STMicroelectronics Drives AI to Edge and Node Embedded Devices with STM32 Neural-Network Developer Toolbox

❖ *STM32Cube.AI extension of popular STM32CubeMX software tool generates optimized code to run neural networks on STM32 microcontrollers (MCUs)*

❖ *STM32Cube.AI comes together with ready-to-use software function packs containing code examples for human activity recognition and audio scene classification that are immediately usable with ST reference sensor board and mobile app*

❖ *Developer support provided through qualified partners inside ST Partner Program and dedicated AI/ML STM32 community*

Geneva, January 3, 2019 – Leveraging the industry-leading position of its STM32 family of microcontrollers, STMicroelectronics (NYSE: STM), a global semiconductor leader serving customers across the spectrum of electronics applications, has extended the associated STM32CubeMX ecosystem for product developers, adding advanced Artificial Intelligence (AI) features.

AI uses trained artificial neural networks to classify data signals from motion and vibration sensors, environmental sensors, microphones and image sensors, more quickly and efficiently than conventional handcrafted signal processing.

"*ST's new neural-network developer toolbox is bringing AI to microcontroller-powered intelligent devices at the edge, on the nodes, and to deeply embedded devices across IoT, smart building, industrial, and medical applications,*" said Claude Dardanne, President, Microcontrollers and Digital ICs Group, STMicroelectronics.

With STM32Cube.AI, developers can now convert pre-trained neural networks into C-code that calls functions in optimized libraries that can run on STM32 MCUs.

STM32Cube.AI comes together with ready-to-use software function packs that include example code for human activity recognition and audio scene classification. These code examples are immediately usable with the ST SensorTile reference board and the ST BLE Sensor mobile app.

Additional support such as engineering services is available for developers through qualified partners inside the ST Partner Program and the dedicated AI & Machine Learning (ML) STM32 online community.

ST will demonstrate applications developed using STM32Cube.AI running on STM32 microcontrollers in a private suite at CES, the Consumer Electronics Show, in Las Vegas, January 8-12, 2019.

Further Technical Information:

The STM32Cube.AI extension pack (part number: X-Cube-AI) can be downloaded inside ST's STM32CubeMX MCU configuration and software code-generation ecosystem.

Today, the tool supports Caffe, Keras (with TensorFlow backend), Lasagne, ConvnetJS frameworks and IDEs including those from Keil, IAR, and System Workbench.

The FP-AI-SENSING1 software function pack provides examples of code to support end-to-end motion (human-activity recognition) and audio (audio-scene classification) applications based on neural networks. This function pack leverages ST's SensorTile reference board to capture and label the sensor data before the training process. The board can then run inferences of the optimized neural network.

The ST BLE Sensor mobile app acts as the SensorTile's remote control and display.

The comprehensive toolbox consisting of the STM32Cube.AI mapping tool, application software examples running on small-form-factor, battery-powered SensorTile hardware, together with the partner program and dedicated community support offers a fast and easy path to neural-network implementation on STM32 devices.

For more information please visit www.st.com/STM32CubeAI.

For more information on the dedicated AI/ML Community please visit STM32 online community.

To apply to the AI/ML ST Partner Program please visit ST Partner Program.

Don't miss the latest blogpost on STM32 neural-network toolset at https://blog.st.com/stm32cubeai-neural-networks/.

About STMicroelectronics
ST is a global semiconductor leader delivering intelligent and energy-efficient products and solutions that power the electronics at the heart of everyday life. ST's products are found everywhere today, and together with our customers, we are enabling smarter driving and smarter factories, cities and homes, along with the next generation of mobile and Internet of Things devices.

By getting more from technology to get more from life, ST stands for life.augmented.

In 2017, the Company's net revenues were $8.35 billion, serving more than 100,000 customers worldwide. Further information can be found at www.st.com.

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