What Entrepreneurs Need to Know About Facial Recognition Technology



The opportunities are intriguing, as long as ethical concerns are managed appropriately.

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As the Fourth Industrial Revolution unfolds with billions of people sharing a wide and deep array of data – texts, tweets, GPS coordinates, all manner of photos, videos, environmental data, clickstreams, status updates, likes and reposts, pumping trillions of real-time signals into the digital universe – what does the future hold? This data is like food for the whale of artificial intelligence.

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In terms of a resource, this AI-food-rich data ocean makes the California gold rush, or the Texas oil boom, seem like tiny puddles. Vast amounts of data are flooding the digital space on a global level. AI-based algorithms will be propelling innovation in every sales arena from products to services and the more data you have, the more accurate the algorithm. Collecting and processing "big data" has become a focus for companies large and small.

And how does the AI whale digest this data? Through interconnected devices with embedded "eyes." Termed "deep learning," these artificial neural networks use layered machine learning algorithms that mimic the structure of animal brains. Utilizing gigantic data pools, deep learning can identify and interpret complex patterns much in the same way as the human brain. Some artificial neural networks are now extremely adept at employing these patterns to mimic the way humans recognize faces.

So, which company is in front of the deep learning fleet? Facebook, of course. Facebook holds the single largest collection of facial data, and in 2015 it introduced a greatly enhanced version of its "tag photos" feature, DeepFace, which employs a nine-layer neural network that matches features in separate photographs with 97.25 percent accuracy. DeepFace not only connects your face with your name, but it can literally pick your face out of a crowd, and a human brain is only .28 percent better at this than the program. Facebook has invested big-time in DeepFace, spending billions of dollars devouring the competition (including Face.com, Masquerade and Faciometrics).

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Recently Facebook was granted a new patent, “Techniques for emotion detection and content delivery,” which captures users’ facial expressions via the camera in real time as they scroll through their feed, tracking their emotions when exposed to various content. This emotional data could not only personalize your Facebook feed at a whole new level, but could also link to live in-store cameras, matching and identifying shoppers, calling up information gleaned from Facebook and identifying the shopper’s current moods. Your shopper is sad today? Why not play her favorite song as she approaches the shoe rack?

The possibilities for a radically personalized shopping experience are endless. And despite its dominance, Facebook is far from the only company plunging into these waters. Ebookers, a travel site owned by Expedia, has introduced a tool called SenseSational, which uses real-time facial recognition software to track users’ faces as they choose images and sounds that are most appealing to their senses. The tool then sorts the user into one of four “tribes”: The Adventurer, Culture Collector, Sun Seeker and Bon Vivant. And it suggests destinations and activities that match their tribe’s travel preferences.

Singapore Technologies Electronics is now promoting its Advance Fare Gate System to private and public transportation organizations. This product identifies the facial features of commuters as they pass through fare gates, and charges a prepaid account accordingly, eliminating the need to show a fare card, and potentially easing crowding during busy rush hours.

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As the bounty of AI expands before us, many tech giants, scientists and entrepreneurs say that now is the time to discuss the potential challenges and consequences of this new

frontier. Facebook has already faced resistance to DeepFace on several fronts – a lawsuit and bans in Europe. Privacy concerns abound. If Facebook can watch you when you scroll your feed, can it watch you while you look at other sites? Or while you move around your home? Does collecting data straight from a camera require consent? Where is the data stored, and who can access it?

What about civil liberties? Could facial recognition be used to identify someone participating in a lawful protest? In the wrong hands, could artificial intelligence and deep learning turn our society into a sci-fi dystopia? One thing is certain – those questions will not vanish and businesses and developers will have to navigate them as they chart these new waters.

In the right hands, however, facial recognition can be put to good use. Be it ethical, such as the Central Railway in Mumbai, which has announced it will implement cameras with facial recognition by the end of the year to trace past movements of criminal offenders and be prepared to arrest them when they travel again; or to improve customer service, as when candy retailer Lolli&Pops uses in store cameras to recognize members and connect them with a profile, so that sales associates can greet them by name and provide them with personalized product suggestions.

Leaving the dialogue open for ethical debate, companies can approach deep learning from any angle they can envision. The whale of artificial intelligence is hungry. You can feed it whatever big data you wish, and watch it grow.

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