



# IT IS INNOVATION

MARCH/APRIL 2020

**REINVENTING  
BLOCKCHAIN  
AT CES 2020**

**CARTECH  
ROUNDUP**

**DIGITAL  
HEALTH**

**CHAIRMAN,  
ADVERTISING AND  
PARTNERSHIPS,  
NBCUNIVERSAL**

# Linda Yaccarino

Leading a tech transformation at one  
of the world's top media companies

Consumer  
Technology  
Association



**TECH TACTICS**

# Artificial Intelligence: A Hot Topic at CES 2020

**T**he hottest topic at CES, in my opinion, was artificial intelligence (AI). AI chips will add intelligence into billions of smart devices in the coming years. These devices will be at the edge — meaning that they’ll work without having to be connected to the cloud or a data center.

Syntiant won a CES 2020 Best of Innovation Award for its NDP100 Processor. It is the first chip to put machine learning processing into almost any consumer device. The chip only draws 150 microwatts of power and is so tiny it can be embedded in a hearing aid. What’s the benefit? At a noisy party, the AI chip can distinguish which voices are in conversation with the hearing aid wearer and amplify them while quietening the background noise.

We know about CPUs (central processing unit) from PCs, and GPUs (graphics processing units) from graphics, gaming and now blockchain applications and crypto mining. Now we are going to see a dramatic rise of NPUs — neural processing units. Syntiant’s NDP100 is one of these.

Duncan Stewart is director of research at Deloitte for TMT (Technology, Media and Telecommunications). At Deloitte’s TMT Predictions 2020, Duncan predicted that AI chips at the edge are poised for explosive growth. In 2020 a staggering 750 million AI edge chips will be sold and that will more than double to 1.6 billion by 2024. More than 60% of these — a billion chips — will be embedded in our smartphones making them even more intelligent.

AI chips are already embedded in our smartphones, but the new generation of NPUs are smaller, faster, cheaper and consume less power. Duncan ripped open the most popular smartphones and

measured the entire area of the chipsets, then calculated the area of the NPU to estimate the cost. He says the NPU in a Samsung smartphone costs about \$3.50. It’s \$3 on Apple’s A13 Bionic chip and only \$1.10 for Huawei’s Kirin 970.

These AI chips are getting so cheap (less than \$1 in volume) that they will soon be embedded in all sorts of devices, including your stove. Imagine you are holding a hot pie you’ve just taken out of the oven. Soon you’ll be able to say, “Oven turn off” without your stove needing a Wi-Fi connection to the internet (that’s the edge part).

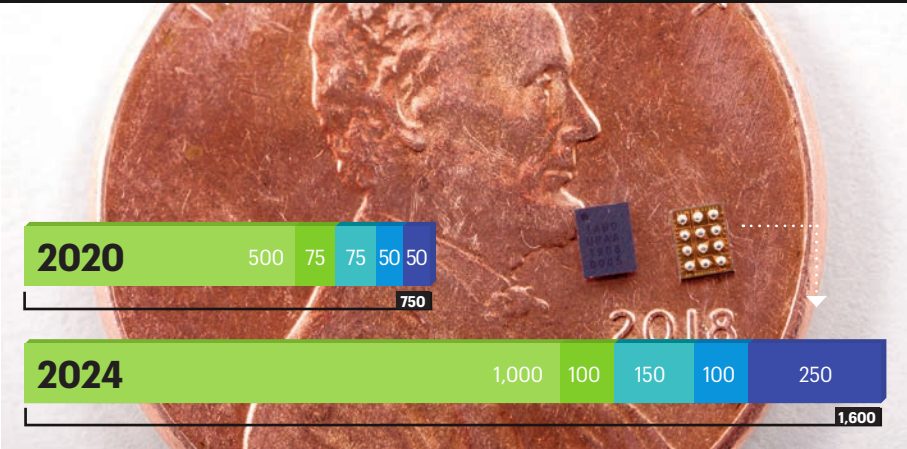
## AI and TVs

AI is also embedded in a new line-up of amazing 8K TVs that were shown at CES. These TVs have AI chips and powerful GPUs, that can upscale HD and 4K content in real-time. These chips are so powerful and the resulting images so crisp that you’d think the footage had been shot in 8K. The average size of TVs in North America is increasing, driven by the sales of large TVs of 70-inches and above. At this size you can see the huge difference that 8K makes, with 33 million pixels each individually lighting up for crisp, clear images.

The explosion of AI edge chips being embedded in most of our digital devices will make them smarter — unlocking new value for consumers. ■

*Jim Harris is the author of Blindsided, which focuses on disruptive innovation. Follow him on Twitter @JimHarris*

**▶ THE EDGE AI CHIP INDUSTRY IS POISED FOR GROWTH**  
Edge AI chips by device, 2020 and 2024 (millions of units)



Smartphone Tablet Speaker Wearable Enterprise Edge

SOURCES: MarketsandMarkets, Edge AI hardware market by device (smartphones, cameras, robots, automobiles, smart speakers, wearables, and smart mirrors), processor (CPU, GPU, ASIC, and others), power consumption, process, end user industry, and region—global forecast to 2024, April 4, 2019; Deloitte analysis.