ONE OF THE MORE POSITIVE MOVEMENTS IN SOCIETY HAS BEEN THE GROWTH OF ORGANIZATIONS SERVING THEIR INDUSTRY OF INTEREST BY CREATING AN OPEN-SOURCE DEVELOPMENT ENVIRONMENT. FROM SPORTS TO SCIENCE, GRASS-ROOTS GROUPS, CLUBS, AND SOCIETIES HAVE SPRUNG UP TO SERVE THEIR TARGET APPLICATION SPACES. IN THE EMBEDDED ELECTRONIC DESIGN INDUSTRY, ONE OF THOSE AREAS OF INTEREST IS THE LORAWAN COMMUNITY, PRESENTED AS AN OPEN-SOURCE DEVELOPMENT ENVIRONMENT SERVING AN UNLICENSED BAND OF THE RF SPECTRUM.

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Thoughts on Embedded World and a Return to Analog Computing
BRANDON LEWIS, EDITOR-IN-CHIEF, EMBEDDED COMPUTING DESIGN
Embedded World 2020 is right around the corner, and the Insiders spend a few minutes forecasting what they expect to see at the show. Some of the main themes they expect are an increased integration of AI and IoT technologies and smarter edge computing nodes based on those technologies. They then get into a semantic disagreement around what constitutes "the edge" and where AI processing will truly take place.

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DEVELOPMENT TOOLS AND OPERATING SYSTEMS FEATURE
Big Things in Store for Digilent in 2020
MAX MAXFIELD, CONTRIBUTING AUTHOR
Based in Pullman, Washington, Digilent has historically been associated with the academic space. Now, while continuing to support its existing markets, the company is exploring a new frontier with its latest product offering ? the Eclypse Z7, a new open and customizable hardware and software ecosystem.

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AUTOMOTIVE SOFTWARE FEATURE
Reinventing Automotive Software with Model-Based Design
YARYNA MYRKA, CONTRIBUTING AUTHOR
In the model-based design methodology, computer-modeling techniques are used throughout the design process while the code is generated automatically.

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NEURAL NETWORKS FEATURE
The Four Stages of Inference Benchmarking
GEOFF TATE, CEO, FLEX LOGIX
Over the last decade, neural networks have gone from
Interesting research to widely deployed for language translation, key word recognition, and object recognition.

EMBEDDED GUI FEATURE
Extending the Life of Your Embedded GUI
JASON CLARKE, CO-FOUNDER AND VP OF SALES AND MARKETING, CRANK SOFTWARE

Ask any embedded GUI developer or designer about re-building your product?s user interface, and you?ll probably be met with groans. Creating user interfaces can be a long, laborious process and replacing them is usually something you want to do as infrequently as possible. This is true even considering best practices like using embedded software tools that enable simple screen design or coding practices that enforce cleanly separated business logic.

EMBEDDED EXECUTIVES PODCAST
Joseph Notaro, VP, WW Automotive Strategy, Business Development ON Semiconductor
RICH NASS, VICE PRESIDENT, OPENSYSTEMS MEDIA

The electrification of the automobile is an amazing phenomenon. Things that were in the super luxury cars a few years ago are now mainstream. To understand what?s next in the automobile, I had a conversation with Joseph Notaro the Vice President of Worldwide Automotive Strategy and Business Development for ON Semiconductor in this week?s Embedded Executives podcast.

ARTIFICIAL INTELLIGENCE FEATURE
How Increasing Power and Advanced Cooling Techniques Are Converging for AI, Supercomputing and Cloud Data Centers
ROBERT GENDRON, CORPORATE VICE PRESIDENT, PRODUCT MARKETING & TECHNICAL RESOURCES AT VICOR CORPORATION

2019 afforded us numerous forums to connect with customers and industry innovators in the computing domain, featuring events including the inaugural AI Hardware Summit and Supercomputing 2019 (SC19), alongside datacenter-focused events like the Open Compute
While studying at MIT, Claude Shannon, widely regarded as "the father of information theory," worked extensively with the Differential Analyzer developed a decade earlier. The Differential Analyzer was essentially the first general-purpose analog computer, and Shannon's experience with the machine would have a seminal influence on later works such as A Mathematical Theory of Communication.

Enclustra GmbH
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Extreme Engineering Solutions' XPedite2500 is a Xilinx Kintex? UltraScale? FPGA-Based Conduction- or Air-Cooled XMC Module

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Think Local: How to Migrate Intelligence from the Cloud to Embedded Devices at the Edge

ARM

For the rapidly expanding Internet of Things, ?Think Local, Act Global? is a guiding principle. Traditionally, decision making has been concentrated in the cloud, at the center, moving all the data and intelligence inwards. This places huge strain on the technical and commercial model of the network.

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C and C++ Software Testing ? Am I Covered?

QA SYSTEMS

This Whitepaper looks at the various applications of the term ?coverage? in the software development industry for software written in C and C++. We look at the industry definitions of the terms, applications of the techniques in various software standards and some challenges for measuring coverage you may not have considered.

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How to do Machine Learning on Arm Cortex-M Microcontrollers

ARM

Machine learning (ML) algorithms are moving processing to the IoT device due to challenges with latency, power consumption, cost, network, bandwidth, reliability, security, and more. As a result, interest is growing in developing neural network (NN) solutions to deploy ML on low-power IoT devices, for example with microcontrollers powered by proven Arm Cortex-M technology.

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Getting Executive Attention and Support for Predictive Maintenance
In this brief, Ralph Rio — Vice President at ARC Advisory Group, discusses the importance of getting business executive attention (and support) for predictive maintenance programs. Just because technology is “cool” doesn’t mean it can help turn profit.

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How to reduce the bill of material costs with digital signal processing

ARM

The need to decrease the bill of material (BOM) costs in embedded products is being driven by the need for high volume, low-cost sensor systems. As IoT devices become more sophisticated, they require developers to utilize digital signal processing (DSP) to handle more features within the product, such as device provisioning.

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