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!

WOMEN'S HISTORY MONTH: Women in STEM & IT

Fact Sheet: Vice President Harris Launches Global Initiatives on the Economic Empowerment of Women, Totaling over $1 Billion

...Advancing the economic status of women and girls is not only a matter of human rights, justice, and fairness—it is also a strategic imperative that reduces poverty and promotes sustainable economic growth, increases access to education, improves health outcomes, advances political stability, and fosters democracy. The digital gender gap undermines women's full participation in the 21st century economy. Globally, approximately 260 million more men than women were using the internet in 2022—and this gap has increased by 20 million in the last three years. To address this disparity, the Biden-Harris Administration will continue to work with other governments, private sector, foundations, and multilateral organizations to help close the digital divide, improve meaningful access to equitable digital finance and other online services, and address social norms that prevent women from participating fully in the digital economy...

The White House - Mar 29, 2023

FACT SHEET: President Biden Announces New Resources to Support Women Small Businesses Owners, Continued Commitment to Supporting America's Entrepreneurs

...During the Small Business Administration's (SBA) second annual Women's Business Summit, President Biden will announce new resources to support women small business owners, and he will reaffirm the Biden-Harris Administration's continued commitment to supporting all of America's small businesses. The President will announce that SBA will expand the Women Business Centers network, bringing the total to 160 centers across the country that assist women entrepreneurs through training, mentoring, business development, and financing opportunities. During Women's History Month, we celebrate the entrepreneurial spirit of women and women-owned and operated businesses: * Women own 12 million businesses in America, employing more than 10 million workers. * They continue to trailblaze across industries every day, starting nearly half of all new businesses in the United States in 2021. * Last year, annual earnings for women owned businesses increased by almost 30%, with women-owned businesses in the manufacturing sector experiencing a 35% increase...
The White House - Mar 27, 2023

Deputy Administrator Isobel Coleman Delivers Remarks at the "The Status of Women is the Status of Democracy" Event

...Women's empowerment is not simply an outcome of democratization but a precursor to it – and through the implementation of the Women, Peace, and Security Act and the U.S. Strategy on Women, Peace, and Security, the United States recognizes the critical but difficult task of putting gender equality and women's empowerment at the core of our democratization, human rights, governance, and peace and security agendas. We are elevating the Advancing Women's and Girls' Civic and Political Leadership Initiative as a core U.S. government commitment toward achieving the Summit for Democracy objectives to bolster democracy and defend human rights globally. USAID has made significant progress during the Year of Action to fulfill this commitment and we continue to target individual, structural, and socio-cultural barriers to the political empowerment of women and girls. Our "ecosystem approach" aims to improve the environment for women's civic and political participation and leadership, while we simultaneously work to build the pipeline of women who are willing and ready to lead. Working alongside our local and international partners, USAID will provide more than $15 million dollars to launch this initiative and improve the environment for women's leadership in eight initial focus countries: Côte d'Ivoire, Nigeria, Tanzania, Colombia, Ecuador, Honduras, Kyrgyz Republic, and Yemen. We know, however, that the barriers to women's leadership are much larger than what one donor can achieve alone. So we are seeking to leverage the efforts of other key partners as well...
United States Agency for International Development - Mar 28, 2023

Women hold top leadership positions supporting ONI's STEM Center for the first time in command's history

...For the first time in the Office of Naval Intelligence's (ONI) 141-year history, women now hold the top leadership positions supporting its Farragut Technical Analysis Center, the U.S. Navy's Center of Excellence for strategic scientific and technical intelligence analysis. Capt. Ruth Lane is the commanding officer of Farragut, Wendy Wenzlick is its executive director and Cristin Rider-Riojas is the chief scientist of the Naval Intelligence Enterprise, serving as a senior advisor to Farragut and mission manager for ONI. All three have Science, Technology, Engineering and Mathematics (STEM) degrees and, together, the women share 64 years of experience in STEM fields...
Department of the Navy Chief Information Officer - Mar 22, 2023

Celebrating Women's History Month: NASA's Female Space Station Crew Members

...For Women's History Month, NASA and the International Space Station celebrate women conducting science aboard the orbiting lab. Women were integral in building the space station and have lived and worked aboard the microgravity laboratory since its completion, conducting scientific research for the benefit of humanity. Here are highlights from some of the scientific investigations conducted by female astronauts on the space station: * The first indigenous woman from NASA to go to space, launching Oct. 5, 2022, Nicole Aunapu Mann served as commander of NASA's SpaceX Crew-5 mission for the Commercial Crew Program (CCP). Mann is registered with the Wailacki of the Round Valley Indian Tribes. She holds bachelor's and master's degrees in mechanical engineering from the U.S. Naval Academy and Stanford University, respectively. * NASA astronaut Jessica Watkins launched to the space station in April 2022 as part of NASA's SpaceX Crew-4 CCP mission. Watkins earned a degree in geological and environmental sciences from Stanford University and a doctorate in geology from the University of California, Los Angeles. She conducted graduate research on the mechanisms of large landslides on Mars and Earth. * Megan McArthur holds a bachelor's degree in aerospace engineering from the University of California, Los Angeles, and a doctorate in oceanography from the University of California, San Diego, where she conducted research at the Scripps Institution of Oceanography. She operated the robotic arm during space shuttle mission STS-125...
National Aeronautics and Space Administration - Mar 28, 2023

NUWC Division Newport engineer, financial analyst work to create an inclusive environment for women

...Strong guidance from women leaders has played an important role for Megan Driggers and Jaime Fastino in their careers at the Naval Undersea Warfare Center (NUWC) Division Newport. When Driggers, who is an engineer in the Devices, Sensors and Materials Research and Development Branch of the Sensors and Sonar Systems Department, began working at Division Newport in June 2022, she was inspired by the passion of Dr. Lynn Antonelli, who is the technical program manager of the Lasers, Sensors and Systems Program. Driggers, who is now Antonelli's deputy technical program manager said, "She has mentored me to continue working down that path. Seeing how passionate she is about her research and what she does, and helping her to lift it up and make a difference in the S&T community, has been amazing." It has been a similar experience for Fastino, who is a financial analyst in the Business Operations Office of the Undersea Warfare Combat Systems Department...
Navy.mil - Mar 24, 2023

Federal Agency Funding Opportunities

NSA: Science of Security BAA for Virtual Institutes

...The National Security Agency on March 1 released a Broad Agency Announcement (BAA), which calls for research project proposals. These research projects are for foundational cybersecurity research. Additional details on the requirements and interesting research questions can be found in the BAA document. The title of the BAA is Science of Security Virtual Institutes and the deadline to submit is April 14, 2023. The BAA number is MASMPO-23-001 or RFI-23-00212.
cps-vo.org - Mar 28, 2023

NSF: Building the Prototype Open Knowledge Network (Proto-OKN)

...This program supports the creation of a prototype Open Knowledge Network — an interconnected network of knowledge graphs supporting a very broad range of application domains. Open access to shared information is essential for the development and evolution of artificial intelligence (AI) and AI-powered solutions needed to address the complex challenges facing the nation and the world. Knowledge graphs, which represent relationships among real-world entities, provide a powerful approach for organizing, representing, integrating, reusing, and accessing data from multiple structured and unstructured sources using ontologies and ontology alignment. Projects funded by this program will provide an essential public-data infrastructure to power the next information revolution similar to the Internet — transforming our ability to unlock actionable insights from data by semantically linking information about related entities. Deadline for Full proposal is June 20 2023
National Science Foundation - Mar 21, 2023

Artificial Intelligence / Machine Learning

NSF/NASA/NIH/NIJ/NOAA/USGS launch Proto-OKN: A program to build an integrated data and knowledge infrastructure

...An open knowledge network is a publicly accessible, interconnected set of data repositories and associated knowledge graphs that will enable data-driven, artificial intelligence-based solutions for a broad set of societal challenges. In collaboration with five other U.S. government agencies, the U.S. National Science Foundation today launched the Building the Prototype Open Knowledge Network, or Proto-OKN, funding opportunity, a $20 million initiative that will build a prototype version of an integrated data and knowledge infrastructure called an open knowledge network. The National Aeronautics and Space Administration, National Institutes of Health, National Institute of Justice, National Oceanic and Atmospheric Administration, and the U.S. Geological Survey will support the program by working closely with NSF and awardees to ensure that the Proto-OKN supports each agency's data strategy while addressing use case challenges associated with agency data. NSF will fund projects to prototype scalable, cloud-based technical infrastructure to address challenges across healthcare, space, criminal justice, climate change and many other fields. The Proto-OKN initiative follows investments through the NSF's Convergence Accelerator Track A: Open Knowledge Networks, as well as a yearlong Open Knowledge Network Innovation Sprint conducted by NSF and the White House Office of Science and Technology Policy in 2022...
National Science Foundation - Mar 24, 2023

Robotics / Autonomous Vehicles

NSF/DOT-funded researchers leverage AI to accelerate driverless vehicle testing

...Prevailing approaches usually test autonomous vehicles (AVs) through a combination of software simulation, closed-track tests and on-road testing. Validating the safety performance of AVs at the level of human drivers will take hundreds of millions of miles of testing. A University of Michigan vehicle testing facility powered by the U.S. National Science Foundation and U.S. Department of Transportation-funded Center for Connected and Automated Transportation, or CCAT — offers insight about solving this problem by using artificial intelligence to train vehicles. The approach could reduce the amount of testing miles required by 99.99%. The researchers developed a new approach for AI that uses reinforcement learning with neural networks. The idea is to identify and remove non-safety-critical data and train neural networks for AVs using only the small portion of the data that is safety-critical. This can dramatically reduce variances in the data and enable neural networks to learn and achieve tasks. Researchers mainly focused on two layers: moving objects and road geometry. But the approach could be extended to include parameters from other layers, such as weather conditions. The results showed

evidence that using newly developed "deep dense reinforcement learning" can accelerate the testing process for AVs both in simulation testing and on test tracks. The approach can be applied to complex driving environments...
National Science Foundation - Mar 24, 2023

NASA’s Dragonfly Team Soars through Major Design Review

...Before it can fly its revolutionary rotorcraft over the organic dunes of Saturn’s moon Titan, NASA’s Dragonfly mission team needs to navigate a series of independent reviews to demonstrate the flight project is on track. Dragonfly centers on a game-changing approach to planetary exploration, employing a rotorcraft-lander to travel between and sample diverse sites on this mysterious world. Dragonfly will characterize the habitability of Titan's environment, investigate the progression of prebiotic chemistry in an environment where carbon-rich material and liquid water may have mixed for an extended period, and even search for chemical indications of whether water-based or hydrocarbon-based life once existed on Titan...
National Aeronautics and Space Administration - Mar 24, 2023

Cybersecurity / Privacy

FACT SHEET: President Biden Signs Executive Order to Prohibit U.S. Government Use of Commercial Spyware that Poses Risks to National Security

...Commercial spyware – sophisticated and invasive cyber surveillance tools sold by vendors to access electronic devices remotely, extract their content, and manipulate their components, all without the knowledge or consent of the devices’ users – has proliferated in recent years with few controls and high risk of abuse. A growing number of foreign governments around the world, moreover, have deployed this technology to facilitate repression and enable human rights abuses, including to intimidate political opponents and curb dissent, limit freedom of expression, and monitor and target activists and journalists. The Biden-Harris Administration has mobilized a government-wide effort to counter the risks posed by commercial spyware. This Executive Order will serve as a cornerstone U.S. initiative during the second Summit for Democracy on March 29-30, 2023. The Executive Order seeks to ensure that any U.S. Government use of commercial spyware aligns with the United States’ core national security and foreign policy interests in upholding and advancing democratic processes and institutions, and respect for human rights; does not contribute, directly or indirectly, to the proliferation and misuse of commercial spyware; and helps protect U.S. Government personnel and U.S. Government information systems and intelligence and law enforcement activities against significant counterintelligence or security risks...
The White House - Mar 27, 2023

PreventionResourceFinder.gov Launches to Provide Easier Access to Resources to Prevent Targeted Violence and Terrorism

...The Department of Homeland Security (DHS) and its federal partners launched PreventionResourceFinder.gov, a new website that will help prevent targeted violence and terrorism by giving the public easier access to available grants, research, training opportunities, and other resources across 17 federal agencies. PreventionResourceFinder.gov builds upon the Biden-Harris Administration’s National Strategy for Countering Domestic Terrorism. Nearly 100 federal resources are featured on PreventionResourceFinder.gov at initial launch...
Homeland Security - Mar 23, 2023

DOD Increases Efforts to Bring Small Businesses Into Defense Industrial Base

...While the DoD exceeded its goals last year for small, disadvantaged businesses and service-disabled veteran-owned small businesses, the total number of small businesses in the defense industrial base has declined over the last decade. To respond to this, the department is working to strengthen our small business supply chains, increase competition and attract new entrants. DOD has several programs, among those are the Mentor-Protege Program, the Rapid Innovation Fund Program, the APEX Accelerators and the Indian Incentive Program. Within the Mentor-Protege Program mentor firms provide assistance in a range of areas, including internal business management systems, engineering support and manufacturing support. The department also currently funds 96 APEX Accelerators across the United States, which help small businesses learn how to work with the federal government. The accelerators were previously branded Procurement Technical Assistance Centers, but their new incarnation — with an expanded mission set — will also do things like train small businesses on the cybersecurity requirements necessary to work today with the Defense Department. DOD's Project Spectrum Platform provides small businesses with both the knowledge and tools necessary to protect the nation's most critical assets in cyberspace...
U.S. Department of Defense - Mar 24, 2023

Show Us the Proof: Formal Methods Can Be Applied at Large Scale

...Mathematically rigorous techniques, known as formal methods, have shown great promise to prove and provide continuous evidence of correctness for software systems. For example, DARPA's High Assurance Cyber Military Systems (HACMS) program demonstrated how these techniques could effectively secure Department of Defense (DOD) military systems. Through a nascent discipline known as proof engineering, DARPA seeks to create higher levels of assurance that will help critical DOD software systems remain free of certain classes of defects and vulnerabilities. DARPA's Pipelined Reasoning of Verifiers Enabling Robust Systems (PROVERS) program will develop formal methods tools to guide software engineers through designing proof-friendly software systems and reduce the proof repair workload. Ultimately, PROVERS aims to provide a pathway for national security systems to get ahead of cybersecurity threats, enabling high-assurance systems engineering and producing cyber-hardened, resilient systems and supporting infrastructure with verifiable security properties. A Proposers Day is scheduled for April 6, 2023...
DARPA - Mar 27, 2023

5G, Wireless Spectrum, Networking & Communications

Joint NASA, CNES Water-Tracking Satellite Reveals First Stunning Views

...The international Surface Water and Ocean Topography (SWOT) mission – led by NASA and the French space agency Centre National d'Études Spatiales (CNES) – has sent back some of its first glimpses of water on the planet's surface, showing ocean currents like the Gulf Stream in unprecedented detail. SWOT is also capturing views of freshwater features such as lakes, rivers, and other water bodies down to about 300 feet (100 meters) wide. The satellite will measure the elevation of nearly all the water on Earth's surface and provide one of the most comprehensive surveys yet of our planet's surface water. SWOT's measurements of freshwater bodies and the ocean will provide insights into how the ocean influences climate change and the water cycle. The spatial resolution of SWOT ocean measurements is 10 times greater than the composite of sea surface height data gathered over the same area by seven other satellites. The data for these first images was collected by SWOT's KaRIn instrument, the scientific heart of the satellite. KaRIn has one antenna at each end of a boom that's 33 feet (10 meters) long. This enables the instrument to look off to either side of a center line directly below the satellite as it bounces microwave signals off Earth's surface. The returning radar signals arrive at each antenna slightly out of sync, or phase, from one another. When these signals are combined with other information about the antennas and the satellite's altitude, scientists will be able to map the height of water on Earth's surface with never-before-seen clarity...
National Aeronautics and Space Administration - Mar 24, 2023

Channeling NEXTGEN TV so Responders Can Answer the Call

...DHS's Science and Technology Directorate is collaborating on a new effort to arm agencies with a digital alerting system that taps into NEXTGEN public TV broadcasting technologies to deliver emergency dispatches faster. Thanks to a Small Business Innovation Research program award, S&T has joined forces with wireless technology engineering firm Device Solutions Inc., the Wireless Research Center of North Carolina, PBS North Carolina, Triveni Digital, and additional government and private stakeholders to prototype an extensible, end-to-end emergency digital paging solution that utilizes public television broadcasting technology (ATSC 3.0) to transmit emergency data to first responders across the state of North Carolina. For this initiative, S&T and Device Solutions Inc developed and deployed a custom, portable, ATSC 3.0 receiver with first responders to demonstrate and verify that it could deliver critical emergency data and improve situational awareness. Once implemented in the field, this technology will serve as a flexible tool that can be readily adapted to a variety of datacasting applications and types of media...
Homeland Security - Mar 23, 2023

USCG/NOAA/USAID/U.S. Navy Experts Use Various Tech to Assist in Oil Spill Response

...Experts from the United States government arrived in Pola, Oriental Mindoro today to support the oil spill response operations of the Philippine Coast Guard (PCG). The USCG National Strike Force will provide subject matter expertise and assess the affected areas to determine the most effective method and equipment to contain and clean up the oil spill from the sunken tanker MT Princess Empress. A U.S. expert team composed of personnel from the USCG and NOAA are providing technical support to assess the damage. Through funding from USAID, two members from NOAA will work closely with the Philippines Department of Environment and Natural Resources to conduct rapid environmental assessments of affected areas. NOAA has provided the PCG with satellite imagery to boost assessment efforts. It also provided the University of the Philippines-Marine Sciences Institute with support for scientific modeling to estimate the trajectory of the spill. A member of U.S. Navy Supervisor of Salvage and Diving will evaluate the technical parameters required to support the possible deployment of a remotely operated vehicle...
United States Pacific Command - Mar 21, 2023

Advanced Manufacturing

By Cracking a Metal 3D-Printing Conundrum, Researchers Propel the Technology Toward Widespread Application

...Researchers have not yet gotten the additive manufacturing, or 3D printing, of metals down to a science completely. Gaps in our understanding of what happens within metal during the process have made results inconsistent. But a new breakthrough could grant an unprecedented level of mastery over metal 3D printing. Using two different particle accelerator facilities, researchers at the National Institute of Standards and Technology (NIST), KTH Royal Institute of Technology in Sweden and other institutions have peered into the internal structure of steel as it was melted and then solidified during 3D printing. A common approach for printing metal pieces involves essentially welding pools of powdered metal with lasers, layer by layer, into a desired shape. During the first steps of printing with a metal alloy, wherein the material rapidly heats up and cools off, its atoms — which can be a smattering of different elements — pack into ordered, crystalline formations. The crystals determine the properties, such as toughness and corrosion resistance, of the printed part. To capture the high-speed phenomenon, researchers employed powerful X-rays generated by cyclic particle accelerators, called synchrotrons, at Argonne National Laboratory's Advanced Photon Source and the Paul Scherrer Institute's Swiss Light Source. Within the synchrotrons, the researchers set up additive manufacturing conditions for hot-work tool steel — a kind of metal used to make, as the name suggests, tools that can withstand high temperatures. ... If we have data, we can use it to validate the models. That's how you accelerate the widespread adoption of additive manufacturing for industrial use.
National Institute of Standards and Technology - Mar 20, 2023

Climate Change / Green Energy & IT

Biden Clean Energy Plan Update: March 2023

...Watch the Biden Energy Monthly Update and follow along here for additional details. The Department of Energy kicked off 2023 by announcing the nation's first-ever U.S. National Blueprint for Transportation Decarbonization—a landmark strategy for cutting all greenhouse emissions from the transportation sector by 2050. A clean transportation sector is not possible without electric vehicles (EV). In January 2023, DOE announced $42 million in funding for projects that will be selected for the Electric Vehicles for American Low-Carbon Living (EVs4ALL) program. Under the Biden-Harris Administration, over $90 billion and $5 billion have been announced for U.S. battery and solar manufacturing, respectively. Puerto Rico aims to achieve 100% renewable energy by 2050 and the Biden Administration is committed to improving the island's energy system. The Department of Energy and the Federal Emergency Management Agency released a one-year progress report for the Puerto Rico Grid Resilience and Transition to 100% Renewable (PR100) Study. The study seeks to inform infrastructure investments and create community-driven pathways to meet Puerto Rico's clean energy goals...
Department of Energy - Mar 27, 2023

DOE & ComEd report shows how science and supercomputers help utilities adapt to climate change

...ComEd and the U.S. Department of Energy's Argonne National Laboratory's Center for Climate Resilience and Decision Science released a new report that shows northern Illinois at mid-century will be warmer and more humid overall, with longer shoulder and growing seasons. Argonne's advanced climate modeling uses supercomputers to dynamically downscale global models. The resulting models show they can focus on climate affecting a much smaller area, such as a city. Argonne's next climate models will approach the size of a large urban neighborhood or small rural town...
Argonne National Laboratory - Mar 27, 2023

Digital Health

NSF-funded superhydrophobic biosensor could measure sweat vapors on the body

...Sweat contains biomarkers that help doctors make health diagnoses. Wearable sensors can be used to monitor a person's perspiration rate and provide information about the skin, nervous system activity and underlying health conditions. A NSF-funded sweat biosensor forms the basis for revolutionizing the noninvasive capability for real-time continuous and rapid monitoring of sweat with high sensitivity for smart health care and personalized medicine. Insensible, or vapor, perspiration is the loss of only water from the skin, secreted at a much smaller rate during low-intensity exercise or rest, and measuring it is difficult. Monitoring insensible sweat is of high interest for evaluating skin health and disease conditions, such as eczema and wound healing, as well as underlying health statuses. Researchers developed a prototype of a superhydrophobic sweat sensor to measure vapor from insensible perspiration. The material — a superabsorbent hydrogel composite on a porous substrate sandwiched between two superhydrophobic textile layers — allows the permeation of sweat vapor while preventing the sensor from being affected by the external water droplets of sensible perspiration. The sensor could be integrated with a flexible wireless communication and powering module that continuously monitors sweat rates at different body locations...
National Science Foundation - Mar 27, 2023

NNSA helps global health industry achieve major nuclear nonproliferation milestone

...The U.S. Department of Energy's National Nuclear Security Administration (NNSA) reached a major nonproliferation milestone this week as it helped Belgium's National Institute of Radioelements (IRE) convert their medical isotope production facility to use irradiated low-enriched uranium (LEU), instead of proliferation-sensitive highly enriched uranium (HEU). As a result, all major global molybdenum-99 (Mo-99) production facilities now use LEU. Mo-99's decay product, technetium-99m (Tc-99m), is used in over 40,000 medical procedures in the United States each day, including for the diagnosis of heart disease and cancer. The progress made in converting global Mo-99 producers to LEU enabled the U.S. Secretaries of Energy and Health and Human Services to jointly certify in December 2021 that there is a sufficient global supply of Mo-99 produced without the use of HEU to meet the needs of U.S. patients...
Department of Energy - Mar 28, 2023

APS Upgrade to enhance "molecular movies" to understand certain types of antibiotic resistance

...A new upgrade to one of the world's most powerful hard X-ray light sources could improve the way molecular movies are made. These could reveal hidden secrets of different chemicals, potentially paving the way for new treatments and pharmaceuticals. Researchers at the U.S. Department of Energy's (DOE) Argonne National Laboratory have used and expanded a new method called serial crystallography, developed previously at X-ray free-electron laser facilities. Combining serial crystallography with observations over short time scales (from a tenth to a hundredth of a second) allows scientists to detect real-time changes in the shape of proteins and bound molecules during chemical reactions. Researchers at the University of Chicago used serial crystallography to examine the reaction of an antibiotic drug and an enzyme isolated from a drug-resistant pathogen. The advantage of doing serial crystallography is that it allows scientists to observe changes in the protein's structure as they happen. In the case of an enzyme, it also gives scientists the ability to look at how the enzyme's active site interacts with another molecule, or substrate...
Argonne National Laboratory - Mar 27, 2023

NIH-Funded Air Flow Research Could Reduce Disease, Contamination Spread

...A Texas A&M AgriLife Research scientist is studying how heating, ventilation and air conditioning, HVAC, system configurations and building designs could mitigate the spread of microorganisms, including viruses, that are detrimental to human health. Dr. Maria King received a $400,000, two-year National Institutes of Health grant to study the aerial paths of pathogens in health care facilities. Researchers will use air flow modeling and simulations to visually pattern how pathogens can move within a space based on the various factors. The goal is to help develop and implement interdisciplinary ventilation strategies and guidelines within design, management and monitoring of diseases in healthcare facilities and that can be applied to other built environments. The team seeks to learn how factors such as temperature, humidity and air velocity transport droplets of various sizes through spaces with varying configurations, dimensions, surface characteristics and other features. Previously, King studied air flow within a meat processing plant with modeling simulations to show how barriers, much like the clear plastic shields at check-out counters in grocery stores, might impact pathogen spread between people working near each other along a processing line. The modeling showed the barriers affected the airflow but that additional shielding above each worker would measurably improve protection...
Texas A&M Today - Mar 24, 2023

Other IT Related

FACT SHEET: Strengthening the United States-Canada Partnership

...The United States and Canada are powering private sector investment to promote inclusive economic growth and create good paying jobs. * Last year, the United States announced $250 million in Defense Production Act (DPA) funding for U.S. and Canadian companies to mine and process critical minerals for electric vehicle and stationary storage batteries. Awards to U.S. and Canadian companies will be announced this spring. * Both countries will advance a cross-border semiconductor packaging corridor, beginning with Canada and IBM providing significant incentives as part of a memorandum of understanding to develop new and expanded packaging and testing capabilities at its Bromont facility. * The United States also announced $50 million of DPA funding for U.S. and Canadian companies to further strengthen advanced packaging of semiconductors and printed circuit boards in North America. ... Our countries will grow the clean energy economy by lifting up bold legislation like the U.S. Inflation Reduction Act to accelerate the clean energy transition and make North America a clean energy powerhouse. * The United States and Canada will work towards collaboration on the U.S. Department of Energy's Energy Earthshot™, which are decadal performance targets for critical technology areas. * The United States and Canada committed to work in close partnership with Arctic Indigenous Peoples and will use Indigenous Knowledge as an integral part of the decision-making processes wherever possible. The two countries recognized the need to reduce localized emissions of carbon dioxide, methane, and black carbon in the Arctic to complement our global mitigation efforts. The two countries also committed to conserving and protecting Arctic biodiversity, ecosystems, habitats, and wildlife, and will collaborate to prepare for, prevent, and respond to oil spills and other environmental disasters in the Arctic...
The White House - Mar 24, 2023

Science, Technology Inform DOD Budget Request

...The Defense Department's National Defense Science and Technology Strategy (NDSTS) lays out three lines of effort to help the department ensure the U.S. maintains its advantage. That includes: (1) A focus on the joint mission; (2) The creation and fielding of capabilities at speed and scale; and (3) The creation of an enduring advantage, which involves the cultivation of talent, the strengthening of infrastructure, the pursuit of basic research, and an increase in collaboration with U.S. partners and allies. Last year, DoD identified 14 areas of technology the Department will emphasize. Those technologies include things such as biotechnology, trusted artificial intelligence and renewable energy generation and storage. The FY 2024 budget makes investments in each of those technology areas...
U.S. Department of Defense - Mar 24, 2023

National Security Agency/Central Security Service: Research Overview

...NSA advances U.S. intelligence and national security capabilities by inventing, developing and applying advancements in science and emerging technologies to our signals intelligence (SIGINT) and cybersecurity missions. NSA engages with leading industries, universities, and national laboratories to both advance core competencies and leverage work in overlapping disciplines. NSA recruits exceptional scientists with world-class skills in fields related to the emerging technologies it explores, and we are also the IC's patent leader. NSA Research efforts focus on five areas...
National Security Agency - Mar 28, 2023

NASA-funded researchers use open-source web tool and uncovers unprecedented declines in iconic kelp forests along Monterey Peninsula, with glimmers of hope in Oregon and Mexico

...A new study provides novel documentation of kelp forest decline along the west coast of the U.S. and Mexico in response to the 2014–2016 record-breaking marine heatwave, along with evidence of regional recovery. The study, a collaboration between The Nature Conservancy, Woods Hole Oceanographic Institution, and the University of California Los Angeles, documents an unprecedented and sustained decline in canopy-forming kelps along the Monterey Peninsula, as well as reasons for hope with recovery in other regions such as Rogue Reef in Oregon and Bahía Tortugas in Mexico. Using Kelpwatch.org, an open-source web tool used to visualize and analyze nearly 40 years of kelp canopy dynamics data derived from satellite imagery, the study uncovers a north-to-south pattern in kelp decline and recovery from the marine heatwave. The team created Kelpwatch.org to advance state-of-the-art kelp forest monitoring and this study demonstrates how this tool can be used to track near-real-time changes in kelp forest canopy and proactively identify regions experiencing sustained declines fit for management action Funded by a multi-year grant from NASA's Ocean Biology and Biochemistry program, the team is expanding Kelpwatch.org to new, global geographies where kelp forests are found...
The Woods Hole Oceanographic Institution - Mar 23, 2023

Syracuse Researchers Create a Global Occupant Behavior Database for ASHRAE

...There's a new publicly accessible website from American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), ashraeobdatabase.com, that informs educators and practitioners like designers and energy modelers how people all over the world use buildings. SyracuseCoE Associate Director and Mechanical and Aerospace Engineering Professor Bing Dong and several students have compiled research from 15 countries on how building occupants behave – more specifically, how they interact with building systems like windows, doors, light switches, thermostats and fans. The United States Green Building Council (USGBC) and ASHRAE have developed standards and guidelines to support sustainably upgrading building design and construction practices. Out of these efforts, processes like LEED Certification have been launched to promote energy-efficient buildings. Over 500 papers have been published but it is hard to find actionable conclusions for making buildings more efficient with so many variables. The ASHRAE Global Occupant Behavior Database was built with inputs from 51 contributors, in 15 countries, from 39 institutions. Users can obtain information about different behavior types, cities, countries and building types from 10 different climate zones...
Syracuse University News - Mar 24, 2023

STEM / Workforce & IT

What Indiana Can Teach the Nation About Workforce Development

...The cutting-edge partnerships, programs and collaborations have resulted in Indiana leading the nation in developing new and better manufacturing workers. Indiana has long focused on connecting workers to manufacturing careers. Leaders in this field are experiencing the many forces now changing the landscape of manufacturing as we know it. These include technology, trade conditions and the evolving skills needed to succeed. The Modern Apprenticeship Program (MAP) is a new partnership between Ascend Indiana, a talent initiative that connects people to careers through a network, services and insights, and Employ Indy, the regional workforce board. MAP matches high school talent with careers in technology, financial services, health care and advanced manufacturing. Indiana's MEP Center, Purdue MEP, offers a range of talent attraction and development resources. These serve targeted populations like new and incumbent workers, mid- to senior-level leaders, individuals with limited access to transportation, and justice-involved citizens returning to the workforce. Purdue MEP's Manufacturing Skills for Success is a 10-day bootcamp-style program provides individuals from a wide array

of backgrounds with basic manufacturing skills to fill immediate, entry-level needs of the manufacturing sector. The key to success is understanding the variety of barriers that talented, committed individuals seeking careers face.
National Institute of Standards and Technology - Mar 28, 2023

NASA Helps Fund Minority Institutions Preparing Students for College

...High school students from traditionally underrepresented and underserved communities will have a path to pursue careers in STEM with help from NASA. The agency announced Monday it has selected seven Historically Black Colleges and Universities (HBCUs) and one Predominantly Black Institution (PBI) to receive more than $3 million in funding to strengthen their support for students in those communities in precollege summer programs around the nation. MUREP Precollege Summer Institute (PSIs) uses evidence-based strategies to enhance high school students' precollege performance, prepare them for college entrance, and ultimately help them achieve success in their higher education pursuits and in science, technology, engineering, and math careers. The selected institutions and their proposed projects under NASA's MUREP (Minority University Research and Education Project) are...
National Aeronautics and Space Administration - Mar 27, 2023

PHIT Students Put Their Informatics Education to Use

...The University of California, Irvine (UCI) is one of 10 ONC Public Health Informatics & Technology (PHIT) Workforce Development Program awardees across the nation that are recruiting and training the next generation of diverse public health professionals in informatics and technology skills. With a goal of graduating 300 students/trainees of diverse backgrounds over the next four years, the PHIT Program at UCI aims to modernize the nation's public health information infrastructure and address the issue of health disparities and inequities...
Health IT - Mar 27, 2023

NSF Grant Promotes Artificial Intelligence to Enhance Learning in the Architecture Classroom

...George Washington University was awarded $3 million from the National Science Foundation Research Traineeship program to emphasize the need for responsible and trustworthy AI. Douglas Crawford, an assistant professor of interior architecture encourages students to at least try a new AI tool called Midjourney. He sees it as just another tool in a designer's kit, though its use isn't limited to architects and interior designers. And it's much easier to learn than other graphic communication tools. The platform can quickly create rendered floor plans, material palettes, perspective renderings and more. It is a really useful tool that can produce both academic and professional design content very quickly that would otherwise take a lot of work. Images produced by Midjourney as common PNG files can be exported to other programs like Photoshop or Illustrator for editing and further work. The images are created based on the words you choose and nothing more, so the final result is ultimately coming directly from you. As AI technology develops, Crawford predicts that in just a matter of months, it will be creating whole 3D things, not just flat images...
The George Washington University - Mar 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 - Mar 9, 2023

Federal Internship Portal

...If you are looking for an internship with the federal government, you can now easily search for them on the new USAJOBS intern portal. This portal will let you search for federal internships in one place. A multitude of opportunities are available, including paid internships, offering the possibility to contribute in countless ways. There are postings from agencies across the federal government and the country, both in person and remote. You can also find more information on federal internship programs, the internship application process, and some frequently asked questions at www.usajobs.gov/Help/working-in-government/unique-hiring-paths/students/
USAJOBS - Mar 21, 2023

National Science Foundation grant will educate next generation of semiconductor researchers

...The University of Dayton has received $353,378 from the National Science Foundation to educate the next generation of researchers working on semiconductor materials and electronic and photonic devices. Undergraduate college students nationwide are invited to apply to a 10-week summer session where they will receive hands-on training and conduct research in the UD Nanofab Lab under the guidance of UD physics, electro-optics and photonics, and chemical and materials engineering faculty. The students' work also will help support research at the Air Force Research Laboratory at Wright-Patterson Air Force Base...
University of Dayton - Mar 21, 2023

Federal Register: Request for Information (RFI)

Notice of Workshop on Making Data Available for National Spectrum Management

...The workshop on Making Data Available for National Spectrum Management will focus on identifying challenges associated with obtaining, disseminating, and using data about spectrum to support policy making, operations, and R&D with applications to spectrum sharing & optimization through improved analysis, modeling & prediction. The workshop will take place on May 3 and 4, from 8:30 a.m. to 5 p.m. (MT), at the NIST Boulder Labs in Boulder, CO. Due to space limitations, in-person attendance is by invitation only; remote participation will be available via webcast.
Federal Register - Mar 30, 2023

Preventing the Improper Use of CHIPS Act Funding

...Semiconductors are essential components of electronic devices that enable telecommunications and grid infrastructure, run critical business and government information technology and operational technology systems, and are necessary to a vast array of products. The CHIPS Incentives Program aims to strengthen the security and resilience of the semiconductor supply chain by mitigating gaps and vulnerabilities. The CHIPS Incentives Program is administered by the CHIPS Program Office (CPO) within the National Institute of Standards and Technology (NIST) of the United States Department of Commerce. The Department of Commerce (Department) is issuing, and requesting public comments on, a proposed rule to set forth terms related to these limitations and procedures for funding recipients to notify the Secretary of Commerce (Secretary) of any planned significant transactions that may be prohibited. Written comments must be received on or before May 22, 2023.
Federal Register - Mar 23, 2023

Department of Energy Announces $1 Billion to Improve Energy Resilience for Puerto Rico’s Most Vulnerable Households & Communities

...The U.S. Department of Energy’s (DOE) Grid Deployment Office (GDO) released a Request for Information (RFI) to gather feedback from stakeholders in Puerto Rico on how to allocate $1 billion managed through the Puerto Rico Energy Resilience Fund (PR-ERF). This historic investment aligns with Puerto Rico’s public energy policy to achieve 100% renewable energy by 2050 as well as the Biden Administration's commitment to improving the island's energy system. DOE is requesting information from Puerto Rican stakeholders about both short- and long-term energy solutions including residential rooftop solar deployment, community and critical service energy resilience, partnerships with non-profit organizations, and workforce training to sustain Puerto Rico’s clean energy economy. Request for Information comments and input must be received by 5:00 p.m. ET on April 21, 2023...
Department of Energy - Mar 29, 2023