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MIL TECH TRENDS

Rugged, smart military displays and their commercial influence

EMMA HELFRICH, ASSOCIATE EDITOR

Commercial technology must process information quickly, be sleek and compact in its design, offer a high-resolution image, and remain simple in operation.

Rugged military displays must perform similarly but in incredibly harsh environmental conditions. Manufacturers of military technology are using these industry commonalities as inspiration behind the production of their rugged, smart displays.

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EDITOR'S PERSPECTIVE

Old space computers, current podcasts, and new staff

JOHN MCHALE, EDITORIAL DIRECTOR

This summer, two events celebrate 50th anniversaries ? one is significant to the whole world, while the other likely only to two 75-year-olds in Florida. Eight days from this writing, it will be July 20, 2019, marking 50 years since Apollo 11 astronauts Neil Armstrong and Buzz Aldrin landed and walked on the moon. Less than two months after that momentous date, I turn 50. You can guess which one my parents find more important. Both Aldrin and Armstrong are in the Astronaut Hall of Fame down at Cape Canaveral, while I?m in the ?Shoulda, Coulda, Woulda? exhibit. Kidding, of course: That exhibit doesn?t exist ? yet.

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The big data battlefield



RICHARD WHALEY, MERCURY SYSTEMS

Market-intelligence firm IDC predicts that the sum of the world's collective data, estimated at 33 zettabytes currently, will eclipse 175 zettabytes by 2025. That's equivalent to forty billion pounds of common one-terabyte storage disks. Intelligence and military applications rely on massive data pipelines to drive intelligence gathering and mission-critical decision-making. The speed at which the warfighter is able to collect, process, analyze, and understand data directly impacts mission success.

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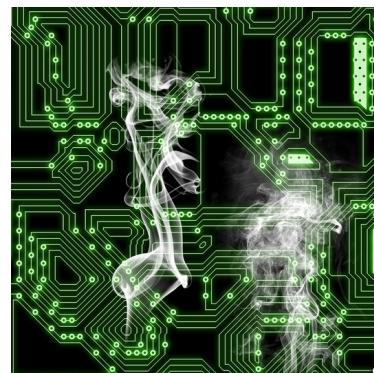
MIL TECH TRENDS

Conduction-cooling advancements complement ultra-compact servers in battle versus excessive heat

CHRIS A CIUFO GENERAL MICRO SYSTEMS

Adding or enhancing new command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) and electronic warfare (EW) technologies in armed forces' tactical ground vehicles has historically been done through a "bolt-on" approach. Communications systems have traditionally been independent, siloed systems that lacked integration, futureproofing and as importantly, economies of size, weight, power, and cost (SWaP-C).

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UNIVERSITY UPDATE

Composite metal foam stops .50-caliber rounds as well as steel

SALLY COLE SENIOR EDITOR

A hard armor system crafted from composite metal foam takes hits as well as conventional steel armor, but at half the weight, a development that could potentially help revolutionize the design of military vehicles by improving their armor protection, without making them heavier.

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MIL TECH INSIDER

Using frameworks in machine learning

TAMMY CARTER CURTISS-WRIGHT DEFENSE SOLUTIONS

A framework is a toolbox for creating, training, and validating deep-learning neural networks. Using a high-level programming API, it hides the complexities of the underlying algorithms to greatly simplify and speed up development. Like deep learning, frameworks are evolving rapidly. This column will focus on frameworks that work with NVIDIA's TensorRT, a tool for deploying high-performance deep neural networks.

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MIL TECH TRENDS

Thermal and rugged considerations for horizontal-mount chassis platforms

JUSTIN MOLL AND JACQUES HOUDÉ, PIXUS TECHNOLOGIES

Horizontal-mount enclosures can be effective solutions in military embedded systems, particularly for smaller systems with thermal-management challenges.

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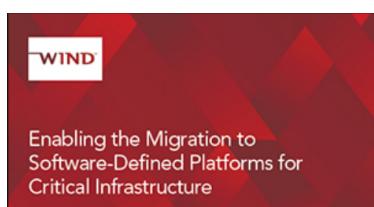


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Enabling the Migration to Software- Defined Platforms for Critical Infrastructure

Embedded systems used in critical infrastructure are undergoing a dramatic evolution. The advent of ubiquitous network connectivity has accelerated innovation of embedded systems at the network edge. And there is a growing need to be able to support the greater intelligence required to transition from automated to autonomous systems.

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Key Considerations for Radar Test

NATIONAL INSTRUMENTS

An armed Humvee is moving at night thru a smoke-filled, urban battlefield. Using multiple displays, the crew has a 360° view that is daylight clear, delivered by an imaging system fusing data from optical, infrared, lidar, and radar sensors.



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COTS, SOSA, and Open Architectures - The New Space Race Podcast

WIND RIVER

Today, multi-national corporations and startups alike are addressing the emerging sector of commercial spacecraft. Known as ?new space,? it is where companies are introducing new designs that propel them at the forefront of technological advancement in areas such as 5G networking and big data imaging.

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Intel Processor-Based Embedded Systems Cybersecurity

AITECH

In the emerging world of embedded systems, as autonomous platforms (UAVs, SUAVs, etc.) are being used for defense and aerospace, there is a growing interest in advanced means to secure these systems and related information from menacing intruders.



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Artificial Intelligence in Software Defined SIGINT Systems

NATIONAL INSTRUMENTS

As wireless protocols grow more complex, spectrum environments become more contested and electronic warfare grows more sophisticated. Read how artificial intelligence and deep learning can be combined with commercial off-the-shelf software defined radio to train algorithms to detect new threats faster, reduce development risk and support burden, and be deployed in SWaP-constrained (size, weight and power) signals intelligence and spectrum monitoring scenarios.

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