
Potential Breakthroughs for Gesture Recognition with New Algorithm, Capacitive Sensor

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Gesture recognition technology is advancing with new developments in both software and hardware for touchless digital interactions.

A new algorithm for recognizing hand gestures has been developed by a team of researchers at [Sun Yat-sen University](#) in Guangzhou in an attempt to overcome the high computational burden, low speed and accuracy and limited number of recognizable gestures, Unite.AI reports.

The team, led by Zhiyi Yu, published a paper describing its hand gesture recognition algorithm “for efficient edge computing” in the [Journal of Electronic Imaging](#). The algorithm is intended to enable the deployment of gesture recognition to consumer devices, with nine gestures identifiable by the software.

Legacy algorithms cannot interpret different shapes of hands, Yu says, so the team programmed the algorithm to begin by classifying a presented hand as slim, normal or broad. A prerecognition step then calculates a ratio of the hand’s area to select the three most likely from among the nine total gestures.

“The gesture prerecognition step not only reduces the number of calculations and hardware resources required but also improves recognition speed without compromising accuracy,” Yu tells Unite.AI.

The resulting algorithm has shown real-time accuracy of up to 94 percent.

Capacitive sensor innovation

Nanotechnology sensor designer Somalytics Inc. says it has developed a capacitive sensor which is the world’s smallest capable of gesture recognition for use in digital interfaces,

wellness monitoring and safety applications.

The sensors are based on a 1mm paper composed of carbon nanotubes, according to the announcement.

The SomaControl gesture monitor and SomaSense flexible 3D-sensing floor mat are on display at the Consumer Electronics Show (CES) in Las Vegas this week. The CES demonstrations will cover gesture control of LED lights, control of a computer through gesture, and monitoring of data like gait and foot pressure.

The carbon-nanotube paper composite (CPC) sensors are 100 times smaller and 10 times faster than existing capacitive sensors, says the startup, which was spun out of CoMotion at the University of Washington with the support of an investment from IP Group Inc. The sensors can detect the presence of a person from 20 centimeters away.

Somalytics CEO Barbara Barclay says the capacitive sensors have extensive potential applications in improved eye-tracking.

“Somalytics’ sensors will open an entire new era for wearable eye tracking because the sensors are not camera based and there is no illumination of the eye required,” says Barclay, who according to the announcement is a recognized international expert in eye tracking technology. “The processing speed is under three milliseconds, and the sampling rate is 10 times faster than best-in-class existing technologies. With Somalytics’ sensors, eye tracking will evolve to accomplish the ‘real feel’ and ‘real-time eye to eye’ experience for which augmented and virtual reality users have long waited.”

Read the [original article](#) on Biometric Update.