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!

BLACK HISTORY MONTH

@NITRDgov is proud of our diverse staff who keep Gov't IT coordination moving along!
...As Black History Month comes to an end … @NITRDgov honors our staff members (left to right and down): *Virginia Moore *Olachi Onyewu *Kameron Thompson *Melissa Cornelius * Demetrio Ford & *Nekeia Butler! Great work everyone!!
Twitter - Feb 28, 2023

From the Streets to the Skies: Terry Morris Using NASA's Vision to Transform Humanity Towards the Future
...Now a prominent researcher with NASA's System-Wide Safety project, Terry Morris is living a life he never dreamed possible back when he was living on the streets eating from garbage cans. Born in Chicago, Morris was subjected to adversity from a young age. At just 13 years old, his biological family abandoned him hundreds of miles away in Mississippi on the side of the road. Though he lacked formal education for so many years prior, it became apparent that Morris was highly gifted. He took advanced courses in high school while participating in sports, and additionally, was found to be exceptional in vocational education. He excelled in everything he tried: ability to recall 54 or more digits from memory, playing complex piano pieces without being able to read music, cross-country state champion, placing first in mathematical debates, carpentry contests and robotics competitions. Three days after graduating high school in 1985, Morris started at NASA through the Cooperative Education Program with Mississippi State University.

Almost four decades later, Morris is still with NASA. Currently, he serves as subproject manager for System-Wide Safety's Complex Autonomous Systems Assurance (TC-4) at NASA's Langley Research Center in Hampton, Virginia. "There is a difference between a job and a career. When you do something that is meaningful to you, the time flies," explained Morris. "Because you're connected in such a meaningful way, you're able to withstand the ups and downs that occur. I'm trying to make an impact on NASA programs for the future. At NASA, we are all part of doing something greater for society." Morris' passion for bettering communities relates closely to his work at NASA and preparing for the future, which includes the safe integration of autonomy-related technologies into our systems. Morris's life started with challenges that might have kept him down, but instead inspired him to literally reach for the stars. [Terry is the the definition of inspiration!!]
National Aeronautics and Space Administration - Feb 23, 2023

Asia Dillon: Making a Name for Herself as a Manufacturer

...Asia Dillon is not your average 15-year-old high school student in New Orleans, Louisiana. She has already made a name for herself as a manufacturer. Asia is the owner of Sassy A Cosmetics, a company she started four years ago with the help of her mother. Her younger sister suffers from eczema, which makes her lips so dry that they crack and peel. Asia's sister didn't like the lip balm their mother gave her. She didn't like the smell and it made her lips burn. Asia wanted to create something that would soothe her sister's lips – using all natural ingredients. Her lip gloss is handmade with all natural ingredients and is sold at local pop-up shops and online. Sassy A's product line has grown to include lipsticks, lip creams and lip balms. What Asia likes most about working in manufacturing is that she can make a high-quality product for her customers and also get orders out in a timely manner. "My advice for someone that is interested in pursuing a career in manufacturing is to be persistent and open minded. Having my business has taught me to learn from mistakes and grow from them. Being in manufacturing is not easy – however, nothing worth having is. Manufacturing teaches you that quality over quantity is very important. If you stay consistent, then eventually, that quality will produce growth and definitely turn into quality quantity," says Asia. [WOW! Now that is business apititude!!]
National Institute of Standards and Technology - Feb 24, 2023

Honoring Black Astronauts During Black History Month 2023

...In honor of Black History Month, we recognize the contributions of Black astronauts to our nation's space programs. Coming to NASA from a variety of backgrounds as military pilots, engineers, scientists, and physicians, these astronauts have made history-making contributions participating in space shuttle missions to perform critical tasks such as deploying and retrieving satellites, performing spacewalks, conducting science and technology research, and piloting and commanding space shuttle missions. More recently, Black astronauts have played key roles in the assembly of the International Space Station, performing numerous spacewalks and robotic operations, and conducting research as expedition crewmembers...
National Aeronautics and Space Administration - Feb 24, 2023

How My Childhood Fascination With Bridges Helped Me Build a Career Protecting People and Buildings From Natural Disasters

...In honor of National Engineers Week this week and Introduce a Girl to Engineering Day, Taking Measure asked NIST research engineer Jazalyn Dukes to tell us what inspired her career and to give some advice to girls considering a career in structural and civil engineering. ... I encourage young people, especially girls and women, to think about a career in the science, technology, engineering and math fields (STEM). Volunteer or join clubs where you can meet other people who are interested or involved in STEM fields. It's a good way to meet experts and gain experience. Ask them lots of questions. You may be naturally shy, but if you have a question, ask it. That's what scientists and engineers do; we ask questions and find the answers. When I was an undergraduate student, I was always asking questions of people in the field to see what I liked and what I didn't like. That's the best way to steer yourself toward a career that matches your interests. [You are spot on! Great advice!!]
National Institute of Standards and Technology - Feb 22, 2023

NASA's Modern History Makers: Concha Reid

...Many people can reflect on their childhoods and identify the one moment that sparked their passion, ultimately illuminating the path they would take to reach their career goals. For Concha Reid, it was the absence of light in her Virgin Islands hometown that ignited her interest in power systems. "We frequently had power outages on the island when I was growing up," said Reid. "The reliability of the electrical grid wasn't as robust as the United States, and hurricanes knocked out electrical power for lengthy periods of time." Reid saw the potential for power systems to be more reliable and realized that studying math and science was an avenue to solving real-world problems. Her school on the island of St. Thomas didn't have advanced placement courses, but her teachers recognized her love of learning and mentored her along the way. Reid pursued her passion for power systems accepting a job in the Power Division at NASA's Glenn Research Center in Cleveland where she worked with batteries and fuel cells. But her managers soon recognized her interpersonal skills and ability to take on a lot of responsibility, and they encouraged her to enter a NASA leadership development program. The program required her to take a temporary position, and she was thrilled to accept one with the European Service Module Integration Office. Her new role was vital to Artemis. She was responsible for deliveries and exchanges of spaceflight hardware between NASA, Lockheed Martin, and the European Space Agency (ESA). Reid has continued down her leadership path and now serves as the deputy manager for the Space Science Project Office. "Anyone who is interested in the STEM field needs fortitude and dedication," said Reid. "There are many paths you can take; you just may have to do a little exploring to figure out the best fit for you."...
National Aeronautics and Space Administration - Feb 23, 2023

WOMEN'S HISTORY MONTH

Women's History Month 2023: Celebrating Women Astronauts
...As of March 2023, 72 women have flown in space. Of these, 44 have worked on the International Space Station as long-duration expedition crewmembers, as visitors on space shuttle assembly flights, or as space flight participants on short-duration missions. This article recognizes the significant accomplishments of these women from many nations as well as the pioneering women who preceded them into space. Many other women contributed to the assembly of the station and the research conducted aboard on a daily basis, including those on the ground who served as center directors, managers, flight directors, and in many other roles to pursue the exploration of space. Their achievements will contribute to NASA's efforts to land the first woman and the first person of color on the Moon and possibly send the first crews to Mars in the coming decades...
National Aeronautics and Space Administration - Mar 1, 2023

Inspiring Women in Leadership: Meet Three Female Space Station Engineers
...Driven to inspire the generation of young women who will soon follow in their footsteps, the numerous space station teams are rich with female engineers and leaders who work hard on the ground and in orbit to ensure the seamless operation of the space station 250 miles above. NASA's women are trailblazers and contribute to the success of the agency's missions in remarkable ways, including a strong history of women-made advancements. Several women at NASA's Johnson Space Center in Houston are continuing to follow science, technology, engineering and math (STEM) paths that are progressing into leadership positions within the station program today...
National Aeronautics and Space Administration - Feb 23, 2023

NASA Armstrong Showcases Women in Aviation
...NASA's Armstrong Flight Research Center has a long history with employing women in aviation careers and empowering these women to reach for the sky, although it was not always this way. "Girls and women in STEM are the future of aviation, and based on what I've seen, they will make tremendous contributions," said Cathy Bahm, Low Boom Flight Demonstrator (LBFD) project manager supporting the Quesst mission. "30 years ago as an intern I was lucky enough to have mentors who inspired me. I think it's important for women in the field to work with female mentors so they can see all the possibilities of what they can do in aviation." ... Ensuring more and more females choose STEM careers in the years to come is one of NASA's goals.
National Aeronautics and Space Administration - Feb 23, 2023

Alena Analeigh McQuarter is the youngest person to intern with NASA and now the 13-year-old girl becomes youngest Black person ever to be accepted to medical school
...As we transition from Black History Month to Women's History Month, here is someone who has already done great things despite her young age! Alena Analeigh McQuarter, at 12 years old, became the youngest person to ever intern with NASA. And now she landed in the record books this summer as the youngest Black person ever accepted to medical school. The 13-year-old is currently a junior in college, attending Arizona State University and Oakwood University at the same time online. She is one year away from graduating with a double Bachelor's degree. She will attend a master's program before attending medical school at the University of Alabama at Birmingham Heersink School of Medicine. McQuarter also started her own foundation, Brown STEM Girl, which offers mentorship and encouragement to girls to follow their dreams, and consider careers in science, technology, engineering and math... [Watch the video! She loves engineering ... maybe she will combine medicine and engineering for the next medical breakthrough ... we will wait and see!]
FOX 4 News Dallas-Fort Worth - Feb 28, 2023

Federal Agency Funding Opportunities

Biden-Harris Administration Launches First CHIPS for America Funding Opportunity
...The Biden-Harris administration through the U.S. Department of Commerce's National Institute of Standards and Technology launched the first CHIPS for America funding opportunity for manufacturing incentives to restore U.S. leadership in semiconductor manufacturing, support good-paying jobs across the semiconductor supply chain, and advance U.S. economic and national security. The department strongly encourages all potential applicants, including those for future funding opportunities, to submit statements of interest so it may gauge interest across the semiconductor ecosystem and begin preparing for application review...

HPC

NITRD White Paper: High End Computing (HEC) Software Sustainability Efforts
...The agencies participating in the Networking and Information Technology Research and Development (NITRD) High End Computing (HEC) Interagency Working Group (IWG) share a strong interest in the sustainability of HEC software that is needed to support the missions of the agencies and the national research enterprise, such as the Future Advanced Computing Ecosystem Strategic Plan. Providing software sustainability is a multi-faceted challenge. This white paper highlights some examples of activities in Federal agencies that address these steps for the benefit of a wide spectrum of stakeholders...
Networking and Information Technology Research and Development (NITRD) Program - Mar 2, 2023

NSF-funded scientists use computer modeling to unveil a unified theory for rocky planet formation
...A new theory for how rocky planets form could explain the origin of so-called "super-Earths" — a class of exoplanets a few times more massive than Earth. They're the most abundant type of planet in the galaxy. It could also explain why super-Earths in a single planetary system often wind up looking strangely similar in size, as though each system were capable of producing only a single kind of planet. In our solar system, there are two distinct types of planets: the smaller, rocky, inner planets closest to the sun; and the outer, larger, water- and hydrogen-rich gas giants farther from the sun. This difference led NSF-funded researchers to suggest that planet formation occurred in two distinct rings in the protoplanetary disk: an inner one where the small rocky planets formed; and an outer one for the more massive icy planets — two of which, Jupiter and Saturn, later grew into gas giants. The new theory identifies a "planet factory" ring as the likely site that, over time, can produce several similarly sized rocky planets. As planets grow sufficiently massive, their interactions with the disk tend to draw these worlds inward, closer to the star. The theory is supported by extensive computer modeling...
National Science Foundation - Feb 27, 2023

NSF-funded FSU researchers' high-performance computing simulations predict how fast ancient magma ocean solidified
...Early in the formation of Earth, an ocean of magma covered the planet's surface and stretched thousands of miles deep into its core. The rate at which that "magma ocean" cooled affected the formation of the distinct layering within the Earth and the chemical makeup of those layers. Previous research estimated that it took hundreds of million years for that magma ocean to solidify, but new research from Florida State University narrows these large uncertainties down to less than just a couple of million years. When magma cools, it forms crystals. Crystals that are denser are likely to sink and thus change the composition of the remaining magma. The rate at which magma solidifies depends on how viscous it is. The researchers ran their simulation for up to six months in the high-performance computing facility at FSU as well as at a National Science Foundation computing facility. ... This work was funded by the National Science Foundation.
Florida State University News - Feb 27, 2023

Artificial Intelligence / Machine Learning

Join DARPA to Reimagine the Future of AI for National Security
...How do we build artificial intelligence and machine learning systems that people can trust? DARPA wants to answer this question with the help of academic, government, and industry experts through its AI Forward initiative. To kickstart AI Forward, DARPA will host two workshops in summer 2023. DARPA experts estimate that research in the following areas will be essential to creating trustworthy technology: * Foundational theory, to understand the art of the possible, bound the limits of particular system instantiations, and inform guardrails for AI systems in challenging domains such as national security; * AI engineering, to predictably build systems that work as intended in the real world and not just in the lab; and * Human-AI teaming, to enable systems to serve as fluent, intuitive, trustworthy teammates to people with various backgrounds. Interested individuals must submit their request to participate by Monday, March 20 via the application website...
DARPA - Feb 24, 2023

Howard University selected by the Department of Defense to lead 15th University Affiliated Research Center
...The Department of Defense announced its selection for a science research partnership. Howard University, Washington, D.C., is the first Historically Black College or University, or HBCU, to lead a University Affiliated Research Center (UARC). Since Howard University's selection in January, AFRL staff have been working with the university to choose projects, which Howard will lead with a consortium of HBCUs. "Our process is that we are working with the autonomy, artificial intelligence and machine learning

community within AFRL," said Seana McNeal, deputy UARC program manager. "We want to make sure we are tapped into those who are doing research for the Department of the Air Force — understand what's needed — and what needs to transition to the warfighter." ...
Edwards Air Force Base - Feb 22, 2023

NSF-funded researchers use bacterium as a live sensor and machine learning to detect heavy metal contamination in a E. coli-based water monitoring technology

... Scientists at the University of California, Irvine have demonstrated that the bacterium has further value as part of a system to detect heavy metal contamination in water. E. coli exhibit a biochemical response in the presence of metal ions, a slight change that researchers were able to observe with chemically assembled gold nanoparticle optical sensors. Through a machine-learning analysis of the optical spectra of metabolites released in response to chromium and arsenic exposure, the scientists were able to detect metals in concentrations a billion times lower than those leading to cell death – while being able to deduce the heavy metal type and amount with higher than 96 percent accuracy. ... This project was funded by the National Science Foundation.
UCI News - Feb 23, 2023

AI engineering among selected UH startups to participate in region NSF I-Corps program

...Five University of Hawai'i-affiliated technology startups have been selected for a UH innovation incubator, Hawai'i Technology Innovation Development Ecosystem (HITIDE). This novel 24-month entrepreneurial program offers up to $50,000 in seed funding, customized education, mentorship and resources tailored to the unique needs of academic entrepreneurs to help them translate and advance UH-developed, impact-driven technologies and solve real-world problems. * Generative Design Software is an emerging, computer-aided artificial intelligence engineering technology and advanced algorithm developed by Marcelo Kobayashi, a mechanical engineering professor at UH Mānoa. * HI-Spectral is a groundbreaking snapshot hyperspectral imaging technology developed by Astronomer Haosheng Lin and Mechanical Engineer Morgan Bonnet at UH's Institute for Astronomy. * Interstel Technologies offers a fully responsive mission operations system for robust, coordinated operation of satellites, UAVs and other vehicles in dynamic environments. Its iCOSMOS software was developed by the UH Mānoa Hawai'i Space Flight Laboratory (HSFL). * Mahina Aerospace includes a team from HSFL and their technology is a low-cost spaceflight-ready, educational, small 1U cube satellite. * XRCore was developed by a team from the John A. Burns School of Medicine at UH Mānoa. It offers advanced image processing and 3D printing using artificial intelligence segmentation to enhance pre-surgical planning and clinical training for current and future clinicians. ... Cohort members are currently participating in the regional National Science Foundation (NSF) I-Corps, a virtual entrepreneurship program that provides immersive and experiential training in how to test the market through customer discovery and create a business strategy to maximize innovation impact.
The Magazine of the University of Hawaii - Malamalama - Feb 28, 2023

Robotics / Autonomous Vehicles

DARPA, Services Demonstrate Battlefield Airspace Deconfliction Software: Tools enable planes, helos, missiles, uncrewed aircraft to operate simultaneously in contested airspace

...DARPA's Air Space Total Awareness for Rapid Tactical Execution (ASTARTE) program recently demonstrated new automated flightpath-planning software that successfully deconflicted friendly missiles, artillery fire, and manned and unmanned aircraft while avoiding enemy fires in a simulated battle in contested airspace. The program's goal is to provide an accurate, real-time common operational picture of the airspace over an Army division, enabling long-range fire missions, as well as manned and unmanned aircraft operations, to occur safely in the same airspace. The ASTARTE software seamlessly integrated with the Army's Integrated Mission Planning and Airspace Control Tools (IMPACT) software suite. The ASTARTE and IMPACT integration forms a foundation of artificial intelligence-enabled services that will interact with other service component AI tools such as the Air Force's Kessel Run All Domain Operations Suite (KRADOS) for planning and the All Domain Common Platform (ADCP) for operations...
DARPA - Feb 23, 2023

NASA's Autonomous Aircraft Decision Tech Gets Simulated Urban Test

...NASA's Data & Reasoning Fabric (DRF) project designs technology to help autonomous airborne activities safely meet their full potential for society's benefit. Its intent is to form a connected, interwoven "fabric" of intelligence that sends aircraft specific, tailored information, wherever they are. Reducing airspace congestion to increase safety in cities while connecting people and services are the kinds of considerations driving the DRF team. The DRF technology helps assemble diverse sets of data from various providers, as well as reasoning services powered by artificial intelligence, to make sense of the complex and dynamic airspace. Decisions needed by autonomous aircraft of the future could be made in a similar way. And the web, or "fabric," of intelligence enabled by DRF will provide critical information to operators and autonomous aircraft, wherever they are, to make decisions in time...
National Aeronautics and Space Administration - Feb 25, 2023

Quantum

Biden taps Sandia Labs' senior leader for quantum advisory committee
...Deborah Frincke, associate laboratories director of national security programs at Sandia National Laboratories, has been appointed to the National Quantum Initiative Advisory Committee. Frincke will help provide an independent assessment of the National Quantum Initiative Program, which was established in 2019 to maintain U.S. leadership in quantum information science and its technology applications and to make recommendations to the nation's highest offices for future revisions to the program. Frincke is a seasoned leader in national security research. At Sandia, she steers and oversees projects for the Department of Defense, the U.S. intelligence community and the Department of Energy in areas such as hypersonic flight systems, cybersecurity, advanced radar, microelectronics, threat intelligence, machine learning and quantum science...
Sandia National Laboratories - Mar 1, 2023

Novel quantum entanglement lets NSF/DOE-funded researchers spy on atomic nuclei
...The term quantum entanglement describes an invisible link that connects distant objects; no matter how far away they are in space, they affect each other. That means if two particles are entangled on a quantum level, by measuring the quantum state of one of the particles, you can immediately know the quantum state of the other, wherever it may be. A team of researchers – called the STAR Collaboration – used the Relativistic Heavy Ion Collider (RHIC) to uncover a form of quantum entanglement that shows that particles of all different kinds are able to interact with one another, leading to interference in a variety of different patterns. This method allowed researchers to map the arrangement of gluons – gluelike particles that act as a binding force for quarks, the particles within the protons and neutrons inside atomic nuclei. These interactions produced a subatomic particle called a pion that, by measuring the velocity and angles at which light struck the collider, researchers were able to essentially use as a microscope to see inside atomic nuclei in a way like never before. This work was supported by the Office of Nuclear Physics within the U.S. Department of Energy Office of Science and the U.S. National Science Foundation...
Ohio State News - Feb 22, 2023

Theory sorts order from chaos in complex quantum systems
...It's not easy to make sense of quantum-scale motion, but a new mathematical theory could help, providing insight into the various computing, electrochemical and biological systems. University of Illinois Urbana-Champaign's researchers performed a computational analysis of the new mathematical theory that gives a simple prediction for the threshold at which large quantum systems switch from orderly motion like a clock to random, erratic motion like asteroids moving around in the early solar system. ... The National Science Foundation supported the research.
News Bureau - Feb 24, 2023

Cybersecurity / Privacy

FACT SHEET: Biden-Harris Administration Announces National Cybersecurity Strategy
...The Biden-Harris Administration released the National Cybersecurity Strategy to secure the full benefits of a safe and secure digital ecosystem for all Americans. In this decisive decade, the United States will reimagine cyberspace as a tool to achieve our goals in a way that reflects our values: economic security and prosperity; respect for human rights and fundamental freedoms; trust in our democracy and democratic institutions; and an equitable and diverse society. To realize this vision, we must make fundamental shifts in how the United States allocates roles, responsibilities, and resources in cyberspace. This Strategy sets out a path to address these threats and secure the promise of our digital future. This Strategy seeks to build and enhance collaboration around five pillars: 1. Defend Critical Infrastructure; 2. Disrupt and Dismantle Threat Actors; 3. Shape Market Forces to Drive Security and Resilience; 4. Invest in a Resilient Future; and 5. Forge International Partnerships to Pursue Shared Goals...
The White House - Mar 2, 2023

NIST and University of Michigan Researchers Investigated How Digital Twins Could Protect Manufacturers From Cyberattacks
...Detailed virtual copies of physical objects, called digital twins, are opening doors for better products across automotive, health care, aerospace and other industries. According to a new study, cybersecurity may also fit neatly into the digital twin portfolio. As more robots and other manufacturing equipment become remotely accessible, new entry points for malicious cyberattacks are created. To keep pace with the growing cyber threat, a team of researchers at the National Institute of Standards and Technology (NIST) and the University of Michigan devised a cybersecurity framework that brings digital twin technology together with machine learning and human expertise to flag indicators of

cyberattacks. Cyberattacks can be incredibly subtle and thus difficult to detect or differentiate from other, sometimes more routine, system anomalies. Digital twins aren't your run-of-the-mill computer models. They are closely tied to their physical counterparts, from which they extract data and run alongside in near real time. So, when it's not possible to inspect a physical machine while it's in operation, its digital twin is the next best thing. The team built a digital twin to emulate the 3D printing process and provided it with information from the real printer. The programs analyzing both the real and digital printers were pattern-recognizing machine learning models trained on normal operating data, i.e., the models were adept at recognizing what the printer looked like under normal conditions. In the case of the 3D printer, the team checked its cybersecurity system's work and found it was able to correctly sort the cyberattacks from normal anomalies by analyzing physical and emulated data...
National Institute of Standards and Technology - Feb 23, 2023

DHS Announces $2 Billion in Preparedness Grants
...More than $2 billion in funding for fiscal year 2023 preparedness grant programs will provide critical funding to help state, local, tribal, and territorial officials prepare for, prevent, protect against, and respond to acts of terrorism. This year, the Urban Area Security Initiative will enhance regional preparedness and capabilities by funding 40 high-threat, high-density urban areas. This includes four additional urban areas who will receive funding to build and sustain capability based on an evolving threat environment. These grants involve an enhanced risk methodology that better reflects the current complex and diverse threat environment. DHS has identified six national priority areas in the FY 2023 grant cycle: cybersecurity; soft targets and crowded places; intelligence and information sharing; domestic violent extremism; community preparedness and resilience; and election security. The grants are non-competitive and awarded to recipients based on several factors: Homeland Security Grant Program (HSGP): State Homeland Security Program—provides $415 million to support the implementation of risk-driven, capabilities-based state homeland security strategies to address capability targets...
Homeland Security - Feb 27, 2023

U.S. Air Force's Cyber Resiliency Office for Weapon Systems looks to expand its partnerships
...The Department of the Air Force's Cyber Resiliency Office for Weapon Systems, or CROWS, worked to expand its existing use of Cyber Focus Teams. CFTs look to "bake-in" cyber resiliency into new weapon systems and mitigate vulnerabilities in fielded systems. The CROWS team, who already have CFTs at several Air Force locations, initiated preliminary discussions to place additional teams at select United States Space Force Program Executive Offices...
Air Force Materiel Command - Feb 23, 2023

Hackers could try to take over a military aircraft; DOE's Sandia researchers determined to find out can a cyber shuffle stop them?
...A cybersecurity technique that shuffles network addresses like a blackjack dealer shuffles playing cards could effectively befuddle hackers gambling for control of a military jet, commercial airliner or spacecraft. Research also shows these defenses must be designed to counter increasingly sophisticated algorithms used to break them. Many aircraft, spacecraft and weapons systems have an onboard computer network known as military standard 1553, commonly referred to as MIL-STD-1553. A technique already known in cybersecurity circles, called moving target defense, can effectively protect MIL-STD-1553 networks against a machine-learning algorithm. What a moving target defense offers is a complementary strategy where the moving target confuses the attacker and makes it more difficult to do damage. Like a game of three-card monte, in which a con artist uses sleight of hand to shuffle cards side-to-side, moving target defense requires randomness. The challenge with randomizing a small set of numbers (1553 only has 31) is that nothing in computer software is truly random. The researchers set up a test to gain insight into how cybersecurity engineers should design these defenses to withstand a machine-learning-based assault, a concept the researchers call threat-informed codesign. ... Sandia's Laboratory Directed Research and Development program funded the research.
Sandia National Laboratories - Feb 27, 2023

Clemson University joins nation's frontline defense against cyberattack on the transportation system
...Clemson University is opening a national center where researchers will devise new ways of hardening the transportation system against cyberattack as a growing number of vehicles and more of the world's infrastructure rely on the internet to move people and goods safely and efficiently. The new National Center for Transportation Cybersecurity and Resiliency (TraCR) is set to receive $20 million from the U.S. Department of Transportation over a five-year grant period. Researchers expect to develop software and hardware that will be designed as an ironclad defense against cyberattack. Wirelessly connecting vehicles to each other and to the roadway infrastructure opens the transportation system to a host of cyberthreats from individual hackers, criminal gangs, terrorists and other bad actors. With every vehicle and piece of infrastructure that connects to the internet, there is opportunity to steal data, invade privacy, demand a ransom, generate misinformation or even shut down a whole system...
Clemson University - Feb 27, 2023

5G, Wireless Spectrum, Networking & Communications

FACT SHEET: Vice President Harris Announces Progress in Lowering Internet Costs for Families, Funding to Expand High Speed Internet Access

...High-speed internet has become an essential tool to access education, healthcare, and work. Still, too many are left without high-speed internet because of lacking infrastructure, costs or the lack of skills to utilize the technology. This is particularly notable in communities of color, rural communities and among older Americans where the lack of affordable, reliable high-speed internet is compounding economic, health and other disparities. The Bipartisan Infrastructure Law will expand “Internet for All” — so that everyone in America has access to reliable and affordable high-speed internet. The Administration’s efforts are centered around three principles—access, affordability and equity. Across the laws, Internet for All programs will build high-speed internet infrastructure, teach digital skills, and provide necessary technology to ensure that everyone in America has the access and skills they need to fully participate in today’s society...

The White House - Feb 27, 2023

New Dashboard to Explore Impacts of Federal Broadband Investments on Local Communities

...The U.S. Census Bureau, in partnership with the National Telecommunications and Information Administration (NTIA), announced the launch of the ACCESS BROADBAND Dashboard. ACCESS BROADBAND stands for Advancing Critical Connectivity Expands Service, Small Business Resources, Opportunities, Access, and Data Based on Assessed Need and Demand Act. The new data tool shows how changes in broadband infrastructure expansion may impact local economies. The dashboard includes a series of maps that display statistics on employment, small business establishments, wages and income, poverty, home values, population change and migration, educational attainment, and gross domestic product (GDP)...

U.S. Census - Feb 28, 2023

Dynamic NASA-Built Weather Sensors Enlisted to Track Tropical Cyclones

...NASA recently built two weather instruments to test the potential of small, low-cost sensors to do some of the work of bulkier, pricier satellites. Launched in late 2021 to the International Space Station, COWVR (short for Compact Ocean Wind Vector Radiometer) measures the speed and direction of wind at the ocean surface, and TEMPEST (Temporal Experiment for Storms and Tropical Systems) provides atmospheric water vapor measurements. Both instruments are part of Space Test Program-Houston 8 (STP-H8), a three-year demonstration mission funded by the U.S. Space Force, which also funded the construction of COWVR. Imagery created from their data is being used by the U.S. Joint Typhoon Warning Center to track the location and intensity of tropical cyclones in the Indian and Pacific oceans. In fact, COWVR and TEMPEST images were among the sources used by a forecaster at the typhoon center in Pearl Harbor, Hawaii, to pin down the location of Tropical Cyclone Mandous in December 2022. COWVR and TEMPEST both measure microwave emissions from Earth’s atmosphere and surface. Data from microwave readings have an advantage over those from infrared or visible light: They can give forecasters a look at the internal structure of a tropical cyclone and help them locate the eye, even if it’s obscured by clouds. COWVR incorporates technology and designs developed at NASA’s Jet Propulsion Laboratory for the agency’s Jason series of ocean-observing satellites...

National Aeronautics and Space Administration - Feb 23, 2023

New research models concept for data transport using train of satellites

...The Solar System Pony Express is a mission concept that aims to augment the data transmission capabilities of the Deep Space Network using the idea of data mules. Data mules are small spacecraft that can travel to a remote location, such as Mars, where they acquire data in close range to the probe’s transmitter, then carry the data back to Earth where it is downlinked in close range to the receiver. This enables high latency and high bandwidth communication. University of Illinois Urbana-Champaign researchers developed the tools to enable the trajectory design and optimization of Earth/Mars cycler orbits for the Solar System Pony Express mission. They simulated trajectories that make use of low-thrust propulsion and include a high-fidelity model that incorporates the gravity of the Sun, Earth and Mars. Low-thrust space missions are becoming more common due to the benefits afforded by ion engines, which are more efficient than chemical engines. They are also smaller/lighter which allows for the design of smaller spacecraft that can be launched economically as a secondary payload. Solar System Pony Express is a NASA Innovative Advanced Concept project led by Joshua Vander Hook at NASA’s Jet Propulsion Laboratory...

News Bureau - Feb 23, 2023

Advanced Manufacturing

Video: Heroes of American Manufacturing – Sweet Grass Dairy

...People who really want to know where their food comes from often turn to small food manufacturers. Jessica Little, co-owner of Sweet Grass Dairy in Thomasville, Georgia, realized this during the pandemic. Her challenge was figuring out how to meet the quality standards and food traceability required to expand into retail markets and get the company’s products out for more consumers to appreciate. The farm employs about 60 people across its cheese production and manufacturing facility, restaurant, retail cheese

shop, and e-commerce business. The company's sales plummeted 78% during the COVID-19 pandemic and turned to Georgia MEP (GaMEP) for help with compliance. Sweet Grass Dairy has worked with GaMEP on multiple projects including food safety training, customer audits, and marketing projects when the company pivoted to e-commerce to expand into new markets during the pandemic. Its e-commerce sales soared by 400%. Heroes videos showcase the relationship between the MEP Center and client manufacturer – helping to tell the story of the MEP National Network, a unique public-private partnership that includes MEP Centers in every state and Puerto Rico. With more than 1,450 trusted advisors and experts at approximately 430 MEP service locations, the Network can provide any U.S. manufacturer with access to resources they need to succeed...
National Institute of Standards and Technology - Feb 22, 2023

DOE-Funded Engineer Aims To Make Manufacturing More Efficient with Polymer
...A University of Texas at Dallas researcher is developing a new method to dry paper in manufacturing that uses up to 60% less energy than the traditional method, in which a pulp and water mixture is flattened and then heated to evaporate the liquid. The research supported by a U.S. Department of Energy (DOE) grant, is perfecting a drying process that absorbs and then releases the water as a liquid. It is is based on thermo-responsive hydrogels — polymers that repeatedly absorb and release water depending on the temperature. Because it requires less heat to remove the water from paper as water than it does to remove it by evaporation, less energy will be used in a continuous drying process. The research is aimed at customizing the polymer to coat cylinders used in the manufacture of sheets of paper. The technology also could be applied to other manufacturing processes that remove water from materials, including food products and textiles. The grant is part of a $57.9 million investment by the DOE in research nationwide to help decarbonize the U.S. industrial sector, advance clean-energy manufacturing and improve the nation's economic competitiveness...
The University of Texas at Dallas - Feb 22, 2023

Microelectronics

DARPA-funded new chip for decoding data transmissions demonstrates record-breaking energy efficiency
...Researchers at MIT and elsewhere have developed a decoder chip that employs a new statistical model to use this reliability information in a way that is much simpler and faster than conventional techniques. Their chip uses a universal decoding algorithm the team previously developed, which can unravel any error correcting code. Typically, decoding hardware can only process one particular type of code. This new, universal decoder chip has broken the record for energy-efficient decoding, performing between 10 and 100 times better than other hardware. This advance could enable mobile devices with fewer chips, since they would no longer need separate hardware for multiple codes. This would reduce the amount of material needed for fabrication, cutting costs and improving sustainability. By making the decoding process less energy intensive, the chip could also improve device performance and lengthen battery life. It could be especially useful for demanding applications like augmented and virtual reality and 5G networks. ... The research is funded, in part, by the U.S. Defense Advanced Research Projects Agency (DARPA).
MIT News - Feb 22, 2023

Climate Change / Green Energy & IT

FACT SHEET: Biden-Harris Administration Announces Actions to Expand Offshore Wind Nationally and Harness More Reliable, Affordable Clean Energy
...The Biden-Harris Administration is announcing its latest steps to expand offshore wind jobs and local economic development across the country. These actions, which include proposing the first-ever Gulf of Mexico offshore wind lease sale, are advancing President Biden's clean energy and economic agenda to revitalize American manufacturing and harness American innovation to deliver reliable, affordable power to homes and businesses. The President has also set bold goals of deploying 30 gigawatts (GW) of offshore wind by 2030, as well as 15 GW specifically of floating offshore wind by 2035...
The White House - Feb 22, 2023

NOAA, U.S. Patent and Trademark Office create work-sharing program to advance green technology
...The Department of Commerce's U.S. Patent and Trademark Office (USPTO) and the National Oceanic and Atmospheric Administration (NOAA) announced a collaboration to promote and advance further innovation in the climate and "green" technology areas. The cornerstone of the collaboration is a work-sharing program that focuses on the intersection of intellectual property (IP) and climate and environmental technologies. USPTO expertise will help NOAA provide intellectual property training for its scientific workforce and support the NOAA Technology Partnerships Office. NOAA experts will provide training to USPTO patent examiners reviewing patent applications related to

climate and environmental technologies, and will advise the agency on USPTO green initiatives to help foster innovations. The collaboration will be formalized via an upcoming memorandum of understanding between the two agencies that will feature additional areas of work, including identifying new ways of streamlining, promoting, and celebrating innovation in key environmental technologies across the public and private sectors...
United States Patent and Trademark Office - Feb 28, 2023

U.S. Department of Energy Announces $68 Million For Small Businesses Developing Technologies to Cut Emissions and Study Climate

...The U.S. Department of Energy (DOE) announced awards totaling more than $68 million that will go to 53 small businesses that are solving scientific problems. Projects include developing tools for climate research and advanced materials and technologies for clean energy conversion. These awards were funded through DOE Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) awards, which strive to transform DOE-supported science and technology breakthroughs into viable products and services...
Department of Energy - Feb 22, 2023

Digital Health

Computer model of influenza virus shows universal vaccine promise

...Seasonal flu vaccines must be reformulated each year to match the predominantly circulating strains. When the vaccine matches the predominant strain, it is very effective; however, when it does not match, it may offer little protection. U.S. National Science Foundation-supported researchers have created an atomic-level computer model of the H1N1 virus that reveals new vulnerabilities through glycoprotein "breathing" and "tilting" movements. This work suggests possible strategies for the design of future vaccines and antivirals against influenza. The main targets of the flu vaccine are two surface glycoproteins, hemagglutinin, or HA, and neuraminidase, NA. Although the properties of both glycoproteins have been studied previously, a complete understanding of their movement does not exist. This research could be used to develop methods of keeping the protein locked open so that it would be constantly accessible to antibodies...
National Science Foundation - Feb 27, 2023

AI tool may speed screening of epilepsy drugs in mice

...By using state-of-the-art technology to analyze patterns of behavior in mice with epilepsy, researchers may be able to better study the disorder and identify potential treatments. Researchers funded by the National Institutes of Health used the AI technology to determine behavioral “fingerprints” in mice not evident by human eye. Scientists found that this machine learning-assisted 3D video analysis outperformed the traditional approach, in which analyses rely on human observation to label the behavioral signs of epilepsy in animal models during seizures. They found that machine analysis was better able to distinguish epileptic vs non-epileptic mice than trained human observers. The AI program also identified distinct behavioral phenotypes at different points in the development of epilepsy...
National Institutes of Health - Feb 24, 2023

Getting under your skin for better health with sensors

...Biomedical engineers at the University of Cincinnati say interstitial fluid, the watery fluid between and around cells, tissues and organs in the body, could provide an excellent medium for early disease diagnosis or long-term health monitoring. U.S. National Science Foundation-supported research outlined the ways doctors can sample interstitial fluid, from applying suction to the skin to deploying microdialysis. They are developing sensors to measure hormones and other chemicals in interstitial fluid. The interstitial fluid holds promise for monitoring health through wearable technology. This could help doctors track the efficacy of drugs to ensure proper dosage or provide early diagnosis of illness by monitoring the immune system.
National Science Foundation - Feb 22, 2023

New tool uses ultrasound 'tornado' to break down blood clots

...Researchers have developed a new tool and technique that uses "vortex ultrasound" – a type of ultrasonic tornado – to break down blood clots in the brain. The new approach works faster than existing techniques to eliminate clots formed in an in vitro model of cerebral venous sinus thrombosis, or CVST. The U.S. National Science Foundation-supported the research uses vortex ultrasound, where the ultrasound waves have a helical wavefront. The new tool consists of a single transducer that is specifically designed to produce the swirling, vortex effect, likened to a tornado. The transducer is small enough to be incorporated into a catheter, which is then fed through the circulatory system to the site of the blood clot...
National Science Foundation - Mar 1, 2023

Custom, 3D-printed heart replicas look and pump just like the real thing

...The size and shape of the the heart can vary from one person to the next. MIT engineers are hoping to help doctors tailor treatments to patients' specific heart form and function, with a custom robotic heart. The team has developed a procedure to 3D print a soft and flexible replica of a patient's heart. They can then control the replica's action to mimic that patient's blood-pumping ability. The procedure involves first converting medical images of a patient's heart into a three-dimensional computer model, which the researchers can then 3D print using a polymer-based ink. The result is a soft, flexible shell in the exact shape of the patient's own heart. The team can also use this approach to print a patient's aorta — the major artery that carries blood out of the heart to the rest of the body. ... This research was supported, in part, by the National Science Foundation and the National Institutes of Health.
MIT News - Feb 22, 2023

Identifying the inflammatory cells behind chemo brain

...Immune cells that keep the brain free of debris but also contribute to inflammation are the likely culprits behind the concentration and memory problems that sometimes follow one type of chemotherapy. In a previous study, the team used a technique to delete immune cells called microglia from the brains of mice that had received paclitaxel. The loss of those cells restored the chemo-treated animals' memory and also lowered inflammation in their brains. The team predicts that inflammatory cells in the rest of the body, known as the periphery, are sending signals that activate microglia to become pro-inflammatory in the brain, and those signals interact with cells in the blood-brain barrier – hinting at three potential areas to target. In the new study mice were given six cycles of paclitaxel injections or a placebo. Machine learning analysis showed that compared to mice that received a placebo, microglia in the brains of mice receiving chemo were producing more pro-inflammatory proteins and suppressing a protein important for cognition-related neuron health. ... This research was supported by the National Institutes of Health.
Ohio State News - Feb 28, 2023

Other IT Related

Sensor technology used in global study of hypoxia in rivers shows it is more prevalent than previously thought

...New research shows that hypoxia in rivers and streams is more prevalent across the globe than previously thought. Hypoxia occurs when oxygen levels in surface waters become depleted, which can be harmful to aquatic species and can increase production of greenhouse gases from rivers. The U.S. National Science Foundation-supported study compiles more than 118 million readings of dissolved oxygen and temperature taken from more than 125,000 locations in rivers across six continents and 93 countries. The study spans more than 100 years, from 1900 to 2018. Hypoxia was detected in rivers and streams in 53 countries, with 12.6% of all locations exhibiting at least one hypoxic measurement. It was thought that occurrences of hypoxia in rivers and streams were exceedingly rare. Having shown hypoxia in one of every eight river locations is a game-changer. The advances in measuring hypoxia over the past 15 years using field-deployable dissolved oxygen sensor technology that allows for constant monitoring has given researchers the tools to get a better handle on hypoxia. Previously, readings were taken manually using a handheld probe or by collecting water samples mostly during the day, when oxygen levels are naturally higher due to photosynthesis during daylight hours. The research showed a dramatic difference in results between older methods and newer technology...
National Science Foundation - Feb 28, 2023

NOAA Scientists Developing 3D Stereo Camera Technology to Support Sustainable Fisheries

...Collecting the biological and environmental information managers need to maintain productive, climate-resilient fisheries and coastal communities and healthy marine ecosystems is challenging because Alaska seas are vast, remote, and deep. NOAA's Alaska Fisheries Science Center is advancing the use of remote sensing technologies to meet that challenge. The center uses innovative tools including drones, remotely operated vehicles, eDNA analysis, and stereo camera systems to complement traditional ship surveys. These new tools increase sampling coverage while minimizing the environmental impact and cost of fisheries monitoring and research. Stereo camera imagery reconstructs a 3D environment. High-quality 3D stereo imagery enables scientists to count the number of animals per unit area. It lets them measure the size of animals and their height off the seafloor. The image quality is high enough to identify species. The idea behind the CamTrawl was to use cameras to observe fish going through an open-ended net—without catching them. As the NOAA scientists developed the camera system, they partnered with experts at the University of Washington to develop artificial intelligence to automate image processing. This saved an enormous amount of tedious human labor and cost. The stereo camera system is able to sample steep, rocky areas that nets cannot. These "untrawlable" areas are important habitats for rockfish and other bottom-dwelling species. The stereo camera played a key role in exploring and mapping deep-sea coral habitat on seamounts. The 3D imagery offers humans an experience that no other sampling technique can match...
Noaa Fisheries - Feb 22, 2023

NASA's Study Finds Venus' 'Squishy' Outer Shell May Be Resurfacing the Planet

...A study that uses three-decade-old data from NASA's Magellan mission has taken a new look at how Venus cools and found that thin regions of the planet's uppermost layer may provide an answer. Venus doesn't have tectonic plates, so how the planet loses its heat and what processes shape its surface have been long-running questions in planetary science. The study looks at the mystery using observations the Magellan spacecraft made in the early 1990s of quasi-circular geological features on Venus called coronae. Making new measurements of coronae visible in the Magellan images, the researchers concluded that coronae tend to be located where the planet's lithosphere is at its thinnest and most active. Recent studies suggest the youthful appearance of Venus' surface is likely due to volcanic activity, which drives regional resurfacing today. This finding is supported by the new research indicating higher heat flow in coronae regions – a state that Earth's lithosphere may have resembled in the past. NASA's forthcoming Venus Emissivity, Radio science, InSAR, Topography, And Spectroscopy (VERITAS) mission will pick up where Magellan left off, improving upon that mission's data, which is low resolution and comes with large margins of error. Targeting launch within a decade, the mission will use a state-of-the-art synthetic aperture radar to create 3D global maps and a near-infrared spectrometer to figure out what the surface is made of. VERITAS will also measure the planet's gravitational field to determine the structure of Venus' interior. The instruments will together fill in the story of the planet's past and present geologic processes...
National Aeronautics and Space Administration - Feb 23, 2023

STEM / Workforce & IT

PUBLIC LISTENING SESSIONS TO INFORM THE 2023-2028 FEDERAL STEM STRATEGIC PLAN

...The White House Office of Science and Technology Policy (OSTP) will host a series of virtual listening sessions to inform the development of the 2023- 2028 Federal Science, Technology, Engineering, and Mathematics (STEM) Strategic Plan. As part of a robust public engagement plan, OSTP encourages input from all interested parties, including students, teachers, administrators, parents, researchers, employers, and others to provide information and perspectives on the challenges faced by – and within – the STEM ecosystem in the United States and solutions that might be implemented by the U.S. Government. The six upcoming listening sessions will be as follows: (1) STEM Education: Support learners and educators in and across all science and technology disciplines. Wednesday, March 15, 2023 from 3pm-5pm ET | (2) STEM Workforce Development: Prepare and recruit our Nation's future STEM workforce. Friday, March 17, 2023 from 2pm-4pm ET | (3) STEM Workforce: Foster inclusive STEM learning and working spaces to retain STEM learners and workers. Monday, March 20, 2023 from 3pm-5pm ET | (4) STEM Engagement: Foster meaningful community and public engagement in science and technology. Wednesday, March 22, 2023 from 4pm-6pm ET | (5) STEM Research and Innovation Capacity: Build and drive capacity and cutting-edge STEM (and STEM education) research and development. Friday, March 24, 2023 from 2pm-4pm ET | (6) The National STEM Ecosystem Monday, March 27, 2023 from 6pm-8pm ET...
The White House - Mar 2, 2023

NIST BLOG: Best Practices for Weathering "Staffing Storms" (Part II)

...In the recent article "The Perfect Storm of Staffing Shortages" in the Winter 2022 edition of Arkansas Hospitals magazine, Kay Kendall discusses the "throes of a staffing storm" facing organizations today. She asks readers about staffing plans for their own organizations: "What's your plan? Do you know the specific underlying causes of your . . . staffing shortages?" Reading this inspired me to go to the application summaries of recent Baldrige Award recipients. As Baldrige is all about benchmarking, what can be shared about best practices in staffing? Do role-model organizations know if their workforce members are engaged enough to stay? And if not, why not? ... In the Criteria for Performance Excellence of the recently published 2023-2024 Baldrige Excellence Framework, the workforce category asks how your organization addresses workforce capability and capacity and provides a workplace climate to support high performance. The category also asks how your organization engages, manages, and develops your workforce to utilize its full potential...
National Institute of Standards and Technology - Feb 28, 2023

UToledo-Led NASA Project Enlists Student-Scientists to Fill Gaps in Global Climate Data

...Middle school students are collecting scientific data and asking research questions critical to the study of urban heat islands and climate change thanks to a NASA-funded STEM project led by The University of Toledo. Thousands of students in 6th, 7th and 8th grades across the U.S. and around the world upload their surface temperature measurements — asphalt, concrete, dirt and grass, in both sunlight and shade — to a database shared with climate scientists through NASA's GLOBE program. "Are the student observations accurate?" Dr. Kevin Czajkowski, professor of geography and planning in the UToledosaid said. "The answer is yes. We use National Weather Service observations to compare." Since his GLOBE Mission EARTH project began in 2015, GLOBE Mission EARTH has gone international — expanding to 42 countries with more than $24 million in funding and partners including NASA Langley Research Center. "The purpose of the program is for students to do their own science and be engaged," Czajkowski said. Armed with digital infrared surface thermometers and air quality sensors, the students are learning why communities need to plant more trees, among other things, to help cool down their neighborhoods. In the U.S. alone, approximately 5,000 K-12 students participate in the GLOBE Mission EARTH project each year at about 50 schools.
THE UNIVERSITY OF TOLEDO - Feb 22, 2023

3 Things K-12 Educators Should Know about the Ethics and Use of AI in Education

...Ongoing news stories about ChatGPT, an artificial intelligence chatbot developed by OpenAI and launched in November 2022, have many educators wondering about its implications in the classroom and the role of artificial intelligence in K-12 education. Shiyan Jiang, an assistant professor of learning, design and technology in the NC State College of Education, is engaged in research that involves empowering AI education in the K-12 setting. She is currently a co-principal investigator on the StoryQ project, which is exposing high school students to artificial intelligence through narrative modeling. The StoryQ project, which began three years ago with funding from the National Science Foundation, includes a curriculum that can be integrated into middle and high school English language arts (ELA), history, chemistry, computer science and math classrooms. Jiang shares three things K-12 teachers should know about the use and ethics of artificial intelligence in a classroom setting...
College of Education | NC State University - Feb 27, 2023

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 - Jan 31, 2023

AI Researchers Portal

...Our Nation’s AI innovation begins with the inspirational ideas of researchers from all across the country. To make it easier for researchers to locate and explore the many Federal resources and funding programs available to support and investigate novel ideas in AI, the National AI Initiative Office, in partnership with Federal departments and agencies and the Networking and Information Technology Research and Development coordination office, established an AI Researchers Portal. This portal connects AI researchers to Federal resources that can support their research, including data, computing, and testbeds, as well as AI-relevant grant funding programs. It also provides searchable repositories of approximately 140 current Federal grant programs relevant to AI, and around 40 Federally-funded testbed resources, in addition to a wide variety of data and computing resources useful for AI research...
National Artificial Intelligence Initiative - Feb 28, 2023

Federal Register | Request for Information (RFI)

Request for Information; Digital Assets Research and Development: DEADLINE MAR 3rd!

...The White House Office of Science and Technology Policy (OSTP)—on behalf of the Fast Track Action Committee (FTAC) on Digital Assets Research and Development of the Subcommittee on Networking and Information Technology Research and Development (NITRD) of the National Science and Technology Council, the National Science Foundation, and the NITRD National Coordination Office—requests public comments to help identify priorities for research and development related to digital assets, including various underlying technologies such as blockchain, distributed ledgers, decentralized finance, smart contracts, and related issues such as cybersecurity and privacy, programmability, and sustainability as they relate to digital assets. Interested individuals and organizations are invited to submit comments on or before 5 p.m. ET on March 3, 2023...
The Networking and Information Technology Research and Development (NITRD) Program - Jan 26, 2023

Request for Information on the 2023 Federal Cybersecurity Research and Development Strategic Plan: DEADLINE EXTENDED!

...The NITRD NCO seeks public input for the 2023 update of the Federal cybersecurity R&D strategic plan. The updated plan will be used to guide and coordinate federally funded research in cybersecurity, including cybersecurity education and workforce development, and the development of consensus-based standards and best practices in cybersecurity. The deadline is extended from March 3, 2023 to 11:59 p.m. (ET) on March 14, 2023.
Federal Register - Feb 28, 2023

Dear Colleague Letter: Request for Information on Future Directions for the NSF Secure and Trustworthy Cyberspace Program

...For over a decade, the National Science Foundation's Secure and Trustworthy Cyberspace (SaTC) program has been NSF's flagship cybersecurity and privacy research program, supporting approximately $1 billion in research across nearly 3,000 projects. Over that time, SaTC has expanded and evolved. Through this Dear Colleague Letter (DCL), NSF is providing the community a direct opportunity to offer input on potential novel and far-reaching topic ideas, grand research challenges, and unexplored opportunities for SaTC and/or future programs in FY 2024 and beyond. The goal of this DCL is to identify a broad range of important research topic areas that the community thinks are currently under-served by or should be part of a cybersecurity and privacy program, including topics that may have currently been considered outside the scope of SaTC. In addition, the DCL seeks to identify areas currently in scope of the program that have matured to a sufficient extent that they should be sun-setted. Responses to this DCL must be submitted by March 24, 2023.
National Science Foundation - Mar 1, 2023

Request for Comments Regarding Artificial Intelligence and Inventorship

...The United States Patent and Trademark Office (USPTO) plays an important role in incentivizing and protecting innovation, including innovation enabled by artificial intelligence (AI), to ensure continued U.S. leadership in AI and other emerging technologies (ET). In June 2022, the USPTO announced the formation of the AI/ET Partnership, which provides an opportunity to bring stakeholders together through a series of engagements to share ideas, feedback, experiences, and insights on the intersection of intellectual property and AI/ET. To build on the AI/ET Partnership efforts, the USPTO is seeking stakeholder input on the current state of AI technologies and inventorship issues that may arise in view of the advancement of such technologies, especially as AI plays a greater role in the innovation process. Comments, in general, and responses to the questions identified in section IV must be received by May 15, 2023 to ensure consideration...
Federal Register - Feb 14, 2023

Upcoming Conferences / Workshops / Webinars

White House Forum on Campus and Community Scale Climate Change Solutions

...On March 8, 2023, the White House Office of Science and Technology Policy (OSTP) and the University of Washington (UW) will convene U.S. Government officials with climate, sustainability, and resilience leaders and educators from colleges and universities across the country for a virtual forum. These stakeholders will showcase how innovative ideas and actions can advance climate change efforts on college campuses while benefitting the surrounding communities and beyond...
The White House - Mar 2, 2023

Note: Any mention in the text of commercial, non-profit, academic partners, or their products, or references is for information only; it does not imply endorsement or recommendation by any U.S. Government agency.