Are Militaries Too Afraid to Automate?

Amid the widespread anxiety of future jobs being lost to automation and artificial intelligence, the military sector has been particularly concerned about the impact of technological transformation. Despite often engaging with some of the world’s most advanced technology, the idea of replacing man with machine for defense application is often eyed with skepticism by military leaders…

Advanced Materials

Nanoparticle 3D Printing Mimics Natural Construction

Researchers from Washington State University have successfully 3D printed structures resembling the intricate framework of natural materials. Their process has allowed them to create small structures with impressive strength to weight ratios and control materials on a molecular scale, producing geometries similar to bone and...

New Water Filtration Process Uses 1,000 Times Less Energy

A new process for water filtration using carbon dioxide consumes one thousand times less energy than conventional methods. The research was led by University of Limerick’s Dr Orest Shardt together with Dr Sangwoo Shin (now at University of Hawaii, Manoa), while they were post doctoral researchers at Princeton University…
Autonomous Systems

Saffron Technology: Personalized Intelligence Built on an AI Platform

With artificial intelligence, machine learning, cognitive computing -- call it what you will -- all the rage at the moment, Tech Pro Research took a recent opportunity to speak with Gayle Sheppard, CEO of Saffron Technology. This Intel-owned company's brain-inspired Natural Intelligence Platform helps enterprises analyze dynamic multidimensional data in pursuit of valuable insights…

Apple Focused on Autonomous Systems in Cars

After years toiling away in secret on a car project, Apple Inc. Chief Executive Officer Tim Cook has for the first time elaborated on the company's plans in the automotive market. “We’re focusing on autonomous systems,” Cook said in a June 5 interview on Bloomberg Television that amounted to his most detailed comments yet on Apple’s automotive plans. “It’s a core technology that we…

Directed Energy

US Army Tests Laser on Apache Helicopter

The U.S. Army and Raytheon have completed a flight test of a high-energy laser system on an AH-64 Apache attack helicopter that was deemed successful, according to a Raytheon statement Monday. The recent test at White Sands Missile Range, New Mexico, "marks the first time that a fully integrated laser system successfully engaged and fired on a target from a rotary-wing aircraft over a wide variety of flight regimes, altitudes and air speeds," the company said. Raytheon said the test achieved all…

NASA Tests Lasers’ Ability to Transmit Data from Space

The standard way for spacecraft to communicate with teams on the ground has been to use radio waves. NASA, however, will test the use of lasers to increase data communication rates by as much as 100 times. In a Technology Leaders Q&A, JPL physicist Bill Klipstein explains his role as project manager of NASA's Deep Space Optical Communications (DSOC) mission…
Energetics

PacSci EMC Compact Modular SmallSat Propulsion System

Pacific Science EMC announces the release of its new Modular Architecture Propulsion System (MAPS™) for the small satellite market. The compact design of MAPS is a breakthrough in reducing time and cost of integrating the propulsion system with the satellite and launch vehicle by up to 78%. MAPS is a solid, clean-burning propellant array of rocket motors. By using a solid propellant...

Nanoribbons Create on/off Switch for Graphene

A new way to grow narrow ribbons of graphene, a lightweight and strong structure of single-atom-thick carbon atoms linked into hexagons, may address a shortcoming that has prevented the material from achieving its full potential in electronic applications. Graphene nanoribbons, mere billionths of a meter wide, exhibit different electronic properties than two-dimensional sheets of...

Military Sensing

Navy Helicopters Get Hostile Fire, Laser Warning Technology

Navy helicopters are being upgraded with laser fire warnings and sensors designed to detect incoming hostile fire, according to the Navy’s Program Executive Office for Tactical Aircraft (PEO-T). Advanced Threat Warning (ATW) sensors are being added to the Navy’s Large Aircraft Infrared Countermeasures (LAIRCM) System, service officials indicated. The LAIRCM system is currently...

FAA Testing New Drone-Sensing Technology to Avoid Airport Collisions

The tests at Dallas-Fort Worth Airport are the sixth and final in a series of tests around the country evaluating different technologies for drone detection. On Aug. 31, the pilot of an American Airlines Boeing 777 arriving from Hong Kong spotted a white, diamond-shaped drone as the aircraft made its final descent into DFW International Airport. The drone was 100 feet below and 100 feet to...
Non-Lethal Weapons

Emerging Technologies in Law Enforcement

The use of new technologies is imperative if the police are going to stay a step ahead of criminals. Along with advanced software, hardware and communications networks, enforcement and investigative tools are becoming increasingly mobile-centric. The idea is to equip officers with the newest and most agile tools so that they can be readily applied in the field. New tools have been introduced to maximize operating efficiency in recent years. These include in-vehicle computers, body cameras...

U.S. Army Tests Advanced Cyber Weapons

Soldiers at the remote Fort Irwin, Calif., center are training with a new generation of cyber weapons. Turns out, electronic gizmos can make a difference on a real life battlefield. The question is - are they too complicated to use on top of all the other equipment soldiers need in the field? Trainers used some of those new tools such as electronic signals disruption to stop a tank assault. The result was catastrophic. Tank troops had to dismount as simulate fire was reined down upon them –game over...

RMQSI

SPAWAR 3D Ship Scanning Technology

Virtual reality (VR) surrounds the lives of civilians and military members serving the Department of the Navy every day. Whether a person goes to the movie theater, sporting event, theme park or plays video games in the comfort of their home, VR becomes something tangible and real in their lives. Now, the intricacies of VR and virtual environments (VE) are becoming a part of training, shipboard modernization, equipment installations and operational environments facing warfighters today. Last...

Potassium-Ion Battery Concepts for Sustainable Energy Storage

Researchers are making progress in developing rechargeable batteries based on potassium, a potential alternative to lithium that's less expensive and far more plentiful, and also have shown how to derive carbon for battery electrodes from old tires. "With the growth of rechargeable batteries for electronic devices, electric vehicles and power grid applications, there has been...
Survivability & Vulnerability

Saliva Test Predicts Prolonged Concussion Symptoms

Although most of the 3 million concussions diagnosed in the U.S. each year occur in children, the bulk of clinical guidelines are based on adults. Because of this, pediatricians are limited in how accurately they can advise families about how long a child may suffer symptoms such as headaches, fatigue and trouble concentrating that can interfere with school and other activities. New research...

'Space Fabric' Links Fashion & Engineering

Raul Polit-Casillas grew up around fabrics. His mother is a fashion designer in Spain. At a young age, he was intrigued by how materials are used for design. Now, as a systems engineer at NASA’s Jet Propulsion Laboratory, he is still very much in the world of textiles. He and his colleagues are designing advanced woven metal fabrics for use in space. The material is foldable and its shape can change quickly. The fabrics could be used to shield a spacecraft from meteorites, for astronaut spacesuits...

Weapon Systems

New Rifle, Bigger Bullets: Army's Plans for More Lethal Small Arms

After carrying the M16 or one of its cousins for more than half a century, soldiers could eventually get new assault rifles that fire larger and more lethal rounds by 2020. Army researchers are testing half a dozen ammunition variants in “intermediate calibers” between the current 7.62 mm and 5.56 mm rounds. Calibers being tested include the .260 Remington, 6.5 Creedmoor, .264 USA...

Bullets Collapse after Designated Distance, Help Prevent Collateral Damage

Stray-bullet shootings are an often-overlooked consequence of gunfire that can cause collateral damage victims in the military. A novel technology being developed at Purdue University could help prevent these incidents. A research group led by Ernesto Marinero, a professor of materials engineering and electrical and computer engineering has developed novel materials and fabrication...
Announcements & Events

4th Biennial Strike Challenge

Strike Challenge affords industry an opportunity to provide interactive demonstrations of domestic capability (DOMOPS) and specialized response systems. The focus is on man-pack and light mobility support equipment designed for light responder / specialized unit use in emergency response, survivability, security, search and rescue, and ‘special’ operations.

DATE: August 15-17, 2017

ATEDS 2017

The 23rd Advanced Technology Electronic Defense Systems Conference, hosted by NAVSYSCOM PMA272, provides an annual forum between the warfighter, program management and field activities, military research labs, intelligence community, T&E activities, other services and industry to explore use of the EM environment to improve aircraft survivability.

DATE: August 29-30, 2017

Challenge.gov - Long-Term Corrosion Protection of Existing Hydraulic Steel Structures

The Bureau of Reclamation is seeking long term corrosion protection for large, hydraulic steel structures beyond that provided by available coatings and cathodic protection. Of interest are hydroelectric penstock pipes and gates that control or divert water. The goal is fifty years of corrosion protection.

DATE: June 6-September 5, 2017

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