



NXP Owns the Stage for Machine Learning in Edge Devices

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Highlights:

- Launches NXP edge intelligence environment (eIQ), a comprehensive machine learning (ML) toolkit with support for TensorFlow Lite, Caffe2, and other neural network frameworks, plus non-neural ML algorithms
- Introduces turnkey integrated ML solutions for voice, vision and anomaly detection applications, including data acquisition, trained models, with user feature customization
- Expanding NXP EdgeScale with secure device on-boarding, provisioning, and container management of ML applications targeting i.MX and Layerscape applications processors

SAN JOSE, Calif. and BARCELONA, Spain, Oct. 16, 2018 (GLOBE NEWSWIRE) -- **(ARMTECHCON and IoT World Congress Barcelona)** – Mathematical advances that are driving the historic growth of machine learning (ML) in the cloud are now within reach of edge node developers with NXP's eIQ edge intelligence software environment and customizable, system-level solutions for focused applications.

The eIQ software environment includes the tools necessary to structure and optimize cloud-trained ML models to efficiently run in resource-constrained edge devices for a broad range of industrial, Internet-of-Things (IoT), and automotive applications. The turnkey, production-ready solutions are specifically targeted for voice, vision, and anomaly detection applications. By removing the heavy investment necessary to become ML experts, NXP enables tens of thousands of customers whose products need machine learning capability.

"Having long recognized that processing at the edge node is really the driver for customer adoption of machine learning, we created scalable ML solutions and eIQ tools, to make transferring artificial intelligence capabilities from the cloud-to-the-edge even more accessible and easy to use," said Geoff Lees, senior vice president and general manager of microcontrollers.

With support for NXP's full microcontroller (MCU) and applications processor product line, eIQ provides the building blocks that developers need to implement ML in edge devices. Keeping pace with ML's changing landscape, NXP eIQ is continuously expanding to include: data acquisition and curation tools; model conversion for a wide range of neural net (NN) frameworks and inference engines, such as, TensorFlow Lite, Caffe2, CNTK, and Arm® NN; support for emerging NN compilers like GLOW and XLA; classical ML algorithms (e.g. support vector machine and random forest); and tools to deploy the models for heterogeneous processing on NXP embedded processors.

NXP also recently introduced a software infrastructure called EdgeScale to unify how data is collected, curated, and processed at the edge, with focus on enabling ML applications. EdgeScale enables seamless integration to cloud-based artificial intelligence (AI) / ML services and deployment of cloud-trained models and inferencing engines on all NXP devices, from low-cost MCUs to high-performance i.MX and Layerscape applications processors.

Building on the eIQ environment, the company introduced turnkey solutions for edge-based learning and local execution of vision, voice, and anomaly detection models. These system-level solutions provide the hardware and software necessary for building fully functional applications, while allowing customers to add their own differentiation. The solutions are modular, making it easy for customers to expand functionality of their products with a simple plug-in. For example, a voice recognition module can be easily added to a product that has NXP's vision recognition solution. This week at **IoT World Congress in Barcelona**, NXP is demonstrating real-world applications incorporating these capabilities – attendees will experience a simulated factory floor that uses drones and includes sub-systems for facial recognition for operator access, object recognition for operator safety, local voice control commands, and anomaly detection for predicting failures in drone operation. The demonstrations will take place in the NXP Booth #261 located in the Gran Via – Hall 2, Street B, Level 0.

NXP at ArmTechCon

NXP will demonstrate its [latest edge compute offerings at ArmTechCon](#) this week. The versatility of eIQ tools and ML applications applied to NXP's breadth of embedded processing portfolio will be highlighted in Booth #620 and the automotive pavilion.

- Cascaded Learning: facial recognition training on high-performance i.MX 8QM and deployment of extracted inference engines on mid-range i.MX 8QXP and i.MX 8M applications processors using secure docker containers.
- MCU-level Industry 4.0 ML applications: CMSIS-NN performance benchmarking using CIFAR-10 on just-announced [LPC5500 MCUs](#) and anomaly detection with classical machine learning techniques using Cortex-M4F based Kinetis MCUs.
- Localized voice and vision ML applications, featuring:
 - Just-announced [i.MX RT600 crossover processor](#) leveraging its integrated DSP, security and ultra-low power operation
 - Voice-enabled solution for localized wake word and end-user programmable voice control experience also using i.MX RT1050 crossover processor
 - Vision solutions enabled by [Au-Zone](#) DeepView ML Kit: food-recognition using i.MX 8QM implemented in a microwave oven and traffic sign recognition using low-cost i.MX RT 1050 crossover processor.

About NXP Semiconductors

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