Aurora team has been building the supercomputer piece by piece as components have become available...
Argonne National Laboratory - Oct 20, 2022

Kaiyu Guan Charts the Course from NSF-Funded Blue Waters to Delta Supercomputers

...Kaiyu Guan is a researcher with lofty goals – he hopes to monitor, model and ultimately optimize every farmland. and he's been using the supercomputing resources at National Center for Supercomputing Applications (NCSA) to tackle the issues surrounding both aspects of his mission, one piece of research at a time. He's also in the unique position of being one of the researchers at UIUC who's had experience using NCSA's retired supercomputer, Blue Waters, and its new cutting-edge GPU-processing resource, Delta. Blue Waters was the fastest supercomputer ever built and it remained a powerhouse in continuous operation until 2021. Scientists and researchers made great use of its processing power helping capture the first image of a black hole, modeling galactic evolution and counting every tree in the entire West African drylands. Researchers on campus also used Blue Waters over the years discovering what can be achieved with the help of a supercomputer. For supercomputers, the nine years Blue Waters was in operation is more than an era. Predicted to be in operation for five years, its usefulness exceeded the planned lifecycle by five years through careful management and support of NCSA and the National Science Foundation (NSF). We can look forward and usher in the era of a new computing resource housed at NCSA, with the expectation that Delta will facilitate its own great achievements and discoveries. Delta is more than just a new supercomputer, it's one of the largest NSF-funded supercomputers. While Delta performs all of the same functions as most other supercomputers due to its 132 CPU nodes, under the hood Delta is different from most NSF-funded systems in how it balances performance. Delta is a Graphics Processing Unit (GPU) heavy computing resource. With 206 GPU nodes, it has 848 modern NVIDIA A40 and A100 GPUs doing the work. Delta is currently the most performant GPU processing resource in NSF's portfolio. A recent example of work on Delta builds on Guan's mission of sustainable farming. The SMARTFARM program Guan is a part of was awarded a $4.5 million grant from the U.S. Department of Energy's Advanced Research Projects Agency-Energy (ARPA-E), along with the FFAR's project of $2.1 million grant on innovating airborne hyperspectral sensing to quantify agricultural practices and carbon in crop and soil...
News Bureau - Oct 25, 2022

NIH-funded research suggests during sleep, one brain region teaches another, converting novel data into enduring memories

...Using a neural network computational model they built, University of Pennsylvania neuroscientist Anna Schapiro, Penn Ph.D. student Dhairyya Singh, and Princeton University's Kenneth Norman now have new insight into the process that sleep plays in forming memories. Schapiro studies learning and memory in humans, specifically how people acquire and consolidate new information. She's long thought that sleep played a part here, something she and her team have been testing in a lab, recording what happens in the brain as participants sleep. Her team also builds neural network models to simulate learning and memory functions. The team ran several sleep simulations using a brain-inspired learning algorithm they built. The simulations revealed that during slow-wave sleep, the brain mostly revisits recent incidents and data, guided by the hippocampus, and during REM sleep, it mostly reruns what happened previously, guided by memory storage in the neocortical regions. In the long run, better understanding the role of sleep stages in memory could help inform treatments for psychiatric and neurological disorders for which sleep deficits are a symptom. Singh says there could also be implications for deep learning and artificial intelligence. "Our biologically inspired algorithm could provide new directions for more powerful offline memory processing in AI systems." Funding for this research came from the National Institutes of Health.
Penn News - Oct 24, 2022

Artificial Intelligence / Machine Learning

Bird enzyme points toward novel therapies

...The rare bird - the crested ibis - is the only one known to naturally produce an enzyme able to generate an amino acid that is "noncanonical," that is, one not among the 20 necessary to encode most proteins. Rice University chemists used a rare genetic pathway to metabolically engineer cells that serve as drug factories to make thrombin inhibitors that break up blood clots. The study began with a bioinformatic survey that found the key in a crested ibis. The team employed an artificial intelligence program that predicts proteins structures. Comparing genome databases, they found the sulfotransferase 1C1 enzyme, which catalyzes the generation of sTyr,a mutant of the standard amino acid

tyrosine, in the ibis. The researchers expect to use the combination of bioinformatics and computationally enhanced screening to produce a library of biosynthesized noncanonical amino acids. "This work is a nice example of the type of interdisciplinary research that's a critical component of NSF's Physics Frontier Centers program," said James Shank, a program director in NSF's Division of Physics.
National Science Foundation - Oct 26, 2022

NSF/AROSR/AFRL/ARO funds deep learning with light

...One reason latency occurs is because connected smart home devices don't have enough memory or power to store and run the enormous machine-learning models needed for the device to understand what a user is asking of it. The model is stored in a data center that may be hundreds of miles away, where the answer is computed and sent to the device. MIT researchers have created a new method for computing directly on these devices, which drastically reduces this latency. Their technique shifts the memory-intensive steps of running a machine-learning model to a central server where components of the model are encoded onto light waves. The waves are transmitted to a connected device using fiber optics, which enables tons of data to be sent lightning-fast through a network. The receiver then employs a simple optical device that rapidly performs computations using the parts of a model carried by those light waves. The neural network architecture they developed, Netcast, involves storing weights in a central server that is connected to a novel piece of hardware called a smart transceiver. This smart transceiver, a thumb-sized chip that can receive and transmit data, uses technology known as silicon photonics to fetch trillions of weights from memory each second. Once the light waves arrive at the client device, a simple optical component known as a broadband "Mach-Zehnder" modulator uses them to perform super-fast, analog computation. This involves encoding input data from the device, such as sensor information, onto the weights. Then it sends each individual wavelength to a receiver that detects the light and measures the result of the computation. ... The research is funded by the National Science Foundation, the Air Force Office of Scientific Research, the Air Force Research Laboratory, and the Army Research Office.
MIT News - Oct 20, 2022

$500K boosts data-intensive research through new platform

...KoaStore, a new intercampus data-storage platform being established with a $500,000 National Science Foundation grant, will be integrated into the UH high performance computing cluster Mana and focus on supporting research in the areas of astronomy, atmospheric science, climate science, microbiome and computer and data science. KoaStore will be integrated with the NSF Jetstream2 cloud computing infrastructure and allow researchers to easily span cloud computing environments to support new deep learning and artificial intelligence workflows, visualization and applications...
The Magazine of the University of Hawaii - Malamalama - Oct 21, 2022

FAMU-FSU Engineering, FSU Statistics researchers use artificial intelligence to analyze human work performance

...Researchers from the FAMU-FSU College of Engineering and the Florida State University Department of Statistics are teaming up in a National Science Foundation-funded study that could help people perform better in manufacturing and other industries that rely on humans. Chiwoo Park, an associate professor in the FAMU-FSU College of Engineering, and Anuj Srivastava, a professor in the Department of Statistics in FSU's College of Arts and Sciences, are developing a motion-and-time analysis to measure the various motions of the human body during work. The NSF is funding the $375,425 study. The NSF study will build on prior work by using artificial intelligence to collect measurements faster and more accurately than manual methods...
Florida State University News - Oct 25, 2022

Robotics / Autonomous Vehicles

Voices from DARPA Podcast Episode 61: Manta Ray: Unleashing Robotic Undersea Endurance

...DARPA's Manta Ray program seeks to demonstrate innovative technologies allowing payload-capable autonomous unmanned underwater vehicles (UUVs) to operate on long-duration, long-range missions in ocean environments without the need for on-site human logistics support or maintenance. Such UUVs would offer the potential for persistent operations in forward environments, allowing host vessels increased freedom of operational flexibility while providing traditional servicing ports with relief of workload. They could also enhance our understanding of the oceans. Check out the episode of the Voices from DARPA podcast series.
DARPA - Oct 20, 2022

Why NASA Is Trying to Crash Land on Mars

...NASA has successfully touched down on Mars nine times, relying on cutting-edge parachutes, massive airbags, and jetpacks to set spacecraft safely on the surface. Now engineers are testing whether or not the easiest way to get to the Martian surface is to crash. Rather than slow a spacecraft's high-speed descent, an experimental lander design called SHIELD (Simplified High Impact Energy Landing Device) would use an accordion-like, collapsible base [watch it crash on the video!] that acts like the crumple zone of a

car and absorbs the energy of a hard impact. The new design could drastically reduce the cost of landing on Mars by simplifying the harrowing entry, descent, and landing process and expanding options for possible landing sites. To test the theory, engineers needed to prove SHIELD can protect sensitive electronics during landing.
National Aeronautics and Space Administration - Oct 20, 2022

EarthSense Creator Girish Chowdhary Discovers Unique Audience, Energy from NSF Visit

...At the invitation of NSF director Sethuraman Panchanathan, Illinois Computer Science professor Girish Chowdhary was one of three speakers to address a special audience that included India's Minister of Finance and Corporate Affairs, Nirmala Sitharaman. Speaking about EarthSense at the event, Chowdhary became enthralled with the audience and engaged by the conversations that added new perspective to his company's work – which has produced a battery-operated, under the crop, robot to capture and analyze data. "Our work is about taking computing principles and turning it into actionable devices." "Our robot can go through the crop, accessing individual plans along the way. We also have a concept called 'swarming,' and, through it, we believe a small number of small robots can help significantly on farms of any size, from small to large." ... Chowdhary continues all of his pursuits, including other related efforts – like the newly-funded project by USDA called the "Farm of the Future." ...
News Bureau - Oct 25, 2022

Wearable sensor can help unlock the potential of exosuits in real-world environments

...The University of Wisconsin–Madison and Harvard University research team harnessed a unique wearable sensor to directly measure force on the Achilles tendon of people who toted a heavy backpack while wearing an exosuit. Exosuits elicit a specific change in the wearer's biomechanics — for example, a robotic device worn on a person's ankle can be programmed to pull at just the right time during walking to potentially offload the calf muscles and Achilles tendon. The UW–Madison and Harvard research team employed a unique wearable sensor called a shear wave tensiometer that is a simple, noninvasive device easily mounted on the skin over a tendon. The tensiometer enables researchers to directly assess tendon force by looking at how the vibrational characteristics of the tendon change when it undergoes loading, as it does during movement. The exosuit substantially reduced the force on their Achilles tendon during walking, almost as if they weren't carrying a heavy backpack. ... This research was supported by the National Science Foundation Disability and Rehabilitation Engineering (DARE) grant and the National Science Foundation Graduate Research Fellowship Program fellowships.
University of Wisconsin - Madison News - Oct 21, 2022

Rutgers Sandy Operation Helps Forecasters Predict Severe Storms, Saving Livelihood Worldwide

...As Superstorm Sandy approached the New Jersey coastline, a single Rutgers glider deployed off Tuckerton by hurricane scientists at Rutgers University Center for Ocean Observing Leadership (RUCOOL), provided an ominous warning. The water mass known as the "Mid-Atlantic cold pool"– an area of cool water off the coast that traditionally makes hurricanes less severe the further north they travel – mysteriously vanished from the New Jersey coast, eliminating one of state's natural defenses against hurricanes. Four days before Sandy made landfall, scientists launched Glider RU23 – an ocean robot that can acquire data in the waves at the center of a hurricane and studies tropical storm intensification and ocean acidification, water temperature, depth, salinity and more. Members of RUCOOL team have pioneered research on the ocean's role in determining the intensity of hurricanes by deploying these underwater robot gliders during storms to collect samples scientists wouldn't be able to obtain otherwise. Storm predictors and meteorologists use the data in real time to improve intensity forecasts of storms and find out how strong they will be. Data from the 2012 mission prompted partnerships with NOAA, the National Weather Service, labs at the U.S. Navy and 40 other institutions to ensure information collected is incorporated in operational forecast models, transitioning the research to operations so that forecasters have the best ocean temperatures and heat data they possibly can to make predictions. "There is a dearth of upper ocean observations available to the NOAA models, and the hurricane gliders deployed by Rutgers and partner institutions have been essential towards filling those gaps," said Kathleen Bailey, an oceanographer and scientist at NOAA, who manages the U.S. Integrated Ocean System glider program. "The gliders provide valuable upper ocean temperature and salinity data that are directly used by NOAA to improve hurricane intensity forecasts. The partnerships have allowed us to efficiently maximize limited resources in order to contribute important ocean observations to hurricane intensity forecasts that inform and help protect coastal communities." ...
Rutgers Today - Oct 20, 2022

Borrowing a shape from a to-go cup lid, a drone wing could learn how to sense danger faster

...Small domes that you press on your soda's to-go cup lid may one day save a winged drone from a nosedive. Patterns of these invertible domes on a drone's wings would give it a way to remember in microseconds what dangerous conditions feel like and react quickly. Autonomous vehicles lack ways to filter out information they don't need, which slows their response time to changes in their environment. There's this problem called 'data drowning.' Drones cannot use their full flight capability because there is just too much data to process from their sensors, which prevents them from flying safely in certain situations. Dome-covered surfaces that can sense their surroundings would be a step toward enabling a drone's wings to feel only the most necessary sensory information. Because it only takes a certain minimum amount of force to invert a dome, forces below this threshold are automatically filtered out. A specific combination of domes popped up and down at certain parts of the wing, for example, could indicate to the drone's control system that the wing is experiencing a dangerous pressure pattern. Arrieta and his team showed in the study that when a certain level of force inverts a dome, sensors embedded into the flat part of a metamaterial sheet surrounding the dome detect the change in shape. ... This research is supported by the Defense Advanced Research Projects Agency and the National Science Foundation.

Purdue University - Oct 26, 2022

Quantum

An Entangled Matter-Wave Interferometer: Now With Double the Spookiness to Make a Better Quantum Sensor

...A team of researchers at JILA has for the first time successfully combined two of the “spookiest” features of quantum mechanics to make a better quantum sensor: entanglement between atoms and delocalization of atoms. JILA is a physical science research institute operated by the National Institute of Standards and Technology (NIST) and the University of Colorado Boulder. Entanglement is at the heart of hoped-for quantum computers, quantum simulators and quantum sensors. A second rather spooky aspect of quantum mechanics is delocalization, the fact that a single atom can be in more than one place at the same time. NIST and JILA researchers have created a matter-wave interferometer that can sense accelerations with a precision that surpasses the standard quantum limit (a limit on the accuracy of an experimental measurement at a quantum level) for the first time. By doubling down on the spookiness, future quantum sensors will be able to provide more precise navigation, explore for needed natural resources, more precisely determine fundamental constants...
National Institute of Standards and Technology - Oct 20, 2022

At Sandia Labs, a vision for navigating when GPS goes dark

...A quantum inertial sensor is a remarkable scientific instrument can measure motion a thousand times more accurately than the devices that help navigate today’s missiles, aircraft and drones. But its delicate, table-sized array of components that includes a complex laser and vacuum system has largely kept the technology grounded and confined to the controlled settings of a lab. The Sandia National Laboratories team is reengineering the sensor into a compact, rugged device, which could safely guide vehicles where GPS signals are jammed or lost. The team has successfully built a cold-atom interferometer, a core component of quantum sensors, designed to be much smaller and tougher than typical lab setups. The prototype, funded by Sandia’s Laboratory Directed Research and Development program, demonstrates significant strides toward moving advanced navigation tech out of the lab and into vehicles on the ground, underground, in the air and even in space...
Sandia National Laboratories - Oct 24, 2022

Cybersecurity / Privacy

FACT SHEET: Biden-Harris Administration Expands Public-Private Cybersecurity Partnership to Chemical Sector

...A keystone of the Biden-Harris Administration’s cybersecurity commitment is strengthening the resilience of the United States’ critical infrastructure to safeguard the services Americans rely on every day. Today, the Administration continued to deliver on this commitment by expanding the Industrial Control Systems (ICS) Cybersecurity Initiative to a fourth sector – the chemical sector. The majority of chemical companies are privately owned, so we need a collaborative approach between the private sector and government. The nation’s leading chemical companies and the government’s lead agency for the chemical sector – the Cybersecurity and Infrastructure Agency (CISA) – have agreed on a plan to promote a higher standard of cybersecurity across the sector, including capabilities that enable visibility and threat detection for industrial control systems. The Chemical Action Plan will serve as a roadmap to guide the sector’s assessment of their current cybersecurity practices over the next 100 days, building on the lessons learned and best practices of the previously launched action plans for the electric, pipeline, and water sectors to meet the needs for this sector...
The White House - Oct 26, 2022

The Biden-Harris Administration’s Effort to Secure Household Internet-Enabled Devices

...The White House convened leaders from the private sector, academic institutions, and the U.S. Government to advance a national cybersecurity labeling program for Internet-of-Things (IoT) devices. The Biden-Harris Administration has made it a priority to strengthen our nation’s cybersecurity, and a key part of that effort is ensuring the devices that have become a commonplace in the average American household – like baby monitors or smart home appliances – are protected from cyber threats. A labeling program to secure such devices would provide American consumers with the peace of mind that the technology being brought into their homes is safe, and incentivize manufacturers to meet higher cybersecurity standards and retailers to market secure devices. The dialogue focused on how to best implement a national cybersecurity labeling program, drive improved security standards for Internet-enabled devices, and generate a globally recognized label...
The White House - Oct 20, 2022

DOE's RFI Seeks Input on $250 Million Program To Strengthen Energy Security For Rural Communities

...The U.S. Department of Energy (DOE) issued a Request for Information (RFI) seeking public input on a new $250 million program to strengthen the cybersecurity posture of rural, municipal, and small investor-owned electric utilities. The Rural and Municipal Utility Advanced Cybersecurity Grant and Technical Assistance (RMUC) Program will help eligible utilities harden energy systems, processes, and assets; improve incident response capabilities; and increase cybersecurity skills in the utility workforce. The RMUC Program will provide financial and technical assistance to help rural, municipal, and small investor-owned electric utilities improve operational capabilities, increase access to cybersecurity services, deploy advanced cyber security technologies, and increase participation of eligible entities in cybersecurity threat information sharing programs. Priority will be given to eligible utilities that have limited cybersecurity resources, are critical to the reliability of the bulk power system, or those that support our national defense infrastructure. Responses to the RFI must be submitted via email to DE-FOA-0002877@netl.doe.gov by 5:00 p.m. ET on December 19, 2022...
Department of Energy - Oct 20, 2022

DARPA's CASTLE to Fortify Computer Networks

...DARPA's Cyber Agents for Security Testing and Learning Environments (CASTLE) program seeks to improve cyber testing and evaluation by developing a toolkit that instantiates realistic network environments and trains AI agents to defend against advanced persistent cyber threats (APTs). Teams will use a class of machine learning known as reinforcement learning to automate the process of reducing vulnerabilities within a network. Another goal of CASTLE is to create open-source software that can help network defenders anticipate vulnerabilities an attacker may exploit. As an important benefit, datasets created by the CASTLE software will promote open, rigorous evaluation of defensive approaches that last beyond the life of the program...
DARPA - Oct 24, 2022

CYBERCOM Executed Global Cyberspace Defensive Operation

...U.S. Cyber Command conducted a new defensive cyberspace operation concept that was intended to highlight and enhance CYBERCOM's interoperability with partners. This 10-day operation was internally focused and intended to search for, identify and mitigate publicly known malware and associated variations that could potentially impact our cybersecurity. Starting with known malware or their variations allows operators to improve processes and coordination with combatant commands, interagency, international, industry and academic partners. If and when operators identify threats, their insights were shared among all partners...
United States Pacific Command - Oct 20, 2022

SDSU Part of Joint $6.7M National Science Foundation Grant for Cyberinfrastructure

...The National Science Foundation (NSF) has jointly awarded the University of California San Diego, San Diego State University and California State University, San Bernardino a five-year, $6.7 million grant to support cyberinfrastructure (CI) training and resources. For SDSU, the grant enables the hiring of a full-time Interdisciplinary Research Professional (IRP) and the creation of a faculty CI fellow program, with a goal of enhancing training opportunities for faculty and staff. As part of the NSF's Cyberinfrastructure program, SDSU gains access to the NSF ACCESS Computational Science Support Network (CSSN), a national network of supercomputers that can be tapped when the university's demand exceeds its internal capacity. Such scalability is becoming more vital as SDSU's computing-intensive research activity expands and the university continues its climb toward "R1" classification as a premier research institution. In 2022, the NSF included Growing Convergence Research among its "10 Big Ideas." Convergence research interconnects experts who work together to solve problems that require a broad and diverse set of knowledge, methods, expertise, scientific disciplines, and CI capabilities...
SDSU NewsCenter - Oct 20, 2022

5G, Wireless Spectrum, Networking & Communications

NSF-funded engineers build a battery-free, wireless underwater camera

...The high cost of powering an underwater camera for a long time, by tethering it to a research vessel or sending a ship to recharge its batteries, is a steep challenge preventing widespread undersea exploration. MIT researchers have taken a major step in overcoming this problem by developing a battery-free, wireless underwater camera that is about 100,000 times more energy-efficient than other undersea cameras. The U.S. National Science Foundation-supported device takes color photos, even in dark underwater environments, and transmits image data wirelessly through the water. The autonomous camera is powered by sound. It converts mechanical energy from sound waves traveling through water into electrical energy that powers its imaging and communications equipment. After capturing and encoding image data, the camera also uses sound waves to transmit data to a receiver that reconstructs the image...
National Science Foundation - Oct 25, 2022

NOAA/NASA satellite observations determined Antarctic ozone hole slightly smaller in 2022

...NOAA and NASA researchers detect and measure the growth and breakup of the ozone hole with satellite instruments aboard Aura, Suomi-NPP and NOAA-20 satellites. This year, satellite observations determined the ozone hole area reached a single-day maximum of 10.2 million square miles (26.4 million square kilometers) on October 5, but is now shrinking. NOAA scientists at the South Pole Station also record the ozone layer's thickness by releasing weather balloons carrying ozone-measuring instruments called ozonesondes that measure the varying ozone concentrations, measured in Dobson Units, as the balloon rises into the stratosphere. Measurements made via satellite and ozonesondes show that the Antarctic ozone hole has been smaller in recent years than it was in the late 1990s and early 2000s. This is due to the Montreal Protocol, a treaty adopted 35 years agooffsite link to ban the release of harmful ozone-depleting chemicals called chlorofluorocarbons, or CFCs. It remains the only international treaty ratified by every country on Earth. Amendments have helped it evolve over time to meet new scientific, technical and economic developments and challenges...
National Oceanic and Atmospheric Administration - Oct 26, 2022

U.S. Space Command to Transfer Space Object Tracking to Department of Commerce

...The U.S. Space Command tracks more than 47,000 objects in space. But there are plans to transfer that responsibility to the Department of Commerce, an effort that will allow Spacecom to focus more on what's happening in space rather than just on the tracking of objects. What Spacecom is looking for are new, state-of-the-art technologies not dependent on limited, onboard consumables. Next-generation spacecraft require renewables and resupply to extend their lifespan and assure they are available for many, many years. Spacecom needs a comprehensive and diverse space domain awareness network capable which is capable of supporting dynamic space operations...
U.S. Department of Defense - Oct 21, 2022

CU Boulder lands $750k research grant for 5G communications security

...Keith Gremban, at the University of Colorado Boulder, has secured a $749,000 phase one grant from the National Science Foundation (NSF) for a project called GHOST: 5G Hidden Operations through Securing Traffic. The goal of the work is to ensure American soldiers and infrastructure operators can use hostile 5G cellular networks in other countries without those countries being able to extract valuable operational information. The research will follow two tracks. The first will explore ways to disguise our communications by generating continuous background noise on cellular networks. The second is to generate intentional false flag communications to confuse enemies. It is an effort with clear historical parallels. The project is part of the NSF Convergence Accelerator's Securely Operating Through 5G Infrastructure program, where 16 phase one awardees, including CU Boulder, have proposed various 5G communications projects will have just nine months to turn their initial application into a prototype...
CU Boulder Today - Oct 24, 2022

Advanced Manufacturing

FACT SHEET: Biden-Harris Administration Rallies States, Cities, and Companies to Boost Clean American Manufacturing

...The Biden-Harris Administration is announcing a new set of public and private sector commitments aligned with President Biden's Federal Buy Clean Initiative, which leverages the Federal Government's power as the largest purchaser in the world to advance low-carbon construction materials across its procurement and funded infrastructure projects. President Biden has ushered in an American manufacturing boom, with nearly 700,000 manufacturing jobs added during his Administration so far. Partnerships between state, Tribal, regional, local and industry leaders are critical to ensure that Buy Clean investments in clean manufacturing and climate-resilient infrastructure benefit all Americans across the country. President Biden's Action Plan to Accelerate Infrastructure recognizes that over 90% of Bipartisan Infrastructure Law funding is delivered by non-federal agencies, underscoring the need for strong partnerships across public and private sectors. New actions from across the Biden-Harris Administration announced today include: * The Department of Transportation's (DOT) Federal Highway Administration (FHWA) is announcing grants for 25 State Departments of Transportation through the Climate Challenge to reduce GHG emissions in highway projects through the use of sustainable construction materials. * The Department of Energy (DOE), through the Better Climate Challenge, is partnering with organizations across the U.S. economy to set ambitious goals for reducing their carbon emissions, and to share real world strategies to decarbonize buildings and plants...
The White House - Oct 20, 2022

Microelectronics

Plastics used in aerospace and microelectronics industries will have many past lives, thanks to chemical recycling

...One day in the not-too-distant future, the plastics in satellites, cars and electronics may all be living their second, 25th or 250th lives. New research from the University of Colorado Boulder, published in Nature Chemistry, details how a class of durable plastics widely used in the aerospace and microelectronics industries can be chemically broken

down into their most basic building blocks and then formed once again into the same material. The research was supported by the U.S. National Science Foundation. The study documents how this type of plastic can be perpetually broken down and remade, without sacrificing its desired physical properties. "The ability to repeatedly recycle plastics without loss of performance is critical for the economy and environmental sustainability," said Siddiq Qidwai, a program director in NSF's Division of Civil, Mechanical and Manufacturing Innovation.
National Science Foundation - Oct 25, 2022

Bipartisan Infrastructure Law supports critical minerals research in Washington State

...The U.S. Geological Survey announced today that, thanks to substantial funding from President Biden's Bipartisan Infrastructure Law, it will invest about $2.8 million to collect a large swath of geophysical data focusing on critical mineral resources in northeastern Washington State. Understanding which rock formations may contain mineral resources is a key step in securing a reliable and sustainable supply of the critical minerals that are essential to everything from household appliances and electronics to clean-energy technologies like batteries and wind turbines. The study will be funded and conducted through the USGS Earth Mapping Resources Initiative (Earth MRI), a partnership between the USGS and state geological surveys to modernize understanding of the nation's fundamental geologic framework through new mapping and data collection. These airborne geophysical surveys will collect a combination of magnetic and radiometric data. Magnetic data can be used to identify ancient faults, magma bodies and other geologic features. The radiometric data indicate the relative amounts of potassium, uranium and thorium in shallow rocks and soil...
USGS - Oct 19, 2022

Climate Change / Green Energy & IT

Readout of Cybersecurity Executive Forum on Electric Vehicles and Electric Vehicle Charging Infrastructure Hosted by the Office of the National Cyber Director

...The Office of the National Cyber Director (ONCD) convened government and private-sector leaders in a forum focused on cybersecurity issues in the electric vehicle (EV) and electric vehicle supply equipment (EVSE) ecosystem. This forum occurred as part of a larger series of executive-level meetings targeting various sectors. Industry participants—who included representatives from auto manufacturers, component manufacturers, and EV charging infrastructure manufacturers—were asked for and shared the views of their individual organizations on current cybersecurity practices, gaps, and recommendations for improvement throughout the EV ecosystem. Government officials noted that building a secure and resilient ecosystem for EVs and EVSE is important to achieving climate policy goals safely and securely...
The White House - Oct 25, 2022

Methane 'Super-Emitters' Mapped by NASA's New Earth Space Mission

...NASA's Earth Surface Mineral Dust Source Investigation (EMIT) mission is mapping the prevalence of key minerals in the planet's dust-producing deserts – information that will advance our understanding of airborne dust's effects on climate. But EMIT has demonstrated another crucial capability: detecting the presence of methane, a potent greenhouse gas. In the data EMIT has collected since being installed on the International Space Station in July, the science team has identified more than 50 "super-emitters" in Central Asia, the Middle East, and the Southwestern United States. Super-emitters are facilities, equipment, and other infrastructure, typically in the fossil-fuel, waste, or agriculture sectors, that emit methane at high rates. "Reining in methane emissions is key to limiting global warming," said NASA Administrator Bill Nelson. "The International Space Station and NASA's more than two dozen satellites and instruments in space have long been invaluable in determining changes to the Earth's climate. EMIT is proving to be a critical tool in our toolbox to measure this potent greenhouse gas – and stop it at the source." Relative to carbon dioxide, methane makes up a fraction of human-caused greenhouse-gas emissions, but it's estimated to be 80 times more effective, ton for ton, at trapping heat in the atmosphere in the 20 years after release. Moreover, where carbon dioxide lingers for centuries, methane persists for about a decade, meaning that if emissions are reduced, the atmosphere will respond in a similar timeframe, leading to slower near-term warming...
National Aeronautics and Space Administration - Oct 25, 2022

DOE awards $3.3 million to UNM professor, research on climate prediction

...An unpredictable picture of a future fueled by climate change is getting clearer with the help of The University of New Mexico and Department of Energy (DOE). Department of Mathematics & Statistics Professor Emerita Deborah Sulsky has just been awarded a $3.3 million grant as part of the DOE's efforts to improve its Energy Exascale Earth System Model (E3SM). The collaborative project, titled Improved Coupled Climate Simulations in E3SM Through Enhanced Sea-Ice Mechanics, is just one of seven projects to get a share of the DOE's $70 million funding. "What we are proposing is if we have a better model for sea ice, we can hopefully get better predictions not just for sea ice, but for climate simulations in general, " Sulsky said. Sulsky and her team are investigating sea-ice models. Currently, sea-ice is typically incorporated into predictive models as a fluid with variable viscosity. UNM's model treats ice as a solid. That's because solid ice insulates the warmer ocean from the colder atmosphere. When ice fractures, it exposes the ocean water to the cold air, allowing more seawater to freeze rapidly...

UNM Newsroom - Oct 25, 2022

The Lightness of Water Vapor Adds Heft to Global Climate Models

...Clouds are notoriously hard to pin down, especially in climate science. A study from the University of California, Davis, and published in the journal Nature Geoscience shows that air temperature and cloud cover are strongly influenced by the buoyancy effect of water vapor, an effect currently neglected in some leading global climate models. Global climate models are the primary tools used to study Earth's climate, predict its future changes and inform climate policymaking. However, climate models often differ on the precise degree of future warming, largely due to their representation of clouds. Previous research by Yang and his colleagues proposed that cold air rises in the tropics because humid air is lighter than dry air. This effect is known as vapor buoyancy, and it regulates the amount of low clouds over the subtropical ocean. The study reported that six of the 23 widely-used climate models analyzed do not yet include this effect because water vapor is a trace gas, so its buoyancy effect has been considered negligible. But the study shows the vapor buoyancy effect is more significant than previously realized. In climate models without vapor buoyancy, the low cloud cover can be off by about 50% in certain regions. ... The study was funded by the National Science Foundation, Lawrence Berkeley National Laboratory, and the U.S. Department of Energy.
UC Davis - Oct 24, 2022

Digital Health

$12 Million Grant To Help UVA Researchers Better Diagnose Autism

...Most people are diagnosed with autism spectrum disorder between ages 4 and 6, some – typically women and LGBTQ people – can be well into teenage years or even adulthood before they are identified as being on the autism spectrum. With a new $12 million grant from the National Institutes of Health, a team of UVA researchers will focus on illuminating why people wait so long for an accurate diagnosis. And the researchers will focus on building a better diagnostic tool. UVA researchers discovered a significant difference in the genes that underpin the condition in girls and boys. They also identified specific ways the brains of girls with autism spectrum disorder respond differently to social cues, such as facial expressions and gestures. Late diagnosis, defined in the grant as diagnosis that occurs at age 12 or older, is also linked to greater mental-health difficulties. One recent study found that people diagnosed with autism in adulthood are nearly three times more likely than their childhood-diagnosed counterparts to report having psychiatric conditions...
UVA Today - Oct 19, 2022

Other IT Related

Remarks of Dr. Arati Prabhakar on Achieving America's Aspirations

...Dr. Arati Prabhakar's AAAS speech on Achieving America's Aspirations...
The White House - Oct 25, 2022

U.S. Department of Commerce Appoints Members for New Internet of Things Advisory Board

...The U.S. Department of Commerce has appointed 16 experts for the new Internet of Things Advisory Board (IoTAB), to advise the Internet of Things Federal Working Group. The advisory board includes a wide range of stakeholders outside of the federal government with expertise relating to the Internet of Things (IoT). The board will advise the federal working group on matters including the identification of any federal regulations, programs or policies that may inhibit or promote the development of IoT; situations in which IoT could deliver significant and scalable economic and societal benefits to the United States, including smart traffic and transit technologies, augmented logistics and supply chains, environmental monitoring, and health care; IoT opportunities and challenges for small businesses; and any IoT-related international opportunities. The National Institute of Standards and Technology (NIST) will provide administrative support to the advisory board...
National Institute of Standards and Technology - Oct 24, 2022

To Break New Ground With Frequency Combs, a NIST Innovation Plays With the Beat

...An improvement to a Nobel Prize-winning technology called a frequency comb enables it to measure light pulse arrival times with greater sensitivity than was previously possible — potentially improving measurements of distance along with applications such as precision timing and atmospheric sensing. A frequency comb is a type of laser whose light consists of many well-defined frequencies that can be measured accurately. Looking at the laser's spectrum on a display, each frequency would stand out like one tooth of a comb, giving the technology its name. The innovation, created by scientists at the National Institute of Standards and Technology (NIST), represents a new way of

using frequency comb technology, which the scientists have termed a “time programmable frequency comb.” Up until now, frequency comb lasers needed to create light pulses with metronomic regularity to achieve their effects, but the NIST team has shown that manipulating the timing of the pulses can help frequency combs make accurate measurements under a broader set of conditions than has been possible. The team’s innovation involves the ability to control the timing of the second comb’s pulses. Advances in digital technology permit the second comb to “lock on” to the returning signals, eliminating the dead time created by the previous sampling approach. After an initial acquisition, if the target moves, the digital controller can adjust the time output such that the second comb’s pulses speed up or slow down. This allows the pulses to realign, so that the second comb’s pulses always overlap with those returning from the target. This adjusted time output is exactly twice the distance to the target, and it is returned with the pinpoint precision characteristic of frequency combs. The upshot of this time-programmable frequency comb, as the team calls it, is a detection method that makes the best use of the available photons — and eliminates dead time...
National Institute of Standards and Technology - Oct 24, 2022

NASA Instrument to Measure Temperature, Pressure, and Wind on Venus

...VASI will be installed on the DAVINCI mission’s descent sphere to parachute through Venus’ atmosphere. VASI measurements will provide new information about Venus’ temperature, pressure and winds and will provide the primary altitude reference for the descent sphere’s atmospheric composition instruments during the plunge into Venus’ searing, crushing atmosphere. Yet clouds of sulfuric acid, surface atmospheric pressure about 90 times higher than Earth’s, and surface temperatures around 900 F (about 460 C) make Venus incredibly challenging to explore, and it’s a herculean task to create instruments that can make sensitive measurements while being exposed to Venus’ harsh environment. Because of this, most of DAVINCI’s sensors and other subsystems are enclosed in a descent sphere built like a submarine, with sturdy construction to withstand the intense atmospheric pressures and effective insulation to shield these systems from the intense heat near Venus’ surface. However, VASI’s sensors must be directly exposed to these harsh conditions to do their job. As the sphere descends toward the surface of Venus, VASI will record the atmosphere’s temperature variations with a temperature sensor wrapped in a thin metal tube, like a straw. The atmosphere heats up the tube, which the sensor measures and records while being protected from the corrosive environment. Simultaneously, VASI will measure atmospheric pressure using a small silicon membrane encased in the instrument. On one side of the membrane is a vacuum, and on the other is Venus’ atmosphere, which will push on the membrane and stretch it. This stretch will be measured and used to calculate the strength of the pressure...
National Aeronautics and Space Administration - Oct 21, 2022

STEM / Workforce & IT

Manufacturing USA Semiconductor Institute Request for Information (RFI)

...The U.S. Department of Commerce’s National Institute of Standards and Technology (NIST) is seeking public input on the development of up to three new Manufacturing USA institutes focused on semiconductor manufacturing. The institutes, authorized by the recently passed Creating Helpful Incentives to Produce Semiconductors (CHIPS) for America Act, will enhance U.S. leadership in semiconductor manufacturing through advanced research, education, and workforce development. Comments must be received by 11:59 PM Eastern Time on November 28, 2022.
National Institute of Standards and Technology - Oct 27, 2022

Why Employers Should Embrace Competency-Based Learning in Cybersecurity

...The Principles for Growing and Sustaining the Nation’s Cybersecurity Workforce emphasizes the importance of expanding the pool of candidates by discontinuing the use of degrees as a mandatory requirement for jobs and revising job postings to be more transparent around the skills needed to perform and thrive in the role. While employers and education and training providers are getting increasingly on board with a shift toward prioritizing cybersecurity competencies and skills, getting the two ecosystems to work together to close the education-to-hiring gap continues to be a challenging and slow-moving mission. Employers will also need to shift the paradigm of how they hire. The significant staffing shortage relative to the volume of talent available necessitates casting a wider net. One consideration to increase interest and to bridge the gap between employers and job seekers is to ensure that job requirements include more inviting language and marketing of the cybersecurity opportunities. With the pivot to competencies and skills-based hiring, ensuring prospective candidates avoid self-selecting out of the application process is a first step. Therefore, it is important to encourage job seekers to understand how relevant and applicable their current skills and experiences are, even if they don’t have specific “cybersecurity” credentials or experience...
National Institute of Standards and Technology - Oct 25, 2022

Ensuring Our Workforce Is Cyber Ready

...Department of Homeland Security staff, along with our government and private-sector partners, are tasked with safeguarding our communities from myriad threats, both in the real world and online. This places great demands on our ability to evaluate, adapt to, and respond to emerging events and intelligence effectively and continuously. The CyberTalent Bridge is a workforce development and management tool designed to help organizations and their employees gain a better understanding of their cybersecurity

preparedness and capabilities, and identify any potential skill-related gaps or organizational vulnerabilities that need to be addressed. It enables staff to share their cybersecurity-related qualifications, skillsets, competencies, and professional certifications with other members of their team...
Homeland Security - Oct 25, 2022

Center for Space Research and Assurance celebrates 10th anniversary

...The Air Force Institute of Technology's Center for Space Research and Assurance is celebrating its 10th anniversary this November. Since its founding, CSRA has transcended its expectations by enhancing AFIT's research-based, space-focused graduate education programs for the Department of Defense and intelligence communities. Since its inception, CSRA has advanced space education at AFIT for students in the astronautical engineering and space systems graduate degree programs. CSRA faculty have also created successful certification programs where students can earn graduate certificates in space systems and space vehicle design. The center has created such a competitive advantage for AFIT in the space domain that the center was presented the prestigious Muir S. Fairchild Educational Achievement Award in 2019...
Air Force Materiel Command - Oct 25, 2022

High schoolers cast votes in first public test of ultra-secure quantum network

...More than 50 students from Kenwood Academy High School on Chicago's South Side became the first members of the U.S. public to utilize new quantum technology to cast an ultra-secure vote. The first-of-its-kind event demonstrated foundational technology that could change the future of communications, with impacts on national security, banking, and privacy, while encouraging Chicago's youth to learn more about quantum information science. "It can sometimes be hard in high school to have an idea of all the different options and careers that are out there," said Joseph Blake, a physics teacher at Kenwood Academy who was involved in organizing the event and is a participant in the newly launched TeachQuantum program at UChicago's Pritzker School of Molecular Engineering to bring STEM teachers from Chicago Public Schools into research lab spaces. Physics teacher Joseph Blake previously participated in the newly launched TeachQuantum program at UChicago's Pritzker School of Molecular Engineering, supported by the National Science Foundation's Quantum Leap Challenge Institute for Hybrid Quantum Architectures and Networks, a UChicago partnership with the University of Wisconsin–Madison and led by the University of Illinois Urbana-Champaign. The program focuses on teachers from South Side schools serving mostly students of color in Kenwood, Woodlawn, Hyde Park, Englewood, and South Chicago. As much of today's national strategy surrounding quantum technology first began under his leadership, former President Barack Obama surprised the students at the event. He shared a few words about the dangers of disinformation online in an era where their attention is a prized commodity for businesses, which was the topic of their vote...
UChicago News - Oct 19, 2022

School of Data Science uses Rowdy Datathon to amplify a student-led tradition

...The UTSA School of Data Science (SDS) recently hosted its first annual Rowdy Datathon at the National Security Collaboration Center's (NSCC) conference space on the UTSA Main Campus. The event, a partnership between the SDS, NSCC, the Association for Computing Machinery (ACM) at UTSA and the National Security Agency (NSA), continues UTSA's tradition of student-led computer science events. The NSA reached out to UTSA to host the event since the university is one of the NSA's core data science partners. Students who attended the datathon explored data science questions with their peers and competed to investigate the socioeconomic factors that influence low birthweight and newborn mortality. The challenge was framed as a commission by a fictitious government agency attempting to project these outcomes in Texas in the year 2030. There is a common misconception—even among students—that data analysis is just coding. However, he explained that students must learn skills such as data management, including how to cope with large amounts of data, or data with errors, as well as ethics within data management...
The University of Texas at San Antonio - Oct 19, 2022

NSF grant boosts UO efforts to support STEM teachers

...A $4.2 million National Science Foundation grant will boost the UO's efforts to build a support community for STEM teachers across 14 Western states through the agency's Robert Noyce Teacher Scholarship Program. The award will fund the Western Regional Noyce Network, a UO-led partnership with 12 other universities working to recruit, prepare and support aspiring STEM teachers. The program emphasizes placing teachers in underserved schools. For the past 20 years, the Noyce scholarship program has been helping STEM majors and professionals become K-12 teachers. That UO consortium, STEM Careers through Outreach, Research and Education, works to advance STEM education at all levels, including training and support for K–12 teachers...
uoregon - Oct 24, 2022

STEM / Workforce Resources & Opportunities

R&D WORKFORCE TRAINING: FEDERAL AGENCIES' STEM INTERNSHIPS, SCHOLARSHIPS, AND TRAINING OPPORTUNITIES

...Increasing the availability of STEM opportunities is a priority in the Biden-Harris Administration. To help facilitate this, the team at NITRD developed a STEM Portal that allows anyone to search for internships and other training opportunities at Federal agencies. The NITRD STEM PORTAL is a searchable database that includes a description, link, and contact information for each program listing. Government-sponsored internships and training programs are competitive, but there are many Federal opportunities and the NITRD STEM Portal is here to help...
The Networking and Information Technology Research and Development (NITRD) Program - Oct 18, 2022

Entrepreneurship program at Argonne National Laboratory opens applications for startups

...Chain Reaction Innovations (CRI), the entrepreneurship program at The U.S. Department of Energy's (DOE) Argonne National Laboratory, is now accepting applications for its Cohort 7. This year, the application period is open through 5 p.m. CST on Nov. 30. Those chosen for Cohort 7 will begin work in summer 2023. Any individual interested in developing a startup technology aligned with an Argonne research area is encouraged to apply. Each year, CRI selects four to six innovators who focus on clean energy and science technologies for a two-year fellowship through a competitive process. Program participants receive financial and technical support to perform early-stage research and development, with the goal to launch energy or manufacturing businesses...
Argonne National Laboratory - Oct 24, 2022

Homeland Security Professional Opportunities for Student Workforce to Experience Research 2023

...The U.S. Department of Homeland Security (DHS) Science and Technology Directorate Office of University Programs sponsors the Professional Opportunities for Student Workforce to Experience Research (HS-POWER) Program for undergraduate and graduate students. HS-POWER is open to students majoring in a broad spectrum of homeland security related science, technology, engineering and mathematics (STEM) disciplines as well as DHS mission-relevant research areas. Application Deadline 12/9/2022 11:59:59 PM ET.
zintellect.com - Oct 27, 2022

Upcoming Conferences / Workshops / Webinars

Manufacturing USA Semiconductor Institute RFI Webinar #2: Nov 2nd

...This is the second of three informational webinars to explain how the public can submit comments for the Manufacturing USA Semiconductor Institute RFI. Registration is required to attend the webinar. Registration for the webinar closes at 5:00 PM ET on November 1. Only those participants that have registered by this deadline will receive a link to attend. Webinar: November 2, 2022 11:00am - 12:00pm EDT
National Institute of Standards and Technology - Oct 26, 2022