



FEDERAL AGENCY  
FUNDING  
OPPORTUNITIES

HPC

ARTIFICIAL  
INTELLIGENCE /  
MACHINE  
LEARNING

ROBOTICS /  
AUTONOMOUS  
VEHICLES

QUANTUM

CYBERSECURITY  
/ PRIVACY

5G, WIRELESS  
SPECTRUM,  
NETWORKING &  
COMMUNICATIONS

DIGITAL  
HEALTH

OTHER IT  
RELATED

STEM /  
WORKFORCE  
& IT

STEM / WORKFORCE  
RESOURCES &  
OPPORTUNITIES

## 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](mailto:nco@nitrd.gov) and voilà they will receive the news brief with the cool technology articles each week!

### Federal Agency Funding Opportunities

#### NSF renews cybersecurity workforce development projects

...The U.S. National Science Foundation CyberCorps® Scholarship for Service program is renewing funding for seven academic institutions, providing more than \$24 million over the next four years. These awards build on a prior investment of \$29 million announced early this year. This funding supports the development of a robust and resilient cybersecurity workforce by addressing the unique challenges around recruiting and retaining cybersecurity professionals for careers serving local, state, federal or tribal governments. For over 20 years, the CyberCorps SFS program has played a critical role in developing the U.S. cybersecurity workforce and aligns with the White House's newly released "National Cyber Workforce and Education Strategy: Unleashing America's Cyber Talent."...

National Science Foundation - Jul 31, 2023

# HPC

## **NPS' new innovation lab honored with prestigious contracting award**

...Innovation at the Naval Postgraduate School (NPS) isn't just limited to new technology. A groundbreaking laboratory developed in the school's Department of Defense Management (DDM) is becoming a key enabler to student innovation efforts in contracting – and earning national recognition in the process. The NPS' Simulation and Ideation Lab for Applied Sciences (SILAS) is a mobile computer lab dedicated to supporting the creativity and collaboration necessary for acquisition and DDM's new Innovation Capstone Project (ICP) initiative. SILAS uses innovative gaming and simulations to educate and train contracting officers, improving how the military buys and delivers weapons and supplies. The work being done at SILAS is relevant to the larger acquisition community and SILAS has successfully created a multi-disciplinary, multi-organizational environment for evolutionary ideation and innovation. "Sandbox Contracting" is a gamification of the principles of acquisition contracting. It's basically a first-person shooter game involving gun battles and bomb defusing, in which success depends on players' ability to correctly answer questions about federal acquisition rules and regulations. "Sandbox Contracting" demonstrated a 15% greater knowledge retention among players of the game on high-performance gaming computers versus a control group provided information via traditional pedagogy. SILAS will be adopted as the innovation centrifuge for the ICP program to include the concept of digital twins, an emerging technology simulating real-world scenario learning and mentorship based on digital duplication of acquisition documentation, processes and problem sets...

Department of the Navy Chief Information Officer - Jul 27, 2023

## **Mobile supercomputer of the future: INL researchers explore connecting data centers to microgrids, microreactors**

...Data centers form the basis for most modern computing, but they also consume a lot of power. Most of these data centers use between 10 megawatts (MW) to 200 MW of power, running all day and all night. Supercomputers require giant backup generators and expensive battery systems in case of a power outage. In energy-starved locations, competition for scarce electrons is driving up the cost of electricity for data centers and households alike. INL researchers are exploring a novel approach to building data centers. By connecting supercomputers in fully equipped shipping containers to microgrids powered by microreactors and renewables, data centers could become carbon-free, more flexible, mobile and less expensive. These supercomputers-in-a-box could someday serve as the basis for similar systems on the moon and Mars. Idaho National Laboratory's Collaborative Computing Center's Sawtooth supercomputer uses 100,000 processors, has 2.4 MW of backup batteries, and uses a massive cooling system that pumps 1,200 gallons of water per minute. The computer alone consumes an average of 1 MW of power. Eventually, data centers might run off microgrids powered by a combination of carbon-free renewables and microreactors. Microgrids are small, smart electrical grids with local power sources that are either isolated or connected to the larger grid. With microgrids and microreactors, multiple supercomputers-in-a-box could be dropped in the middle of a desert or stacked on top of one another on a cargo ship to create a carbon-free data center almost anywhere...

Idaho National Laboratory - Jul 31, 2023

# Artificial Intelligence / Machine Learning

## **Department of Energy Announces \$13.1 Million for Environmental Systems Science to Integrate Data Through Modeling and Machine Learning**

...The U.S. Department of Energy (DOE) announced \$13.1 million in funding for 17 new projects to universities, academic institutions, federal research labs, and nonprofits, within the area of Environmental System Science (ESS) research. Awards focus on measurements, experiments, field data, modeling, and synthesis to provide improved understanding and representation of ecosystems and watersheds in ways that advance the sophistication and capabilities of models that span from individual environmental processes to Earth-system scales. Selected projects cover a range of environmental system science topics, including understanding and modeling current and future hot moments in wetland interfaces, improved understanding of the responses of cold regions (e.g., mountains and the Arctic) to changes in climate drivers, and a novel approach to analyze and integrate publicly available data through modeling and machine learning to advance our understanding of ecosystem and watershed processes...

Department of Energy - Jul 31, 2023

## **AFRL artificial intelligence agents successfully pilot XQ-58A Valkyrie uncrewed jet aircraft**

...To reduce risk to aircrews by integrating their activities with uncrewed aerial vehicles with artificial intelligence capabilities, the Air Force Research Laboratory led a successful three-hour sortie, July 25, 2023, demonstrating the first-ever flight of artificial intelligence agents (algorithms) controlling an uncrewed jet aircraft – the XQ-58A Valkyrie. The algorithms were developed by AFRL's Autonomous Air Combat Operations team. The algorithms matured during millions of hours in high fidelity simulation events, sorties on the X-62 VISTA, Hardware-in-the-Loop events with the XQ-58A, and ground test operations, as depicted in the video at the link below. DOD is committed to the responsible employment of AI. To achieve responsible use of AI requires teaming of developers and users of AI enabled autonomy working in collaboration with acquisition specialists...

Air Force Link - Aug 2, 2023

### **Episode of Inside the FBI: Defending Against AI Threats**

...The FBI has developed tools to help keep people safe—things like biometrics, DNA research, and facial recognition. We've created digital forensics teams that handle technically complex cases. We've learned to analyze cell phone data to find missing persons. Artificial intelligence or "AI" is one of the newest technologies the world is exploring on a massive scale. The FBI is also examining AI to anticipate and defend against threats, and ultimately to help keep the American people safe. In this episode of Inside the FBI, we'll discuss the Bureau's stance on AI and other key priorities.  
Federal Bureau of Investigation - Jul 28, 2023

### **NSF Funded Project to Prevent Wildfires Sparked by Power Lines Using an AI-Enabled Surrogate Model**

...San Diego State University assistant professor of electrical and computer engineering Saeed Manshadi recently received a grant from the National Science Foundation to study how to improve electrical grid resilience in fire-prone areas. They examined ways to improve the shutoff decision-making process using artificial intelligence. The researchers proposed a surrogate model — a digital twin for the meteorological conditions experienced by the power infrastructure and gather limited meteorological measurements along with infrastructure structural parameters to quantify the risk for each line. The NSF project aims to address challenges with smarter solutions, such as the AI-enabled surrogate model for impacted communities that would first quantify the risk and then deploy the next generation of energy resources like local solar and battery storage, along with targeted public safety power shut-offs to keep the broader community safe...  
SDSU NewsCenter - Jul 31, 2023

### **Using AI to protect against AI image manipulation**

...Recently, advanced generative models such as DALL-E and Midjourney, celebrated for their impressive precision and user-friendly interfaces, have made the production of hyper-realistic images relatively effortless. With the barriers of entry lowered, even inexperienced users can generate and manipulate high-quality images from simple text descriptions — ranging from innocent image alterations to malicious changes. Researchers from MIT's Computer Science and Artificial Intelligence Laboratory (CSAIL) developed "PhotoGuard," a technique that uses perturbations — minuscule alterations in pixel values invisible to the human eye but detectable by computer models — that effectively disrupt the model's ability to manipulate the image. PhotoGuard uses two different "attack" methods to generate these perturbations. The more straightforward "encoder" attack targets the image's latent representation in the AI model, causing the model to perceive the image as a random entity. The more sophisticated "diffusion" one defines a target image and optimizes the perturbations to make the final image resemble the target as closely as possible. ... The team's work was partially done on the MIT Supercloud compute cluster, supported by U.S. National Science Foundation grants and Open Philanthropy, and based upon work supported by the U.S. Defense Advanced Research Projects Agency...  
MIT News - Jul 31, 2023

### **Researchers awarded \$1.4 million from Army Corps of Engineers to develop AI-based program for 3D printing concrete**

...A Missouri S&T research team led by Dr. Kamal Khayat has been awarded \$1.4 million from the U.S. Army Corps of Engineers to develop an artificial intelligence program that will determine the best locally-available materials for 3D-printed concrete. This technology will allow the Army Corps to more quickly 3D print concrete structures without relying on the delivery of large amounts of construction materials. "By harnessing the power of AI, our research team aims to streamline the process of material selection, ensuring optimal performance and cost-effectiveness," says Khayat, S&T's vice chancellor for research and innovation. "The AI program will evaluate a wide range of locally-available materials in various areas and identify the most appropriate combinations for 3D printing concrete. "This will enhance the efficiency of the construction process, improve troop safety, pave the way for more sustainable practices and help expedite humanitarian assistance missions." ...  
Missouri University of Science and Technology - Jul 27, 2023

## **Robotics / Autonomous Vehicles**

### **NOAA Researchers Use Drones for Non-Invasive Deployment of Tagging Rare Whales**

...On a recent NOAA Fisheries whale research cruise off New England, whale researcher Lisa Conger and her team tried a new twist on a developing field technique: using an uncrewed aerial system—a drone—to tag whales. The team used a tag that sticks to the animal with suction cups. Researchers have been testing drones to deploy suction cup tags on different species of whales around the world. Conger's cruise was the first to try using a drone to deploy suction-cup tags onto North Atlantic right whales. The drone operator uses height to ensure there is enough impact to get the tag to stick. By using the drone, the vessel does not have to approach the animal as closely as it does when using traditional tagging. Ocean Alliance, a Gloucester, Massachusetts-based conservation organization, developed the drone-tagging technique. The organization has the only team to have deployed more than 70 tags on six species of whales using a drone—a feat that requires both precision flying and a deep understanding of whale behavior. Ocean

Alliance is proud to use our unique skill sets and newly developed methodologies to aid NOAA Fisheries in the understanding and recovery of this critically endangered species...  
Noaa Fisheries - Jul 31, 2023

## Quantum

### **Department of Energy Announces \$11.7 Million for Research on Quantum Computing**

...The U.S. Department of Energy announced \$11.7 million in funding for six collaborative projects to improve our understanding of whether, when, and how quantum computing might advance the frontiers of computational science. "Quantum computing is a rapidly advancing technology that may one day push the boundaries of computational science beyond what we can achieve with exascale machines like Frontier," said Ceren Susut, Acting Associate Director for Advanced Scientific Computing Research. "Today's supercomputers allow us to explore scientific problems in ways we haven't been able to in the past – modeling dangerous or costly experiments, accelerating clean energy options, and mitigating the impacts of climate change. It's imperative that we understand what quantum computers are capable of so we can build future generations of supercomputers." ...

Department of Energy - Jul 27, 2023

### **Scientists View the "Transition State" of a Photochemical Reaction in Real-Time**

...In chemical reactions, molecules proceed during their transformation from reactants into reaction products through a critical geometry. Scientists often call critical geometry in reactions a transition state. This state has an almost incomprehensibly short lifetime of less than one millionth of one millionth of a second. Scientists recently captured a critical geometry using the ultra-high speed "electron camera" at SLAC. In combination with quantum simulations of the reaction, this allowed researchers to identify the critical structure as one end of the molecule bending away from the rest of the molecule...

Department of Energy - Aug 2, 2023

### **NSF kickstarts Collaboration Between UConn and Yale Through Quantum-CT project Building an Innovation Ecosystem**

...A quasi-public agency that invests in the creation and success of equitable, sustainable, and prosperous companies and jobs for the people of Connecticut, CTNext partners with UConn and other entities to develop programs and funding that support tech-and innovation-based startups and early-stage Connecticut businesses. CTNext played a key role shepherding the development of the first-ever national partnership between UConn and Yale through the Quantum-CT project. A complex, cross-sector initiative composed of a broad coalition of public, private, and state officials, Quantum-CT aims to establish Connecticut as a national leader in quantum science and technologies. The National Science Foundation awarded Quantum-CT a \$1 million development award to kick-start the collaboration...

UConn Today - Jul 31, 2023

## Cybersecurity / Privacy

### **Upcoming Strategy to Outline Agency's Supply Chain Security Approach**

...The 2021 cyberattack that shut down the Colonial Pipeline for days sent Defense Logistics Agency Energy officials scrambling for new ways to get fuel to East Coast customers and underscored the need for supply chain resilience. A new strategy being drafted by DLA will become the agency's roadmap for addressing such vulnerabilities and protecting the security of the Defense Department supply chain that serves troops and federal partners around the world. IT specialists on the Cyber Emergency Response Team already monitor DLA's 100-plus systems 24/7 for cyber threats, improper logins and other issues. Peter Battaglia, director of DLA Logistics Operations' Mission Assurance Directorate said more measures are needed to protect information like technical quality data that the agency shares with suppliers, whether it's through IT systems or business discussions. DLA may also need to integrate with organizations like the Cybersecurity and Infrastructure Security Agency, which is responsible for protecting 16 critical infrastructure sectors in the United States...

U.S. Department of Defense - Jul 27, 2023

### **The Most Important Part of the Internet You've Probably Never Heard Of**

...Few people realize how much they depend on the Border Gateway Protocol (BGP) every day—a set of technical rules responsible for routing data efficiently. Disruptions to BGP can have serious implications for the critical services Americans rely on every day. BGP is in the background, helping connect our critical infrastructure, supporting emergency services, keeping the financial sector running, and shoring up manufacturing. However, BGP was designed for expediency, not security. BGP does not include

explicit security features to ensure trust in exchange information. As a result, an adversary may deliberately falsify BGP reachability information to redirect traffic, and state-level actors have been suspected over the years of exploiting BGP's vulnerability to hijacking. These "BGP hijacks" can expose personal information, enable theft, extortion, and state-level espionage, and disrupt security-critical transactions, including in the financial sector. FCC and the Cybersecurity and Infrastructure Security Agency convened a workshop this week with federal partners from the Office of the National Cyber Director, the National Institute of Standards and Technology, the Office of the Director of National Intelligence, the Department of Justice and the National Telecommunications and Information Administration, in addition to representatives from industry, including Internet Service Providers (ISPs) and cloud content providers, and nonprofits. The goal of this workshop was to develop a common understanding of the latest BGP security improvements that are underway and planned—and what can and should be done to accelerate progress in both the near term and beyond...

CISA - Aug 2, 2023

### **UTD Joins National Center for Transportation Cybersecurity Effort Funded by US DOT**

...The University of Texas at Dallas has joined a new national center in cybersecurity funded by the U.S. Department of Transportation (DOT) and created to develop strategies to protect the nation's transportation system against cyberattacks. UT Dallas is one of nine universities, led by Clemson University, selected to participate in the National Center for Transportation Cybersecurity and Resiliency (TraCR). It is one of 39 University Transportation Centers that conduct research to promote the safe, efficient and environmentally sound movement of goods and people. TraCR is set to receive \$20 million from the DOT over five years. As vehicles, including autonomous vehicles and drones, increasingly become connected wirelessly, they face new cybersecurity threats. UTD will lead research on data privacy and cybersecurity risks and collaborate with other universities on projects including adversarial machine learning, machine learning for cybersecurity, secure data management and the applications of blockchain for transportation systems...

The University of Texas at Dallas - Jul 28, 2023

### **Cybersecurity project plans to connect researchers across the country**

...Dr. Narasimha Reddy, a professor in the Department of Electrical and Computer Engineering at Texas A&M University, recently received a National Science Foundation grant to research cybersecurity issues in digital manufacturing. "The hope is that by getting ahead of the deployment of these digital manufacturing machines and finding solutions for the cybersecurity problems, we will make manufacturing more secure," he said. "Since these machines need to receive instructions over the network, they can potentially be sent malicious packets to damage the machines. We're looking at these issues related to the security of the machines." This grant is about trying to get the people from the cybersecurity side and people from the manufacturing side to talk to each other to create a community that's going to be interested in solving the problems...

Texas A&M University College of Engineering - Aug 1, 2023

## **5G, Wireless Spectrum, Networking & Communications**

### **FACT SHEET: Biden-Harris Administration High-Speed Internet Investments Spur Made-in-America Manufacturing Boom**

...The announcement is the latest in a string of domestic manufacturing announcements that have been spurred by the Biden-Harris Administration's high-speed internet investments and Made-in-America policies, part of the President's Investing in America agenda and a clear sign that Bidenomics is working. Across the high-speed internet industry, most electronics products are not currently manufactured in the U.S., but Buy America provisions in the Bipartisan Infrastructure Law are driving the onshoring of new manufacturing, particularly ahead of implementation of the \$42.45 billion Broadband Equity, Access and Deployment (BEAD) program. Just as Franklin Delano Roosevelt's Rural Electrification Act brought electricity to nearly every home and farm in America, President Biden and Vice President Harris are delivering on their historic commitment to connect everyone in America to affordable, reliable high-speed internet by the end of the decade...

The White House - Aug 3, 2023

### **NASA-led Mission to Map Air Pollution in 3D Over Megacities with its First Satellite that will Measure Air Quality**

...NASA and its partners are deploying several new tools to observe air quality and pollution from the street to the stratosphere. Launched into orbit earlier this spring, TEMPO, short for Tropospheric Emissions: Monitoring of Pollution, is the first satellite instrument that will measure air quality over North America hourly (during daylight hours) and at the resolution of a few square miles. Its field of view stretches from Mexico City to central Canada and from the Atlantic Ocean to the Pacific. NASA's newest atmospheric chemistry instrument will soon begin transmitting data for scientific use. A separate NASA mission will complement the new satellite measurements with air quality observations from the field. The summer 2023 campaign includes a fleet of aircraft, laboratories on wheels, weather balloons, and hundreds of scientists who have mobilized to track pollution in unprecedented detail. That mission, Synergistic TEMPO Air Quality Science (STAQS), is examining the air we breathe in several North American population centers: New York City, Chicago, Los Angeles, and Toronto. The goal is to map air pollutants from the ground to the upper troposphere, track where they come from and how they change hour by hour, and identify neighborhoods disproportionately exposed to unhealthy air...

National Aeronautics and Space Administration - Jul 27, 2023

### **IARPA Launches Ambitious Effort to Track Micro Space Debris**

...The Intelligence Advanced Research Projects Activity (IARPA) — the advanced research and development arm of the Office of the Director of National Intelligence — launched a program that aims to revolutionize our nation's ability to detect, track, and characterize miniature orbital space debris. The Space Debris Identification and Tracking (SINTRA) program represents the Intelligence Community's first effort to track small space debris. Resulting technologies hold the potential to protect manned spacecraft and other valuable space assets from these compact threats, which are difficult to detect and track and can cause significant damage, making space missions safer for all countries and industries using earth's orbit. SINTRA aims to create innovations that: \* Bridge gaps in current space debris-monitoring systems, which currently only track and monitor debris greater than 10 cm in size or model the distribution of debris less than 1 mm in size; and \* Enhance small debris-tracking capabilities with existing sensors, such as ground-based radar, tracking satellites, and optical sensors...

Office of the Director of National Intelligence - Aug 1, 2023

### **NASA's ER-2 Aircraft Flies High to Investigate Lightning**

...NASA's ER-2 aircraft has been flying close to thunderclouds to investigate lightning and its connection to the vast energy fields in our atmosphere. As the highest-flying plane of NASA's Airborne Science Program, the ER-2 is giving researchers a new angle on storm clouds. Satellites like NASA's TRMM (Tropical Rainfall Measurement Mission) and NOAA's GOES (Geostationary Environmental Satellite), as well as the Lightning Imaging Sensor on the International Space Station, have measured lightning and related energy discharges from hundreds to thousands of miles above. NASA's ER-2 airplane, however, can fly at about 60,000 feet (20,000 meters), an ideal altitude and proximity to thunderclouds. The field campaign includes instruments and researchers from the University of Birkeland in Norway, NASA's Marshall Space Flight Center and Goddard Space Flight Center, Sandia National Labs, and the U.S. Naval Research Laboratory...

National Aeronautics and Space Administration - Jul 27, 2023

## **Digital Health**

### **New artificial intelligence program could help treat hypertension**

...Physicians have a bevy of potential hypertension medications to choose from, but each is littered with pros and cons, making prescribing the most effective one a challenge. A new artificial intelligence program may help doctors better match the right medicines to the right patients. The data-driven model aims to give clinicians real-time hypertension treatment recommendations based on patient-specific characteristics, including demographics, vital signs, past medical history and clinical test records. The U.S. National Science Foundation-supported model has the potential to help reduce systolic blood pressure more effectively than the current standard of care. According to the researchers, the program's approach to transparency could also help improve physicians' trust in artificial intelligence-generated results. The new model generates a custom hypertension prescription using a patient's profile, giving physicians a list of suggested medications with an associated probability of success. The researchers' aim was to highlight the treatment that best controls systolic blood pressure for each patient...

National Science Foundation - Aug 1, 2023

### **New Data on Clinician Performance and Use of Certified Health IT for Promoting Interoperability**

...New data for clinicians reporting for Promoting Interoperability in 2019, 2020, and 2021 and their use of certified health IT are now available on [healthit.gov/data](https://healthit.gov/data). These represent an update to the data published through 2016 and representative of eligible professionals who participated in "Meaningful Use." The data can be linked to the ONC Certified Health IT Product List (CHPL) and other HHS and industry health care datasets. ONC, for example, has used this data to inform implementation of the Health Level Seven International (HL7®) Fast Healthcare Interoperability Resources® (FHIR®) standard by merging it with API documentation data to assess FHIR adoption among developers of certified API technology in advance of ONC's 21st Century Cures Act rulemaking...

Health IT - Aug 1, 2023

### **C-STARS gains new equipment for infectious disease readiness training**

...The Negatively Pressurized CONEX, or NPC, will be utilized in developing a new infectious disease air transport training course on procedures for current and future outbreaks of high-consequence infectious diseases, or HCIDs. C-STARS Omaha is a training program through the United States Air Force School of Aerospace Medicine. The NPC will also allow the C-STARS team to train personnel on donning and doffing procedures for personal protective equipment in confined spaces and safely moving patients into and out of the unit. The new C-STARS NPC is a modified shipping container converted into a clinical space with air handling and medical equipment to transport patients exposed to or infected by high-consequence infectious diseases, or HCIDs. The NPCs transport HCID patients on military aircraft, like C-17s, to get needed medical attention more rapidly. There is also an NPC-Lite version designed to be used on a C-130. The mission aims to move exposed or infected HCID patients while minimizing the risk to civilians, aircrew,

medical attendants and the airframe...  
Air Force Materiel Command - Aug 1, 2023

### **Hospitals Collect and Receive Social Needs Data, but Usage Varies**

...If left unaddressed, the social needs experienced by an individual may lead to poor health outcomes and more time spent in hospitals and interacting with the health care system. According to a recent ONC analysis of data from the 2022 American Hospital Association (AHA) Information Technology Supplement Survey, 83% of non-federal acute care hospitals collected data on patients' health-related social needs (e.g., transportation, housing, food security), 60% received data from outside sources, and many reported using the data they collected internally and received from outside sources for various purposes. The top three uses for collected data were to inform clinical decision-making, support discharge planning, and make referrals to social service organizations...  
Health IT - Jul 31, 2023

### **NSF-funded wearable ultrasound scanner could detect breast cancer earlier**

...When breast cancer is diagnosed in the earliest stages, the survival rate is nearly 100 percent. MIT researchers have designed a wearable ultrasound device that could allow people to detect tumors when they are still in early stages, which could be valuable for patients at high risk of developing breast cancer. Breast tumors that develop in between regularly scheduled mammograms — known as interval cancers — account for 20 to 30 percent of all breast cancer cases. The device is a flexible patch that can be attached to a bra, allowing the wearer to move an ultrasound tracker along the patch and image the breast tissue from different angles. The researchers designed a miniaturized ultrasound scanner that could allow the user to perform imaging at any time. To make the device wearable, the researchers designed a flexible, 3D-printed patch, which has honeycomb-like openings. Using magnets, this patch can be attached to a bra that has openings that allow the ultrasound scanner to contact the skin. The researchers tested their device on a woman with a history of breast cysts and were able to detect the cysts, which were as small as 0.3 centimeters in diameter — the size of early-stage tumors. ... The research was funded, in part, by the National Science Foundation...  
MIT News - Jul 28, 2023

### **NIH-funded software designs optimized, personalized treatments for movement impairments**

...A National Institutes of Health-funded team of Rice University engineers has launched a first of its kind, open-source software that constructs and uses personalized computer models of how individual patients move to optimize treatments for neurologic and orthopedic mobility impairments. The Neuromusculoskeletal Modeling (NMSM) Pipeline software could be used to design orthopedic surgical plans, neurorehabilitation interventions, physical therapy regimens and prosthetic devices that maximize recovery of lost function for patients with movement impairments. The physics-based software integrates several different physiological models, including models of central nervous system (CNS) control, muscle force generation and metabolic energy expenditure...  
RICE NEWS - Jul 27, 2023

## **Other IT Related**

### **FACT SHEET: Amidst Manufacturing Boom, President Biden Will Sign an Executive Order on Federal Research and Development in Support of Domestic Manufacturing and United States Jobs to Encourage “Invent it Here, Make it Here” in Industries of the Future**

...Many innovative technologies have ended up being manufactured elsewhere, even when the research behind those inventions has been funded with taxpayer dollars and can be manufactured domestically. On July 28, President Biden signed an Executive Order to prioritize America's policy of “invent it here, make it here”—to the benefit of American workers, communities, and global supply chain resilience. The Executive Order tackles four core objectives: First, it will improve transparency, cut red tape, and streamline reporting requirements in the Federal R&D process to better track progress towards our domestic manufacturing goals. Second, it will boost the incentive to manufacture new inventions in the United States when those inventions are developed using Federal funds. Third, it encourages the expansion of domestic production for critical industries while maintaining flexibility to build strong international R&D partnerships. Fourth, it will make the domestic manufacturing waiver process clearer, timelier, and more consistent, including when production is not commercially feasible...  
The White House - Jul 28, 2023

### **NSF Regional Innovation Engines program selects 16 teams for the final round of competition**

...The U.S. National Science Foundation announced 16 finalists for the first-ever NSF Regional Innovation Engines (NSF Engines) competition, spanning a range of key technology areas and societal and economic challenges highlighted in the "CHIPS and Science Act." The NSF Engines will link up with local and regional partners to expand innovation across the nation and create collaborative and inclusive technology-driven innovation ecosystems. NSF anticipates announcing the NSF Engines awards this winter,

with each awardee initially receiving about \$15 million for the first two years. Each NSF Engine could receive up to \$160 million over 10 years. The role of the NSF Engines' partners will be a key component of the selection process at this stage. Launched by NSF's Directorate for Technology, Innovation and Partnerships (TIP) and authorized by the "CHIPS and Science Act," the NSF Engines program uniquely harnesses the nation's science and technology research and development enterprise and regional-level resources. "We congratulate the NSF Engines finalists for making it to this stage of the first-ever NSF Engines Award competition," said Erwin Gianchandani, NSF assistant director for TIP. " Importantly, the teams and their regional partners will be asked to demonstrate how their work will play a catalytic role in accelerating the growth of their regional innovation ecosystems..."  
National Science Foundation - Aug 2, 2023

### **Voices From DARPA Episode 70: Innovating How We Innovate**

...DARPA created the DARPA Innovation Fellowship, a two-year position for early career scientists and engineers. Fellows push the limits of existing technology by exploring new ideas for answering high-risk, high-reward "what if?" questions in the realm of national security. In this episode of the Voices from DARPA podcast series, we hear from Dr. Jinendra Ranka, director of DARPA's Defense Sciences Office (DSO), – which oversees the Innovation Fellowship Program – about how the program offers unique opportunities for Fellows to make connections, demonstrate what's possible and take risks. We also speak with four Fellows from the program's first cohort – Dr. Rebecca Chmiel, Lieutenant Krishnan (Krish) Rajagopalan, Dr. Allegra A. Beal Cohen and Dr. Alex Place – for their perspectives on what it takes to develop high-impact, exploratory technology efforts for the Department of Defense...  
DARPA - Jul 28, 2023

## **STEM / Workforce & IT**

### **FACT SHEET: Biden-Harris Administration Announces National Cyber Workforce and Education Strategy, Unleashing America's Cyber Talent**

...The Biden-Harris Administration unveiled the National Cyber Workforce and Education Strategy (NCWES), a first-of-its-kind comprehensive approach aimed at addressing both immediate and long-term cyber workforce needs. Filling the hundreds of thousands of cyber job vacancies across our nation is a national security imperative and the Administration is making generational investments to prepare our country to lead in the digital economy. The NCWES focuses on empowering Americans to pursue these career paths in cyber. Many of these jobs are attainable with a certificate or community college degree. The NCWES seeks to build and enhance collaboration around four pillars: (1) Equip Every American with Foundational Cyber Skills. (2) Transform Cyber Education. (3) Expand and Enhance the National Cyber Workforce. (4) Strengthen the Federal Cyber Workforce. NSF will invest over \$24M in CyberCorps: Scholarship for Service awards over the next four years. The National Security Agency's National Center of Academic Excellence in Cybersecurity program will release four grants to support a pilot initiative to develop four new Cyber Clinics at accredited U.S. colleges and universities. NIST will award up to \$3,600,000 for Regional Alliances and Multistakeholder Partnerships to Stimulate cybersecurity education and workforce development projects. The Department of Labor announced a \$65 million award in formula and competitive grants to 45 states and territories to develop and scale registered apprenticeship programs in cybersecurity and other critical sectors. VA announced a Cybersecurity Apprenticeship Program for Veterans...  
The White House - Jul 31, 2023

### **Executive Order on Federal Research and Development in Support of Domestic Manufacturing and United States Jobs**

...The Administration has prioritized support for our unique innovation ecosystem by reinvesting across sectors in research and development (R&D), demonstrations, education, and the necessary infrastructure to accelerate the transition of discoveries quickly from the lab to the marketplace. This investment is designed to produce cutting-edge technologies that support the competitiveness, domestic manufacturing capacity, and well-being of the United States economy. Ensuring the commercialization of federally funded inventions by United States manufacturers — while maintaining intellectual property rights — will build on the successful legacy of the United States in spurring economic growth and enhancing United States competitiveness through R&D...  
The White House - Jul 28, 2023

### **Confidence, Adaptability, and Energy: Interns Gain Valuable Career Experience and Skills within CESER**

...CESER's Risk Management Tools & Technologies (RMT) division had the pleasure of hosting two interns this summer: Shawn Campbell, a senior electrical engineering student at Morgan State University, and Kennedy Brown, a senior civil engineering student at Howard University. They come to CESER as part of the Minority Educational Institution Student Partnership Program (MEISPP), a DOE-wide program that aims to build a more diverse workforce by offering internships for students at minority-serving institutions. CESER's internship program has given both Kennedy and Shawn a new and unexpected look at career opportunities in their fields. Their ten-week project ends in early August with a presentation of their findings and recommendations to CESER's leadership and several team members...  
Department of Energy - Jul 27, 2023



### **GW Partners with NIST to Strengthen the U.S. Scientific Workforce**

...The George Washington University has entered a five-year cooperative agreement with the National Institute of Standards and Technology (NIST) that will strengthen the scientific workforce while providing opportunities for GW and its partners in the Professional Research Experience Program (PREP). The collaboration, GWU-PREP, brings up to \$29.9 million in federal funds to create research opportunities at the NIST campus and provide financial assistance to eligible graduate students and postdoctoral researchers, including full tuition reimbursement and a monthly stipend or hourly wage. Undergraduate students may be able to work part-time and/or during the summer at NIST...  
The George Washington University - Aug 2, 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 - Jun 21, 2023

### **FEDERAL HIGH END COMPUTING INFORMATION PORTAL**

...Networking and Information Technology Research and Development (NITRD) has a portal that provides information about U.S. Federal government high performance computing activities, including available computing resources; HEC relevant publications; fellowship and training opportunities; and technology transfer, licensing, and industry engagement opportunities. The HEC IWG (Interagency Working Group on High End Computing) agencies provide the information contained in this portal. HEC IWG agencies are involved in various Federal activities in the HEC area including R&D and providing infrastructure and application. Take a look at it!

Networking and Information Technology Research and Development - Jun 14, 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.

## **Innovation Through NITRD Coordination**

Networking and Information Technology Research and Development - National Coordination Office, Washington, DC USA

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